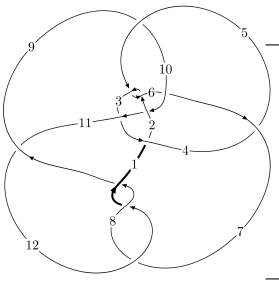
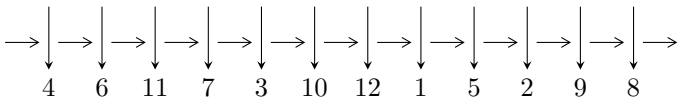
$12a_{0973}$ $(K12a_{0973})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle -2.35250 \times 10^{19} u^{68} + 1.52019 \times 10^{20} u^{67} + \cdots + 7.20665 \times 10^{16} b - 1.45619 \times 10^{20},$
$1.63550 \times 10^{20} u^{68} - 1.16390 \times 10^{21} u^{67} + \cdots + 7.20665 \times 10^{17} a + 1.58514 \times 10^{21},\ u^{69} - 8u^{68} + \cdots - 10u -$
$I_2^u = \langle -418u^{41}a + 4923u^{41} + \cdots + 678a + 3495,\ -9u^{41}a + 5u^{41} + \cdots - 7a - 7,\ u^{42} + 3u^{41} + \cdots + 5u^2 + 1 \rangle$
$I_3^u = \langle -49u^{27} - 179u^{26} + \cdots + b + 73,\ -49u^{27} - 157u^{26} + \cdots + 2a + 45,\ u^{28} + 5u^{27} + \cdots + 5u - 2 \rangle$
$I_4^u = \langle b + a + 1,\ a^2 + 2a + 2,\ u - 1 \rangle$
$I_5^u = \langle b^2 + 1,\ a - 1,\ u - 1 \rangle$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 185 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. $\boldsymbol{I_1^u = \langle -2.35 \times 10^{19} u^{68} + 1.52 \times 10^{20} u^{67} + \cdots + 7.21 \times 10^{16} b - 1.46 \times 10^{20},\ 1.64 \times 10^{20} u^{68} - 1.16 \times 10^{21} u^{67} + \cdots + 7.21 \times 10^{17} a + 1.59 \times 10^{21},\ u^{69} - 8u^{68} + \cdots - 10u - 10 \rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -226.943u^{68} + 1615.04u^{67} + \cdots - 4182.43u - 2199.55 \\ 326.435u^{68} - 2109.42u^{67} + \cdots + 3194.47u + 2020.62 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -82.8459u^{68} + 525.174u^{67} + \cdots - 606.720u - 434.740 \\ -47.5032u^{68} + 340.802u^{67} + \cdots - 867.752u - 464.686 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 99.4919u^{68} - 494.382u^{67} + \cdots - 987.960u - 178.938 \\ 326.435u^{68} - 2109.42u^{67} + \cdots + 3194.47u + 2020.62 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.48706u^{68} - 116.531u^{67} + \cdots + 1591.68u + 652.740 \\ -237.970u^{68} + 1506.76u^{67} + \cdots - 2016.02u - 1339.41 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -140.563u^{68} + 954.919u^{67} + \cdots - 1924.02u - 1096.13 \\ 92.3884u^{68} - 582.486u^{67} + \cdots + 701.122u + 490.867 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -132.795u^{68} + 982.255u^{67} + \cdots - 2956.37u - 1491.42 \\ 189.880u^{68} - 1202.66u^{67} + \cdots + 1575.95u + 1056.73 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{66317713337372322259}{72066517868837587}u^{68} - \frac{395960086414396085656}{72066517868837587}u^{67} + \cdots + \frac{214616945799686719930}{72066517868837587}u + \frac{234050075169388786136}{72066517868837587}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{69} - 2u^{68} + \cdots + 15u + 2$
c_2, c_5	$u^{69} - 17u^{68} + \cdots - 2616u + 178$
c_3, c_9	$u^{69} - u^{68} + \cdots + 65u + 7$
c_6, c_{10}	$u^{69} + u^{68} + \cdots + 4u + 1$
c_7, c_8, c_{12}	$u^{69} + 8u^{68} + \cdots - 10u + 10$
c_{11}	$u^{69} - 24u^{68} + \cdots - 55370u + 3680$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{69} + 34y^{68} + \cdots - 423y - 4$
c_2, c_5	$y^{69} + 37y^{68} + \cdots + 290564y - 31684$
c_3, c_9	$y^{69} - y^{68} + \cdots + 487y - 49$
c_6, c_{10}	$y^{69} + 41y^{68} + \cdots - 114y - 1$
c_7, c_8, c_{12}	$y^{69} - 64y^{68} + \cdots - 480y - 100$
c_{11}	$y^{69} - 24y^{67} + \cdots - 28395420y - 13542400$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.868440+0.483662I$ $a=-0.912537-0.457992I$ $b=\ \ 0.78037+1.18617I$	$3.92123-10.99340I$	0
$u=-0.868440-0.483662I$ $a=-0.912537+0.457992I$ $b=\ \ 0.78037-1.18617I$	$3.92123+10.99340I$	0
$u=-1.004670+0.238764I$ $a=-0.594983-0.585884I$ $b=\ \ 0.69863+1.27589I$	$5.06148-0.24659I$	0
$u=-1.004670-0.238764I$ $a=-0.594983+0.585884I$ $b=\ \ 0.69863-1.27589I$	$5.06148+0.24659I$	0
$u=-1.012040+0.304922I$ $a=-0.039969-0.686585I$ $b=-0.302198+1.079960I$	$0.82632+4.88400I$	0
$u=-1.012040-0.304922I$ $a=-0.039969+0.686585I$ $b=-0.302198-1.079960I$	$0.82632-4.88400I$	0
$u=-0.796032+0.401340I$ $a=\ \ 0.849185+0.332533I$ $b=-0.747119-1.175180I$	$0.24939-5.31755I$	0
$u=-0.796032-0.401340I$ $a=\ \ 0.849185-0.332533I$ $b=-0.747119+1.175180I$	$0.24939+5.31755I$	0
$u=-0.159321+0.873285I$ $a=-0.645247-1.002530I$ $b=\ \ 0.075891+0.782690I$	$7.17042-4.82412I$	0
$u=-0.159321-0.873285I$ $a=-0.645247+1.002530I$ $b=\ \ 0.075891-0.782690I$	$7.17042+4.82412I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.016060+0.469890I$ $a=\ \ 0.023007+0.712554I$ $b=\ \ 0.343919-0.941847I$	$4.51207+9.58162I$	0
$u=-1.016060-0.469890I$ $a=\ \ 0.023007-0.712554I$ $b=\ \ 0.343919+0.941847I$	$4.51207-9.58162I$	0
$u=-0.266486+0.813768I$ $a=-0.12465+2.28012I$ $b=\ \ 0.93383-1.32092I$	$5.8290+15.5826I$	0
$u=-0.266486-0.813768I$ $a=-0.12465-2.28012I$ $b=\ \ 0.93383+1.32092I$	$5.8290-15.5826I$	0
$u=-0.264240+0.767756I$ $a=\ \ 0.02698-2.34538I$ $b=-0.94752+1.33761I$	$2.02592+9.53444I$	$-12.0000-8.2979I$
$u=-0.264240-0.767756I$ $a=\ \ 0.02698+2.34538I$ $b=-0.94752-1.33761I$	$2.02592-9.53444I$	$-12.0000+8.2979I$
$u=\ \ 0.735812+0.309797I$ $a=\ \ 0.358081-0.648381I$ $b=-0.027915+0.183287I$	$-0.229732-0.511314I$	$-12.00000+3.02569I$
$u=\ \ 0.735812-0.309797I$ $a=\ \ 0.358081+0.648381I$ $b=-0.027915-0.183287I$	$-0.229732+0.511314I$	$-12.00000-3.02569I$
$u=-0.327216+0.726908I$ $a=-1.08381-1.03727I$ $b=\ \ 0.163298+1.101030I$	$5.83717+3.57229I$	$-3.24235-4.34300I$
$u=-0.327216-0.726908I$ $a=-1.08381+1.03727I$ $b=\ \ 0.163298-1.101030I$	$5.83717-3.57229I$	$-3.24235+4.34300I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.182202+0.731968I$ $a=-0.12259+2.51031I$ $b=\ \ 0.97825-1.25630I$	$7.52448+3.97074I$	$-2.97605-4.37299I$
$u=-0.182202-0.731968I$ $a=-0.12259-2.51031I$ $b=\ \ 0.97825+1.25630I$	$7.52448-3.97074I$	$-2.97605+4.37299I$
$u=-0.141810+0.727491I$ $a=\ \ 0.73975+1.29757I$ $b=\ \ 0.071157-0.902395I$	$3.49350-1.03541I$	$-6.28419+1.98961I$
$u=-0.141810-0.727491I$ $a=\ \ 0.73975-1.29757I$ $b=\ \ 0.071157+0.902395I$	$3.49350+1.03541I$	$-6.28419-1.98961I$
$u=\ \ 1.258590+0.214133I$ $a=-1.82559+0.64253I$ $b=-0.614542-0.851057I$	$1.09011-2.55626I$	0
$u=\ \ 1.258590-0.214133I$ $a=-1.82559-0.64253I$ $b=-0.614542+0.851057I$	$1.09011+2.55626I$	0
$u=-0.619514+0.334758I$ $a=\ \ 0.442106+0.621239I$ $b=\ \ 0.453459-1.081140I$	$4.61730+0.35259I$	$-6.07447-2.03240I$
$u=-0.619514-0.334758I$ $a=\ \ 0.442106-0.621239I$ $b=\ \ 0.453459+1.081140I$	$4.61730-0.35259I$	$-6.07447+2.03240I$
$u=\ \ 1.308440+0.052584I$ $a=\ \ 0.813935-0.965678I$ $b=\ \ 0.741809-0.425202I$	$-0.676833+0.903361I$	0
$u=\ \ 1.308440-0.052584I$ $a=\ \ 0.813935+0.965678I$ $b=\ \ 0.741809+0.425202I$	$-0.676833-0.903361I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.213372 + 0.647007I$ $a = -0.187195 + 1.175120I$ $b = 0.239512 - 0.446632I$	$1.48768 - 2.82752I$	$-10.61297 + 4.54088I$
$u = 0.213372 - 0.647007I$ $a = -0.187195 - 1.175120I$ $b = 0.239512 + 0.446632I$	$1.48768 + 2.82752I$	$-10.61297 - 4.54088I$
$u = -1.313940 + 0.185825I$ $a = -0.263962 - 0.957942I$ $b = 0.23798 + 1.42678I$	$-0.28087 + 2.43912I$	0
$u = -1.313940 - 0.185825I$ $a = -0.263962 + 0.957942I$ $b = 0.23798 - 1.42678I$	$-0.28087 - 2.43912I$	0
$u = -1.331810 + 0.141866I$ $a = 0.525861 + 0.460107I$ $b = -0.711505 - 0.727008I$	$-5.25079 + 0.90513I$	0
$u = -1.331810 - 0.141866I$ $a = 0.525861 - 0.460107I$ $b = -0.711505 + 0.727008I$	$-5.25079 - 0.90513I$	0
$u = -1.322150 + 0.239265I$ $a = 0.416981 + 0.944061I$ $b = -0.42035 - 1.41450I$	$0.42998 + 3.50686I$	0
$u = -1.322150 - 0.239265I$ $a = 0.416981 - 0.944061I$ $b = -0.42035 + 1.41450I$	$0.42998 - 3.50686I$	0
$u = 1.329770 + 0.262879I$ $a = 1.009020 - 0.474295I$ $b = 0.425069 + 0.714282I$	$-1.11700 - 2.51905I$	0
$u = 1.329770 - 0.262879I$ $a = 1.009020 + 0.474295I$ $b = 0.425069 - 0.714282I$	$-1.11700 + 2.51905I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.357270 + 0.206241I$ $a = -0.96898 + 1.56134I$ $b = -1.53669 - 0.35028I$	$-6.20600 - 3.52848I$	0
$u = 1.357270 - 0.206241I$ $a = -0.96898 - 1.56134I$ $b = -1.53669 + 0.35028I$	$-6.20600 + 3.52848I$	0
$u = 0.057222 + 0.613921I$ $a = -0.45083 - 2.67794I$ $b = -0.445910 + 1.147090I$	$4.79032 - 0.41441I$	$-3.11636 - 0.63359I$
$u = 0.057222 - 0.613921I$ $a = -0.45083 + 2.67794I$ $b = -0.445910 - 1.147090I$	$4.79032 + 0.41441I$	$-3.11636 + 0.63359I$
$u = -1.372270 + 0.256005I$ $a = -0.258911 - 0.504237I$ $b = 0.273541 + 0.740903I$	$-3.52844 + 6.11839I$	0
$u = -1.372270 - 0.256005I$ $a = -0.258911 + 0.504237I$ $b = 0.273541 - 0.740903I$	$-3.52844 - 6.11839I$	0
$u = 1.337860 + 0.400221I$ $a = -0.675739 + 0.414936I$ $b = -0.119834 - 0.582435I$	$2.48250 + 0.25666I$	0
$u = 1.337860 - 0.400221I$ $a = -0.675739 - 0.414936I$ $b = -0.119834 + 0.582435I$	$2.48250 - 0.25666I$	0
$u = 1.368320 + 0.296862I$ $a = 1.36824 - 1.41998I$ $b = 1.15446 + 1.21553I$	$2.61702 - 7.69609I$	0
$u = 1.368320 - 0.296862I$ $a = 1.36824 + 1.41998I$ $b = 1.15446 - 1.21553I$	$2.61702 + 7.69609I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.395000 + 0.217224I$ $a = 1.024710 - 0.262655I$ $b = 0.511787 + 0.937399I$	$-0.96256 - 2.32589I$	0
$u = 1.395000 - 0.217224I$ $a = 1.024710 + 0.262655I$ $b = 0.511787 - 0.937399I$	$-0.96256 + 2.32589I$	0
$u = 1.41152 + 0.30993I$ $a = -1.25640 + 1.29535I$ $b = -1.10256 - 1.36810I$	$-3.30905 - 13.44170I$	0
$u = 1.41152 - 0.30993I$ $a = -1.25640 - 1.29535I$ $b = -1.10256 + 1.36810I$	$-3.30905 + 13.44170I$	0
$u = 1.41855 + 0.33131I$ $a = 1.15404 - 1.34303I$ $b = 1.06498 + 1.35771I$	$0.4669 - 19.7231I$	0
$u = 1.41855 - 0.33131I$ $a = 1.15404 + 1.34303I$ $b = 1.06498 - 1.35771I$	$0.4669 + 19.7231I$	0
$u = 1.47390 + 0.05110I$ $a = -0.222152 + 0.497540I$ $b = -0.921224 + 0.764166I$	$-6.98532 + 4.23874I$	0
$u = 1.47390 - 0.05110I$ $a = -0.222152 - 0.497540I$ $b = -0.921224 - 0.764166I$	$-6.98532 - 4.23874I$	0
$u = 1.44914 + 0.29118I$ $a = -0.886541 + 0.130386I$ $b = -0.038437 - 1.008160I$	$0.12573 - 7.29892I$	0
$u = 1.44914 - 0.29118I$ $a = -0.886541 - 0.130386I$ $b = -0.038437 + 1.008160I$	$0.12573 + 7.29892I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.149396+0.483213I$ $a=\ \ 0.92897-2.24105I$ $b=-1.205130+0.293627I$	$-1.40154+0.91152I$	$-19.9758-6.5138I$
$u=-0.149396-0.483213I$ $a=\ \ 0.92897+2.24105I$ $b=-1.205130-0.293627I$	$-1.40154-0.91152I$	$-19.9758+6.5138I$
$u=\ \ 1.51556+0.01247I$ $a=\ \ 0.216306-0.255235I$ $b=\ \ 0.892429-0.782962I$	$-4.11378+9.97459I$	0
$u=\ \ 1.51556-0.01247I$ $a=\ \ 0.216306+0.255235I$ $b=\ \ 0.892429+0.782962I$	$-4.11378-9.97459I$	0
$u=-0.022386+0.455647I$ $a=\ \ 1.54684+2.36603I$ $b=\ \ 0.268232-1.098250I$	$3.88008-0.05245I$	$-3.33474-0.17274I$
$u=-0.022386-0.455647I$ $a=\ \ 1.54684-2.36603I$ $b=\ \ 0.268232+1.098250I$	$3.88008+0.05245I$	$-3.33474+0.17274I$
$u=-1.63858+0.03272I$ $a=\ \ 0.0553486+0.1159980I$ $b=-0.070510-0.151550I$	$-8.56507+1.52283I$	0
$u=-1.63858-0.03272I$ $a=\ \ 0.0553486-0.1159980I$ $b=-0.070510+0.151550I$	$-8.56507-1.52283I$	0
$u=\ \ 0.356524$ $a=\ \ 1.04146$ $b=-0.194341$	-0.630482	-15.9080

II. $I_2^u = \langle -418u^{41}a + 4923u^{41} + \cdots + 678a + 3495,\ -9u^{41}a + 5u^{41} + \cdots - 7a - 7,\ u^{42} + 3u^{41} + \cdots + 5u^2 + 1\rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} a \\ 0.537275au^{41} - 6.32776u^{41} + \cdots - 0.871465a - 4.49229 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.320051au^{41} + 1.71080u^{41} + \cdots - 0.327763a + 1.33033 \\ 2.78792au^{41} + 0.537275u^{41} + \cdots + 2.97558a + 0.128535 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.537275au^{41} - 6.32776u^{41} + \cdots + 0.128535a - 4.49229 \\ 0.537275au^{41} - 6.32776u^{41} + \cdots - 0.871465a - 4.49229 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -6.32776au^{41} + 4.83033u^{41} + \cdots - 4.49229a + 5.38046 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.564267au^{41} + 4.49614u^{41} + \cdots + 0.795630a + 4.91774 \\ 1.07841au^{41} - 0.965296u^{41} + \cdots - 0.160668a + 1.24036 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.465296au^{41} - 5.21208u^{41} + \cdots + 0.259640a - 4.02442 \\ 0.262211au^{41} - 4.06427u^{41} + \cdots - 0.406170a - 3.70437 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -23u^{41} - 44u^{40} + \cdots + 15u - 35$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{84} - 13u^{83} + \cdots - 1468u + 136$
c_2, c_5	$(u^{42} + 13u^{41} + \cdots + 12u + 1)^2$
c_3, c_9	$u^{84} - u^{83} + \cdots + 192u + 46$
c_6, c_{10}	$u^{84} + 7u^{83} + \cdots + 8u + 2$
c_7, c_8, c_{12}	$(u^{42} - 3u^{41} + \cdots + 5u^2 + 1)^2$
c_{11}	$(u^{42} + 15u^{41} + \cdots + 152u + 16)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{84} - 21y^{83} + \cdots + 334320y + 18496$
c_2, c_5	$(y^{42} + 27y^{41} + \cdots + 6y + 1)^2$
c_3, c_9	$y^{84} + 13y^{83} + \cdots - 57840y + 2116$
c_6, c_{10}	$y^{84} - 11y^{83} + \cdots - 56y + 4$
c_7, c_8, c_{12}	$(y^{42} - 37y^{41} + \cdots + 10y + 1)^2$
c_{11}	$(y^{42} + 9y^{41} + \cdots - 448y + 256)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.960240 + 0.479028I$ $a = -0.418127 + 0.776729I$ $b = 0.348636 - 0.818060I$	$0.52500 + 1.63086I$	$-13.9232 - 7.9008I$
$u = 0.960240 + 0.479028I$ $a = 0.647743 + 0.156432I$ $b = -0.645086 + 0.597788I$	$0.52500 + 1.63086I$	$-13.9232 - 7.9008I$
$u = 0.960240 - 0.479028I$ $a = -0.418127 - 0.776729I$ $b = 0.348636 + 0.818060I$	$0.52500 - 1.63086I$	$-13.9232 + 7.9008I$
$u = 0.960240 - 0.479028I$ $a = 0.647743 - 0.156432I$ $b = -0.645086 - 0.597788I$	$0.52500 - 1.63086I$	$-13.9232 + 7.9008I$
$u = 0.782440 + 0.467392I$ $a = 0.681568 - 0.667303I$ $b = -0.302811 + 0.722288I$	$-0.177946 - 0.302389I$	$-17.5842 + 3.6764I$
$u = 0.782440 + 0.467392I$ $a = -0.100018 - 0.271626I$ $b = 0.249493 - 0.359059I$	$-0.177946 - 0.302389I$	$-17.5842 + 3.6764I$
$u = 0.782440 - 0.467392I$ $a = 0.681568 + 0.667303I$ $b = -0.302811 - 0.722288I$	$-0.177946 + 0.302389I$	$-17.5842 - 3.6764I$
$u = 0.782440 - 0.467392I$ $a = -0.100018 + 0.271626I$ $b = 0.249493 + 0.359059I$	$-0.177946 + 0.302389I$	$-17.5842 - 3.6764I$
$u = 0.239459 + 0.836071I$ $a = 0.61659 + 1.30013I$ $b = -0.928490 - 0.762052I$	$2.74325 - 6.31693I$	$-8.89354 + 10.94201I$
$u = 0.239459 + 0.836071I$ $a = 0.11258 - 1.88230I$ $b = 0.499186 + 0.965297I$	$2.74325 - 6.31693I$	$-8.89354 + 10.94201I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.239459 - 0.836071I$ $a = 0.61659 - 1.30013I$ $b = -0.928490 + 0.762052I$	$2.74325 + 6.31693I$	$-8.89354 - 10.94201I$
$u = 0.239459 - 0.836071I$ $a = 0.11258 + 1.88230I$ $b = 0.499186 - 0.965297I$	$2.74325 + 6.31693I$	$-8.89354 - 10.94201I$
$u = 0.262054 + 0.762195I$ $a = 0.024696 - 1.026100I$ $b = 0.641434 + 0.625699I$	$1.49261 - 3.94030I$	$-12.21696 + 2.22964I$
$u = 0.262054 + 0.762195I$ $a = 0.06445 + 1.97334I$ $b = -0.577595 - 1.070350I$	$1.49261 - 3.94030I$	$-12.21696 + 2.22964I$
$u = 0.262054 - 0.762195I$ $a = 0.024696 + 1.026100I$ $b = 0.641434 - 0.625699I$	$1.49261 + 3.94030I$	$-12.21696 - 2.22964I$
$u = 0.262054 - 0.762195I$ $a = 0.06445 - 1.97334I$ $b = -0.577595 + 1.070350I$	$1.49261 + 3.94030I$	$-12.21696 - 2.22964I$
$u = 1.158050 + 0.323812I$ $a = -1.175940 - 0.016766I$ $b = 0.83974 - 1.30924I$	$3.59230 + 1.50157I$	0
$u = 1.158050 + 0.323812I$ $a = -0.185663 - 1.293630I$ $b = -0.153647 + 0.885810I$	$3.59230 + 1.50157I$	0
$u = 1.158050 - 0.323812I$ $a = -1.175940 + 0.016766I$ $b = 0.83974 + 1.30924I$	$3.59230 - 1.50157I$	0
$u = 1.158050 - 0.323812I$ $a = -0.185663 + 1.293630I$ $b = -0.153647 - 0.885810I$	$3.59230 - 1.50157I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.768285 + 0.169398I$ $a = 0.977633 - 0.369659I$ $b = -0.219726 + 0.857795I$	$-0.149243 + 0.024529I$	$-14.2018 + 0.3715I$
$u = 0.768285 + 0.169398I$ $a = 0.573528 + 0.091019I$ $b = -0.035955 - 0.712483I$	$-0.149243 + 0.024529I$	$-14.2018 + 0.3715I$
$u = 0.768285 - 0.169398I$ $a = 0.977633 + 0.369659I$ $b = -0.219726 - 0.857795I$	$-0.149243 - 0.024529I$	$-14.2018 - 0.3715I$
$u = 0.768285 - 0.169398I$ $a = 0.573528 - 0.091019I$ $b = -0.035955 + 0.712483I$	$-0.149243 - 0.024529I$	$-14.2018 - 0.3715I$
$u = 0.095814 + 0.752969I$ $a = -1.01912 + 1.91294I$ $b = -0.224862 - 0.729633I$	$6.81946 - 5.41964I$	$-0.76314 + 6.46458I$
$u = 0.095814 + 0.752969I$ $a = -1.18382 - 2.37183I$ $b = 1.16460 + 1.37599I$	$6.81946 - 5.41964I$	$-0.76314 + 6.46458I$
$u = 0.095814 - 0.752969I$ $a = -1.01912 - 1.91294I$ $b = -0.224862 + 0.729633I$	$6.81946 + 5.41964I$	$-0.76314 - 6.46458I$
$u = 0.095814 - 0.752969I$ $a = -1.18382 + 2.37183I$ $b = 1.16460 - 1.37599I$	$6.81946 + 5.41964I$	$-0.76314 - 6.46458I$
$u = -1.257660 + 0.148327I$ $a = 0.342248 + 1.357940I$ $b = 2.04472 + 0.19287I$	$-0.08089 - 4.23886I$	0
$u = -1.257660 + 0.148327I$ $a = -1.84195 - 1.50760I$ $b = 0.195600 + 0.251632I$	$-0.08089 - 4.23886I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.257660-0.148327I$ $a=\ \ 0.342248-1.357940I$ $b=\ \ 2.04472-0.19287I$	$-0.08089+4.23886I$	0
$u=-1.257660-0.148327I$ $a=-1.84195+1.50760I$ $b=\ \ 0.195600-0.251632I$	$-0.08089+4.23886I$	0
$u=\ \ 0.300937+0.614729I$ $a=\ \ 0.451308-0.124828I$ $b=\ \ 0.470554+0.414789I$	$1.25837-3.52745I$	$-12.3965+7.5906I$
$u=\ \ 0.300937+0.614729I$ $a=-0.49117+2.22423I$ $b=-0.256252-1.219250I$	$1.25837-3.52745I$	$-12.3965+7.5906I$
$u=\ \ 0.300937-0.614729I$ $a=\ \ 0.451308+0.124828I$ $b=\ \ 0.470554-0.414789I$	$1.25837+3.52745I$	$-12.3965-7.5906I$
$u=\ \ 0.300937-0.614729I$ $a=-0.49117-2.22423I$ $b=-0.256252+1.219250I$	$1.25837+3.52745I$	$-12.3965-7.5906I$
$u=-1.343140+0.147248I$ $a=\ \ 0.676553+1.020740I$ $b=-0.245033-0.359099I$	$-5.35856+0.88423I$	0
$u=-1.343140+0.147248I$ $a=\ \ 0.409698-0.285106I$ $b=-1.23802-0.82397I$	$-5.35856+0.88423I$	0
$u=-1.343140-0.147248I$ $a=\ \ 0.676553-1.020740I$ $b=-0.245033+0.359099I$	$-5.35856-0.88423I$	0
$u=-1.343140-0.147248I$ $a=\ \ 0.409698+0.285106I$ $b=-1.23802+0.82397I$	$-5.35856-0.88423I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.350600 + 0.156105I$ $a = 1.111500 - 0.042964I$ $b = 0.966724 - 0.612624I$	$-2.69089 + 2.86448I$	0
$u = 1.350600 + 0.156105I$ $a = 1.09270 - 1.48631I$ $b = 1.16188 + 1.45455I$	$-2.69089 + 2.86448I$	0
$u = 1.350600 - 0.156105I$ $a = 1.111500 + 0.042964I$ $b = 0.966724 + 0.612624I$	$-2.69089 - 2.86448I$	0
$u = 1.350600 - 0.156105I$ $a = 1.09270 + 1.48631I$ $b = 1.16188 - 1.45455I$	$-2.69089 - 2.86448I$	0
$u = -1.325060 + 0.305145I$ $a = -1.65141 - 0.92720I$ $b = -0.308670 + 0.576187I$	$2.35941 + 9.23081I$	0
$u = -1.325060 + 0.305145I$ $a = 0.93668 + 1.64637I$ $b = 1.45134 - 1.41737I$	$2.35941 + 9.23081I$	0
$u = -1.325060 - 0.305145I$ $a = -1.65141 + 0.92720I$ $b = -0.308670 - 0.576187I$	$2.35941 - 9.23081I$	0
$u = -1.325060 - 0.305145I$ $a = 0.93668 - 1.64637I$ $b = 1.45134 + 1.41737I$	$2.35941 - 9.23081I$	0
$u = 1.354450 + 0.204945I$ $a = -0.653795 + 1.227520I$ $b = -1.64085 + 0.08495I$	$-6.18100 - 3.49130I$	0
$u = 1.354450 + 0.204945I$ $a = -1.03958 + 1.68431I$ $b = -1.162330 - 0.617434I$	$-6.18100 - 3.49130I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.354450 - 0.204945I$ $a = -0.653795 - 1.227520I$ $b = -1.64085 - 0.08495I$	$-6.18100 + 3.49130I$	0
$u = 1.354450 - 0.204945I$ $a = -1.03958 - 1.68431I$ $b = -1.162330 + 0.617434I$	$-6.18100 + 3.49130I$	0
$u = 1.353640 + 0.241636I$ $a = -0.420027 - 1.135670I$ $b = 2.15100 - 0.88032I$	$-1.56074 - 9.78519I$	0
$u = 1.353640 + 0.241636I$ $a = 0.82513 - 2.14053I$ $b = 0.577643 + 0.735027I$	$-1.56074 - 9.78519I$	0
$u = 1.353640 - 0.241636I$ $a = -0.420027 + 1.135670I$ $b = 2.15100 + 0.88032I$	$-1.56074 + 9.78519I$	0
$u = 1.353640 - 0.241636I$ $a = 0.82513 + 2.14053I$ $b = 0.577643 - 0.735027I$	$-1.56074 + 9.78519I$	0
$u = -0.144544 + 0.590446I$ $a = -2.59218 - 0.33124I$ $b = 1.94312 + 0.50922I$	$3.19731 + 6.71563I$	$-7.9709 - 11.9381I$
$u = -0.144544 + 0.590446I$ $a = -0.59156 + 3.42387I$ $b = 0.526695 - 0.528784I$	$3.19731 + 6.71563I$	$-7.9709 - 11.9381I$
$u = -0.144544 - 0.590446I$ $a = -2.59218 + 0.33124I$ $b = 1.94312 - 0.50922I$	$3.19731 - 6.71563I$	$-7.9709 + 11.9381I$
$u = -0.144544 - 0.590446I$ $a = -0.59156 - 3.42387I$ $b = 0.526695 + 0.528784I$	$3.19731 - 6.71563I$	$-7.9709 + 11.9381I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.385400+0.231075I$ $a=\ \ 0.842146-0.149667I$ $b=\ \ 0.652354-0.129474I$	$-4.04574+6.56231I$	0
$u=-1.385400+0.231075I$ $a=-1.13820-0.87061I$ $b=-0.39448+1.58816I$	$-4.04574+6.56231I$	0
$u=-1.385400-0.231075I$ $a=\ \ 0.842146+0.149667I$ $b=\ \ 0.652354+0.129474I$	$-4.04574-6.56231I$	0
$u=-1.385400-0.231075I$ $a=-1.13820+0.87061I$ $b=-0.39448-1.58816I$	$-4.04574-6.56231I$	0
$u=-1.40816+0.31027I$ $a=\ \ 0.750785+0.777943I$ $b=\ \ 0.881123-0.618446I$	$-3.81728+7.83428I$	0
$u=-1.40816+0.31027I$ $a=-0.87212-1.16243I$ $b=-0.786301+1.156800I$	$-3.81728+7.83428I$	0
$u=-1.40816-0.31027I$ $a=\ \ 0.750785-0.777943I$ $b=\ \ 0.881123+0.618446I$	$-3.81728-7.83428I$	0
$u=-1.40816-0.31027I$ $a=-0.87212+1.16243I$ $b=-0.786301-1.156800I$	$-3.81728-7.83428I$	0
$u=-1.40979+0.34355I$ $a=-0.534093-1.069130I$ $b=-1.138840+0.792011I$	$-2.49752+10.57050I$	0
$u=-1.40979+0.34355I$ $a=\ \ 0.94022+1.18948I$ $b=\ \ 0.621719-1.029070I$	$-2.49752+10.57050I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.40979-0.34355I$ $a=-0.534093+1.069130I$ $b=-1.138840-0.792011I$	$-2.49752-10.57050I$	0
$u=-1.40979-0.34355I$ $a=\ \ 0.94022-1.18948I$ $b=\ \ 0.621719+1.029070I$	$-2.49752-10.57050I$	0
$u=-1.48272+0.02635I$ $a=\ \ 0.431060+0.243095I$ $b=\ \ 0.732925-0.295301I$	$-7.72912+1.38578I$	0
$u=-1.48272+0.02635I$ $a=-0.248658+0.110722I$ $b=-0.978134-0.192963I$	$-7.72912+1.38578I$	0
$u=-1.48272-0.02635I$ $a=\ \ 0.431060-0.243095I$ $b=\ \ 0.732925+0.295301I$	$-7.72912-1.38578I$	0
$u=-1.48272-0.02635I$ $a=-0.248658-0.110722I$ $b=-0.978134+0.192963I$	$-7.72912-1.38578I$	0
$u=-0.144890+0.477535I$ $a=\ \ 1.27863-1.51403I$ $b=-1.339940+0.096804I$	$-1.40479+0.89511I$	$-16.7235-7.1356I$
$u=-0.144890+0.477535I$ $a=\ \ 0.67161-2.68352I$ $b=-0.951172+0.346493I$	$-1.40479+0.89511I$	$-16.7235-7.1356I$
$u=-0.144890-0.477535I$ $a=\ \ 1.27863+1.51403I$ $b=-1.339940-0.096804I$	$-1.40479-0.89511I$	$-16.7235+7.1356I$
$u=-0.144890-0.477535I$ $a=\ \ 0.67161+2.68352I$ $b=-0.951172-0.346493I$	$-1.40479-0.89511I$	$-16.7235+7.1356I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.224607+0.302512I$ $a=\ \ 1.118150-0.435820I$ $b=\ \ 0.962841+0.477795I$	$2.19147-4.73089I$	$-12.96994+0.46313I$
$u=-0.224607+0.302512I$ $a=-0.91977+4.19208I$ $b=\ \ 0.944884-0.764273I$	$2.19147-4.73089I$	$-12.96994+0.46313I$
$u=-0.224607-0.302512I$ $a=\ \ 1.118150+0.435820I$ $b=\ \ 0.962841-0.477795I$	$2.19147+4.73089I$	$-12.96994-0.46313I$
$u=-0.224607-0.302512I$ $a=-0.91977-4.19208I$ $b=\ \ 0.944884+0.764273I$	$2.19147+4.73089I$	$-12.96994-0.46313I$

III. $I_3^u = \langle -49u^{27} - 179u^{26} + \cdots + b + 73,\ -49u^{27} - 157u^{26} + \cdots + 2a + 45,\ u^{28} + 5u^{27} + \cdots + 5u - 2\rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 24.5000u^{27} + 78.5000u^{26} + \cdots + 62.5000u - 22.5000 \\ 49u^{27} + 179u^{26} + \cdots + 234u - 73 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{17}{2}u^{27} + \frac{67}{2}u^{26} + \cdots + \frac{95}{2}u - \frac{29}{2} \\ u^{27} + 4u^{26} + \cdots + 5u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 73.5000u^{27} + 257.500u^{26} + \cdots + 296.500u - 95.5000 \\ 49u^{27} + 179u^{26} + \cdots + 234u - 73 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 17.5000u^{27} + 62.5000u^{26} + \cdots + 88.5000u - 27.5000 \\ 9u^{27} + 34u^{26} + \cdots + 46u - 15 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 28.5000u^{27} + 107.500u^{26} + \cdots + 150.500u - 44.5000 \\ 7u^{27} + 27u^{26} + \cdots + 44u - 13 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 28.5000u^{27} + 93.5000u^{26} + \cdots + 84.5000u - 29.5000 \\ 32u^{27} + 116u^{26} + \cdots + 150u - 47 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -129u^{27} - 478u^{26} + 881u^{25} + 4666u^{24} - 2235u^{23} - 20091u^{22} + 3205u^{21} + 49483u^{20} - 8921u^{19} - 73524u^{18} + 33538u^{17} + 56824u^{16} - 71086u^{15} + 6166u^{14} + 75329u^{13} - 60825u^{12} - 23342u^{11} + 50941u^{10} - 27703u^9 - 3414u^8 + 25038u^7 - 14215u^6 - 634u^5 + 2218u^4 - 4157u^3 + 1496u^2 - 652u + 188$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{28} - 2u^{27} + \cdots - 2u + 1$
c_2	$u^{28} - 14u^{27} + \cdots - 61u + 4$
c_3, c_9	$u^{28} + u^{27} + \cdots - 3u^2 - 1$
c_5	$u^{28} + 14u^{27} + \cdots + 61u + 4$
c_6, c_{10}	$u^{28} + u^{27} + \cdots + u - 1$
c_7, c_8	$u^{28} + 5u^{27} + \cdots + 5u - 2$
c_{11}	$u^{28} + 15u^{27} + \cdots + 429u + 50$
c_{12}	$u^{28} - 5u^{27} + \cdots - 5u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{28} - 18y^{27} + \cdots + 10y + 1$
c_2, c_5	$y^{28} + 12y^{27} + \cdots - 601y + 16$
c_3, c_9	$y^{28} + 11y^{27} + \cdots + 6y + 1$
c_6, c_{10}	$y^{28} - 11y^{27} + \cdots + 11y + 1$
c_7, c_8, c_{12}	$y^{28} - 29y^{27} + \cdots + 19y + 4$
c_{11}	$y^{28} - 9y^{27} + \cdots + 2459y + 2500$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877488 + 0.532355I$ $a = 0.469607 - 0.360347I$ $b = -0.313041 + 0.719408I$	$0.376250 + 0.203371I$	$-6.98213 - 3.63755I$
$u = 0.877488 - 0.532355I$ $a = 0.469607 + 0.360347I$ $b = -0.313041 - 0.719408I$	$0.376250 - 0.203371I$	$-6.98213 + 3.63755I$
$u = 0.267177 + 0.824004I$ $a = 0.01691 + 1.46353I$ $b = -0.555226 - 0.879438I$	$2.28640 - 4.92867I$	$-7.87391 + 6.42165I$
$u = 0.267177 - 0.824004I$ $a = 0.01691 - 1.46353I$ $b = -0.555226 + 0.879438I$	$2.28640 + 4.92867I$	$-7.87391 - 6.42165I$
$u = 1.143300 + 0.390612I$ $a = -0.424056 + 0.355571I$ $b = 0.452229 - 0.657406I$	$1.89570 + 1.31467I$	$-8.82064 - 3.97086I$
$u = 1.143300 - 0.390612I$ $a = -0.424056 - 0.355571I$ $b = 0.452229 + 0.657406I$	$1.89570 - 1.31467I$	$-8.82064 + 3.97086I$
$u = 0.083365 + 0.754526I$ $a = -0.70347 - 1.65365I$ $b = 0.843669 + 0.619007I$	$5.17011 - 5.43287I$	$-6.79731 + 6.43533I$
$u = 0.083365 - 0.754526I$ $a = -0.70347 + 1.65365I$ $b = 0.843669 - 0.619007I$	$5.17011 + 5.43287I$	$-6.79731 - 6.43533I$
$u = 1.299390 + 0.128660I$ $a = 0.710161 - 0.349638I$ $b = -1.012100 + 0.597930I$	$-4.74917 - 1.24347I$	$-8.84968 + 7.10640I$
$u = 1.299390 - 0.128660I$ $a = 0.710161 + 0.349638I$ $b = -1.012100 - 0.597930I$	$-4.74917 + 1.24347I$	$-8.84968 - 7.10640I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.309960+0.153721I$ $a=\ \ 1.22846+1.53140I$ $b=\ \ 1.342480-0.088387I$	$-1.10542-3.46605I$	$-14.1620+2.9245I$
$u=-1.309960-0.153721I$ $a=\ \ 1.22846-1.53140I$ $b=\ \ 1.342480+0.088387I$	$-1.10542+3.46605I$	$-14.1620-2.9245I$
$u=-1.326270+0.293409I$ $a=\ \ 0.81815+1.57284I$ $b=\ \ 1.141380-0.619740I$	$0.74358+9.17814I$	$-12.0776-8.4771I$
$u=-1.326270-0.293409I$ $a=\ \ 0.81815-1.57284I$ $b=\ \ 1.141380+0.619740I$	$0.74358-9.17814I$	$-12.0776+8.4771I$
$u=-1.354790+0.209495I$ $a=-1.00567-1.76892I$ $b=-1.68788+0.34102I$	$-5.88008+3.48216I$	$-1.41167-0.94003I$
$u=-1.354790-0.209495I$ $a=-1.00567+1.76892I$ $b=-1.68788-0.34102I$	$-5.88008-3.48216I$	$-1.41167+0.94003I$
$u=\ \ 1.383060+0.180942I$ $a=-0.598183+0.238833I$ $b=\ \ 0.811390-0.408562I$	$-1.94211-7.75510I$	$-13.1188+7.1328I$
$u=\ \ 1.383060-0.180942I$ $a=-0.598183-0.238833I$ $b=\ \ 0.811390+0.408562I$	$-1.94211+7.75510I$	$-13.1188-7.1328I$
$u=-1.45160$ $a=-0.461569$ $b=-0.878416$	-8.14287	-21.0860
$u=-1.41716+0.33447I$ $a=-0.777192-0.947146I$ $b=-0.745151+0.921906I$	$-3.06763+9.10984I$	$-12.8570-6.9062I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.41716-0.33447I$ $a=-0.777192+0.947146I$ $b=-0.745151-0.921906I$	$-3.06763-9.10984I$	$-12.8570+6.9062I$
$u=\ \ 0.131202+0.507634I$ $a=\ \ 1.24475+2.50073I$ $b=-1.37990-0.32442I$	$-1.129910-0.800287I$	$5.73261-3.91984I$
$u=\ \ 0.131202-0.507634I$ $a=\ \ 1.24475-2.50073I$ $b=-1.37990+0.32442I$	$-1.129910+0.800287I$	$5.73261+3.91984I$
$u=-0.077747+0.422589I$ $a=-2.09913-2.33438I$ $b=\ \ 1.039480+0.164835I$	$2.89795+5.51987I$	$-6.44293-5.45114I$
$u=-0.077747-0.422589I$ $a=-2.09913+2.33438I$ $b=\ \ 1.039480-0.164835I$	$2.89795-5.51987I$	$-6.44293+5.45114I$
$u=\ \ 0.353314$ $a=-0.860948$ $b=-0.788838$	-2.02232	-20.3740
$u=-1.64990+0.04012I$ $a=\ \ 0.0309221+0.0130317I$ $b=-0.103705-0.292446I$	$-8.50737+1.47561I$	$0.+32.8247I$
$u=-1.64990-0.04012I$ $a=\ \ 0.0309221-0.0130317I$ $b=-0.103705+0.292446I$	$-8.50737-1.47561I$	$0.-32.8247I$

IV. $I_4^u = \langle b + a + 1,\ a^2 + 2a + 2,\ u - 1 \rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} a \\ -a - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2a + 2 \\ -a - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1 \\ -a - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -a - 2 \\ 1 \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} -1 \\ -a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -1.00000 + 1.00000I$ $b = \quad -1.000000I$	1.64493	−8.00000
$u = \quad 1.00000$ $a = -1.00000 - 1.00000I$ $b = \quad 1.000000I$	1.64493	−8.00000

V. $I_5^u = \langle b^2+1,\ a-1,\ u-1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ b \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ -b+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} b+1 \\ b \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -b \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -b+2 \\ 2b \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} b+1 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u		$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	1.00000		
$a=$	1.00000	1.64493	-8.00000
$b=$	$1.000000I$		
$u=$	1.00000		
$a=$	1.00000	1.64493	-8.00000
$b=$	$-1.000000I$		

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$((u^2+1)^2)(u^{28}-2u^{27}+\cdots-2u+1)(u^{69}-2u^{68}+\cdots+15u+2)$ $\cdot(u^{84}-13u^{83}+\cdots-1468u+136)$
c_2	$((u^2+1)^2)(u^{28}-14u^{27}+\cdots-61u+4)(u^{42}+13u^{41}+\cdots+12u+1)^2$ $\cdot(u^{69}-17u^{68}+\cdots-2616u+178)$
c_3, c_9	$((u+1)^2)(u^2-2u+2)(u^{28}+u^{27}+\cdots-3u^2-1)$ $\cdot(u^{69}-u^{68}+\cdots+65u+7)(u^{84}-u^{83}+\cdots+192u+46)$
c_5	$((u^2+1)^2)(u^{28}+14u^{27}+\cdots+61u+4)(u^{42}+13u^{41}+\cdots+12u+1)^2$ $\cdot(u^{69}-17u^{68}+\cdots-2616u+178)$
c_6, c_{10}	$(u^2+1)(u^2-2u+2)(u^{28}+u^{27}+\cdots+u-1)(u^{69}+u^{68}+\cdots+4u+1)$ $\cdot(u^{84}+7u^{83}+\cdots+8u+2)$
c_7, c_8	$((u-1)^4)(u^{28}+5u^{27}+\cdots+5u-2)(u^{42}-3u^{41}+\cdots+5u^2+1)^2$ $\cdot(u^{69}+8u^{68}+\cdots-10u+10)$
c_{11}	$u^4(u^{28}+15u^{27}+\cdots+429u+50)(u^{42}+15u^{41}+\cdots+152u+16)^2$ $\cdot(u^{69}-24u^{68}+\cdots-55370u+3680)$
c_{12}	$((u+1)^4)(u^{28}-5u^{27}+\cdots-5u-2)(u^{42}-3u^{41}+\cdots+5u^2+1)^2$ $\cdot(u^{69}+8u^{68}+\cdots-10u+10)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y+1)^4)(y^{28}-18y^{27}+\cdots+10y+1)(y^{69}+34y^{68}+\cdots-423y-4)$ $\cdot(y^{84}-21y^{83}+\cdots+334320y+18496)$
c_2, c_5	$((y+1)^4)(y^{28}+12y^{27}+\cdots-601y+16)$ $\cdot((y^{42}+27y^{41}+\cdots+6y+1)^2)(y^{69}+37y^{68}+\cdots+290564y-31684)$
c_3, c_9	$((y-1)^2)(y^2+4)(y^{28}+11y^{27}+\cdots+6y+1)$ $\cdot(y^{69}-y^{68}+\cdots+487y-49)(y^{84}+13y^{83}+\cdots-57840y+2116)$
c_6, c_{10}	$((y+1)^2)(y^2+4)(y^{28}-11y^{27}+\cdots+11y+1)$ $\cdot(y^{69}+41y^{68}+\cdots-114y-1)(y^{84}-11y^{83}+\cdots-56y+4)$
c_7, c_8, c_{12}	$((y-1)^4)(y^{28}-29y^{27}+\cdots+19y+4)(y^{42}-37y^{41}+\cdots+10y+1)^2$ $\cdot(y^{69}-64y^{68}+\cdots-480y-100)$
c_{11}	$y^4(y^{28}-9y^{27}+\cdots+2459y+2500)$ $\cdot(y^{42}+9y^{41}+\cdots-448y+256)^2$ $\cdot(y^{69}-24y^{67}+\cdots-28395420y-13542400)$