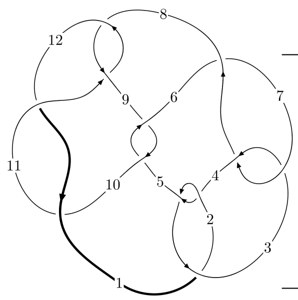
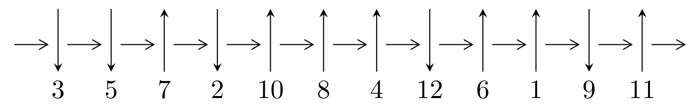
$12a_{0057}$ $(K12a_{0057})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 6.97582\times10^{34}u^{103} + 6.61069\times10^{35}u^{102} + \cdots + 1.52431\times10^{34}b + 1.69169\times10^{35},$$
$$1.01712\times10^{35}u^{103} + 8.18175\times10^{35}u^{102} + \cdots + 2.17758\times10^{33}a + 1.06317\times10^{35},\ u^{104} + 8u^{103} + \cdots + 26u$$
$$I_2^u = \langle 3a^5u + 9a^5 - 19a^4u + 8a^4 - 32a^3u + 47a^3 - 27a^2u - 16a^2 - 64au + 13b + 29a - 15u + 7,$$
$$a^6 - a^5u - 4a^4u + 5a^4 - a^3u - a^3 - 7a^2u + 3a^2 - 3au + 2a - u + 1,\ u^2 - u + 1\rangle$$
$$I_3^u = \langle b,\ -u^3 - 2u^2 + a - 2u,\ u^4 + u^3 + u^2 + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 120 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. $\boldsymbol{I_1^u = \langle 6.98 \times 10^{34}u^{103} + 6.61 \times 10^{35}u^{102} + \cdots + 1.52 \times 10^{34}b + 1.69 \times 10^{35},\ 1.02 \times 10^{35}u^{103} + 8.18 \times 10^{35}u^{102} + \cdots + 2.18 \times 10^{33}a + 1.06 \times 10^{35},\ u^{104} + 8u^{103} + \cdots + 26u^2 + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -46.7086u^{103} - 375.726u^{102} + \cdots + 7.43615u - 48.8233 \\ -4.57639u^{103} - 43.3685u^{102} + \cdots + 5.03677u - 11.0981 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 6.85333u^{103} + 66.2746u^{102} + \cdots - 8.70012u + 9.69003 \\ -3.32389u^{103} - 36.2817u^{102} + \cdots + 12.7191u - 9.19042 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -97.9649u^{103} - 736.860u^{102} + \cdots - 12.7281u - 70.4352 \\ -47.5278u^{103} - 414.116u^{102} + \cdots + 50.0294u - 79.6418 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 10.1772u^{103} + 102.556u^{102} + \cdots - 21.4192u + 18.8804 \\ -3.32389u^{103} - 36.2817u^{102} + \cdots + 12.7191u - 9.19042 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 36.4714u^{103} + 295.722u^{102} + \cdots - 1.60920u + 35.1731 \\ 5.67709u^{103} + 42.1133u^{102} + \cdots + 5.76655u + 5.64315 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^5 + u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -38.2688u^{103} - 287.431u^{102} + \cdots + 5.82490u - 35.2283 \\ -16.9340u^{103} - 158.639u^{102} + \cdots + 30.8364u - 34.3757 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 68.6439u^{103} + 557.865u^{102} + \cdots - 39.8300u + 80.6891$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{104} + 57u^{103} + \cdots - 38u + 1$
c_2, c_4	$u^{104} - 7u^{103} + \cdots - 2u + 1$
c_3, c_7	$u^{104} - 3u^{103} + \cdots + 56u + 16$
c_5, c_9	$u^{104} + 2u^{103} + \cdots + 8192u + 4096$
c_6	$u^{104} - 33u^{103} + \cdots - 3136u + 256$
c_8, c_{11}	$u^{104} - 8u^{103} + \cdots + 26u^2 + 1$
c_{10}, c_{12}	$u^{104} - 32u^{103} + \cdots - 52u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{104} - 13y^{103} + \cdots + 1086y + 1$
c_2, c_4	$y^{104} - 57y^{103} + \cdots + 38y + 1$
c_3, c_7	$y^{104} - 33y^{103} + \cdots - 3136y + 256$
c_5, c_9	$y^{104} + 70y^{103} + \cdots + 251658240y + 16777216$
c_6	$y^{104} + 71y^{103} + \cdots + 4435968y + 65536$
c_8, c_{11}	$y^{104} + 32y^{103} + \cdots + 52y + 1$
c_{10}, c_{12}	$y^{104} + 88y^{103} + \cdots + 772y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.020101 + 0.968920I$ $a = -1.62773 + 0.60872I$ $b = 1.104780 + 0.011234I$	$4.85259 - 0.00883I$	0
$u = 0.020101 - 0.968920I$ $a = -1.62773 - 0.60872I$ $b = 1.104780 - 0.011234I$	$4.85259 + 0.00883I$	0
$u = 0.088929 + 1.032320I$ $a = 1.54140 - 0.10414I$ $b = -1.106510 + 0.209872I$	$4.42375 - 4.85437I$	0
$u = 0.088929 - 1.032320I$ $a = 1.54140 + 0.10414I$ $b = -1.106510 - 0.209872I$	$4.42375 + 4.85437I$	0
$u = 0.508673 + 0.806106I$ $a = -1.67780 - 3.42402I$ $b = 0.259513 - 0.337681I$	$-1.76705 - 1.65580I$	0
$u = 0.508673 - 0.806106I$ $a = -1.67780 + 3.42402I$ $b = 0.259513 + 0.337681I$	$-1.76705 + 1.65580I$	0
$u = -0.724250 + 0.757923I$ $a = -0.249685 + 0.014515I$ $b = -1.214800 + 0.436033I$	$-1.03612 - 4.58038I$	0
$u = -0.724250 - 0.757923I$ $a = -0.249685 - 0.014515I$ $b = -1.214800 - 0.436033I$	$-1.03612 + 4.58038I$	0
$u = 0.551150 + 0.900436I$ $a = 0.76590 + 2.14805I$ $b = 0.163285 + 0.546485I$	$-1.41743 - 2.62965I$	0
$u = 0.551150 - 0.900436I$ $a = 0.76590 - 2.14805I$ $b = 0.163285 - 0.546485I$	$-1.41743 + 2.62965I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.700965 + 0.624043I$ $a = 0.821618 + 0.490951I$ $b = 0.853960 + 0.159820I$	$0.063961 + 0.318270I$	0
$u = 0.700965 - 0.624043I$ $a = 0.821618 - 0.490951I$ $b = 0.853960 - 0.159820I$	$0.063961 - 0.318270I$	0
$u = -0.711021 + 0.819449I$ $a = -0.086162 + 0.367371I$ $b = 1.233520 - 0.260497I$	$0.360291 + 0.869699I$	0
$u = -0.711021 - 0.819449I$ $a = -0.086162 - 0.367371I$ $b = 1.233520 + 0.260497I$	$0.360291 - 0.869699I$	0
$u = 0.338448 + 0.821183I$ $a = 0.439609 - 0.068020I$ $b = -0.203409 - 0.340268I$	$0.32890 - 1.53001I$	0
$u = 0.338448 - 0.821183I$ $a = 0.439609 + 0.068020I$ $b = -0.203409 + 0.340268I$	$0.32890 + 1.53001I$	0
$u = 0.371975 + 1.056300I$ $a = 0.219181 + 0.313047I$ $b = -0.737120 - 0.575993I$	$0.284397 - 1.151140I$	0
$u = 0.371975 - 1.056300I$ $a = 0.219181 - 0.313047I$ $b = -0.737120 + 0.575993I$	$0.284397 + 1.151140I$	0
$u = 0.763473 + 0.833575I$ $a = 1.23213 + 1.16646I$ $b = 0.825340 + 0.691127I$	$-2.19732 - 0.20425I$	0
$u = 0.763473 - 0.833575I$ $a = 1.23213 - 1.16646I$ $b = 0.825340 - 0.691127I$	$-2.19732 + 0.20425I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.307670 + 1.089840I$ $a = -1.52467 - 1.13055I$ $b = 0.781449 - 0.708430I$	$-3.12443 - 2.29817I$	0
$u = 0.307670 - 1.089840I$ $a = -1.52467 + 1.13055I$ $b = 0.781449 + 0.708430I$	$-3.12443 + 2.29817I$	0
$u = 0.277505 + 1.104830I$ $a = -0.1271100 - 0.0362554I$ $b = 0.688170 + 0.874892I$	$-2.91862 - 4.97555I$	0
$u = 0.277505 - 1.104830I$ $a = -0.1271100 + 0.0362554I$ $b = 0.688170 - 0.874892I$	$-2.91862 + 4.97555I$	0
$u = -0.760110 + 0.849074I$ $a = 0.534218 - 1.195980I$ $b = -0.182890 - 1.029530I$	$-4.67900 + 0.62095I$	0
$u = -0.760110 - 0.849074I$ $a = 0.534218 + 1.195980I$ $b = -0.182890 + 1.029530I$	$-4.67900 - 0.62095I$	0
$u = 0.239231 + 1.116540I$ $a = 1.36880 + 0.80283I$ $b = -0.978221 + 0.642817I$	$1.11393 - 6.06429I$	0
$u = 0.239231 - 1.116540I$ $a = 1.36880 - 0.80283I$ $b = -0.978221 - 0.642817I$	$1.11393 + 6.06429I$	0
$u = -0.888885 + 0.718904I$ $a = -0.531734 + 1.184580I$ $b = -1.048580 + 0.760099I$	$-6.53896 - 5.97441I$	0
$u = -0.888885 - 0.718904I$ $a = -0.531734 - 1.184580I$ $b = -1.048580 - 0.760099I$	$-6.53896 + 5.97441I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.849313 + 0.087081I$ $a = 0.56368 - 1.29841I$ $b = 0.969631 - 0.765873I$	$-6.10338 - 7.37044I$	0
$u = 0.849313 - 0.087081I$ $a = 0.56368 + 1.29841I$ $b = 0.969631 + 0.765873I$	$-6.10338 + 7.37044I$	0
$u = 0.146678 + 0.835966I$ $a = 0.508790 + 0.043311I$ $b = 0.025150 - 0.703991I$	$0.50382 - 1.71842I$	0
$u = 0.146678 - 0.835966I$ $a = 0.508790 - 0.043311I$ $b = 0.025150 + 0.703991I$	$0.50382 + 1.71842I$	0
$u = -0.914130 + 0.710133I$ $a = 0.66641 - 1.29667I$ $b = 1.065570 - 0.825694I$	$-9.8021 - 11.2187I$	0
$u = -0.914130 - 0.710133I$ $a = 0.66641 + 1.29667I$ $b = 1.065570 + 0.825694I$	$-9.8021 + 11.2187I$	0
$u = 0.765930 + 0.869765I$ $a = -0.02115 + 2.55065I$ $b = -0.791634 + 0.793650I$	$-5.87770 - 1.49881I$	0
$u = 0.765930 - 0.869765I$ $a = -0.02115 - 2.55065I$ $b = -0.791634 - 0.793650I$	$-5.87770 + 1.49881I$	0
$u = -0.892156 + 0.739909I$ $a = 0.30564 + 1.68316I$ $b = 0.759500 + 0.991887I$	$-10.79950 - 4.57831I$	0
$u = -0.892156 - 0.739909I$ $a = 0.30564 - 1.68316I$ $b = 0.759500 - 0.991887I$	$-10.79950 + 4.57831I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.549237 + 1.021450I$ $a = 0.277415 + 1.180080I$ $b = -0.913257 - 0.043795I$	$1.67910 - 1.36015I$	0
$u = 0.549237 - 1.021450I$ $a = 0.277415 - 1.180080I$ $b = -0.913257 + 0.043795I$	$1.67910 + 1.36015I$	0
$u = -0.704293 + 0.925402I$ $a = -0.520684 + 1.249690I$ $b = 1.256970 + 0.183413I$	$0.69382 + 4.56111I$	0
$u = -0.704293 - 0.925402I$ $a = -0.520684 - 1.249690I$ $b = 1.256970 - 0.183413I$	$0.69382 - 4.56111I$	0
$u = -0.888784 + 0.755463I$ $a = 0.292839 - 1.319880I$ $b = 0.949109 - 0.740773I$	$-11.11310 - 1.60376I$	0
$u = -0.888784 - 0.755463I$ $a = 0.292839 + 1.319880I$ $b = 0.949109 + 0.740773I$	$-11.11310 + 1.60376I$	0
$u = 0.812047 + 0.837491I$ $a = -1.39732 - 1.12186I$ $b = -0.953304 - 0.748451I$	$-5.37858 + 4.30990I$	0
$u = 0.812047 - 0.837491I$ $a = -1.39732 + 1.12186I$ $b = -0.953304 + 0.748451I$	$-5.37858 - 4.30990I$	0
$u = -0.872599 + 0.774567I$ $a = -0.21957 - 1.49195I$ $b = -0.674295 - 0.904933I$	$-7.68839 + 0.16391I$	0
$u = -0.872599 - 0.774567I$ $a = -0.21957 + 1.49195I$ $b = -0.674295 + 0.904933I$	$-7.68839 - 0.16391I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.768255 + 0.881229I$ $a = 1.090040 - 0.500963I$ $b = -0.955497 + 0.043580I$	$-6.17949 + 2.90009I$	0
$u = -0.768255 - 0.881229I$ $a = 1.090040 + 0.500963I$ $b = -0.955497 - 0.043580I$	$-6.17949 - 2.90009I$	0
$u = 0.761656 + 0.891292I$ $a = -1.30304 - 1.35327I$ $b = -0.757619 - 0.846783I$	$-5.81140 - 4.27423I$	0
$u = 0.761656 - 0.891292I$ $a = -1.30304 + 1.35327I$ $b = -0.757619 + 0.846783I$	$-5.81140 + 4.27423I$	0
$u = -0.125362 + 0.816549I$ $a = -1.60573 + 1.61861I$ $b = 1.037850 + 0.456374I$	$3.10305 + 2.04932I$	0
$u = -0.125362 - 0.816549I$ $a = -1.60573 - 1.61861I$ $b = 1.037850 - 0.456374I$	$3.10305 - 2.04932I$	0
$u = -0.209971 + 0.797600I$ $a = 1.38225 - 1.86157I$ $b = -1.090740 - 0.631167I$	$0.79834 + 7.03577I$	0
$u = -0.209971 - 0.797600I$ $a = 1.38225 + 1.86157I$ $b = -1.090740 + 0.631167I$	$0.79834 - 7.03577I$	0
$u = -0.751265 + 0.907966I$ $a = -0.782532 + 0.938819I$ $b = -0.104033 + 1.028450I$	$-4.49816 + 5.10320I$	0
$u = -0.751265 - 0.907966I$ $a = -0.782532 - 0.938819I$ $b = -0.104033 - 1.028450I$	$-4.49816 - 5.10320I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.629659 + 0.996600I$ $a = -0.15233 - 1.68044I$ $b = 0.966172 - 0.232867I$	$1.19714 - 5.44523I$	0
$u = 0.629659 - 0.996600I$ $a = -0.15233 + 1.68044I$ $b = 0.966172 + 0.232867I$	$1.19714 + 5.44523I$	0
$u = 0.249058 + 1.157640I$ $a = -1.18468 - 0.88217I$ $b = 1.036260 - 0.748871I$	$-1.84605 - 11.00330I$	0
$u = 0.249058 - 1.157640I$ $a = -1.18468 + 0.88217I$ $b = 1.036260 + 0.748871I$	$-1.84605 + 11.00330I$	0
$u = 0.748713 + 0.918405I$ $a = 0.05162 - 2.36288I$ $b = 0.908277 - 0.688694I$	$-1.93769 - 5.52130I$	0
$u = 0.748713 - 0.918405I$ $a = 0.05162 + 2.36288I$ $b = 0.908277 + 0.688694I$	$-1.93769 + 5.52130I$	0
$u = 0.376983 + 1.135080I$ $a = 0.039090 - 0.287969I$ $b = 0.938525 + 0.697645I$	$-2.64255 + 3.10548I$	0
$u = 0.376983 - 1.135080I$ $a = 0.039090 + 0.287969I$ $b = 0.938525 - 0.697645I$	$-2.64255 - 3.10548I$	0
$u = -0.709617 + 0.965654I$ $a = 0.57312 - 1.56112I$ $b = -1.250540 - 0.367308I$	$-0.39950 + 10.08460I$	0
$u = -0.709617 - 0.965654I$ $a = 0.57312 + 1.56112I$ $b = -1.250540 + 0.367308I$	$-0.39950 - 10.08460I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.789470 + 0.019412I$ $a = 0.20756 + 1.53579I$ $b = 0.787797 + 0.828757I$	$-6.67050 - 1.40384I$	$-5.97563 + 0.I$
$u = 0.789470 - 0.019412I$ $a = 0.20756 - 1.53579I$ $b = 0.787797 - 0.828757I$	$-6.67050 + 1.40384I$	$-5.97563 + 0.I$
$u = 0.672399 + 0.413520I$ $a = -0.560928 + 0.078758I$ $b = -0.871864 + 0.212793I$	$-0.08856 - 3.26981I$	0
$u = 0.672399 - 0.413520I$ $a = -0.560928 - 0.078758I$ $b = -0.871864 - 0.212793I$	$-0.08856 + 3.26981I$	0
$u = -0.912970 + 0.802094I$ $a = 0.47515 + 1.36604I$ $b = 0.796629 + 0.772479I$	$-11.58130 + 4.12334I$	0
$u = -0.912970 - 0.802094I$ $a = 0.47515 - 1.36604I$ $b = 0.796629 - 0.772479I$	$-11.58130 - 4.12334I$	0
$u = 0.781050 + 0.934561I$ $a = -0.18844 + 2.38464I$ $b = -0.994076 + 0.763353I$	$-5.07610 - 10.28260I$	0
$u = 0.781050 - 0.934561I$ $a = -0.18844 - 2.38464I$ $b = -0.994076 - 0.763353I$	$-5.07610 + 10.28260I$	0
$u = 0.776301 + 0.076386I$ $a = -0.319455 + 1.211640I$ $b = -0.867979 + 0.710791I$	$-2.88166 - 2.72171I$	$0. + 3.00862I$
$u = 0.776301 - 0.076386I$ $a = -0.319455 - 1.211640I$ $b = -0.867979 - 0.710791I$	$-2.88166 + 2.72171I$	$0. - 3.00862I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.871773+0.916358I$ $a=-0.487194-0.299904I$ $b=-0.476647-0.027311I$	$-8.08278+3.22388I$	0
$u=-0.871773-0.916358I$ $a=-0.487194+0.299904I$ $b=-0.476647+0.027311I$	$-8.08278-3.22388I$	0
$u=-0.787166+0.996674I$ $a=-1.114630+0.530099I$ $b=-0.615591+0.925197I$	$-6.99502+5.99921I$	0
$u=-0.787166-0.996674I$ $a=-1.114630-0.530099I$ $b=-0.615591-0.925197I$	$-6.99502-5.99921I$	0
$u=-0.085683+0.721766I$ $a=-0.864203-0.162417I$ $b=-0.488075+0.845371I$	$-1.05235+1.55920I$	$2.00000-0.56987I$
$u=-0.085683-0.721766I$ $a=-0.864203+0.162417I$ $b=-0.488075-0.845371I$	$-1.05235-1.55920I$	$2.00000+0.56987I$
$u=-0.787073+1.014950I$ $a=-0.83389+2.18640I$ $b=\ \ 0.966571+0.702533I$	$-10.30340+7.81272I$	0
$u=-0.787073-1.014950I$ $a=-0.83389-2.18640I$ $b=\ \ 0.966571-0.702533I$	$-10.30340-7.81272I$	0
$u=-0.769663+1.032780I$ $a=\ \ 0.66899-2.14570I$ $b=-1.081960-0.741798I$	$-5.56416+12.12230I$	0
$u=-0.769663-1.032780I$ $a=\ \ 0.66899+2.14570I$ $b=-1.081960+0.741798I$	$-5.56416-12.12230I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.781137 + 1.024430I$ $a = 1.246290 - 0.543561I$ $b = 0.731376 - 1.014790I$	$-9.9128 + 10.7762I$	0
$u = -0.781137 - 1.024430I$ $a = 1.246290 + 0.543561I$ $b = 0.731376 + 1.014790I$	$-9.9128 - 10.7762I$	0
$u = -0.827217 + 1.003730I$ $a = 1.145160 - 0.311699I$ $b = 0.758216 - 0.743338I$	$-10.94860 + 2.29220I$	0
$u = -0.827217 - 1.003730I$ $a = 1.145160 + 0.311699I$ $b = 0.758216 + 0.743338I$	$-10.94860 - 2.29220I$	0
$u = -0.776209 + 1.048340I$ $a = -0.61023 + 2.22461I$ $b = 1.090020 + 0.819468I$	$-8.7457 + 17.4597I$	0
$u = -0.776209 - 1.048340I$ $a = -0.61023 - 2.22461I$ $b = 1.090020 - 0.819468I$	$-8.7457 - 17.4597I$	0
$u = 0.020183 + 0.632941I$ $a = 2.46837 - 2.16377I$ $b = -0.635810 - 0.436420I$	$-1.55529 - 0.64924I$	$2.02149 - 1.49466I$
$u = 0.020183 - 0.632941I$ $a = 2.46837 + 2.16377I$ $b = -0.635810 + 0.436420I$	$-1.55529 + 0.64924I$	$2.02149 + 1.49466I$
$u = -0.377275 + 0.426971I$ $a = -1.41493 - 0.32178I$ $b = -0.992506 + 0.513905I$	$-0.28186 - 4.76677I$	$1.57538 + 7.46851I$
$u = -0.377275 - 0.426971I$ $a = -1.41493 + 0.32178I$ $b = -0.992506 - 0.513905I$	$-0.28186 + 4.76677I$	$1.57538 - 7.46851I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.286490+0.181246I$ $a=\ \ 1.97003+0.54068I$ $b=\ \ 0.873438-0.227558I$	$1.48560-0.51100I$	$6.06395+1.23488I$
$u=-0.286490-0.181246I$ $a=\ \ 1.97003-0.54068I$ $b=\ \ 0.873438+0.227558I$	$1.48560+0.51100I$	$6.06395-1.23488I$
$u=\ \ 0.086556+0.161978I$ $a=\ \ 4.05051-2.38193I$ $b=-0.340109-0.515693I$	$-1.75512-0.68895I$	$-4.16314-0.31578I$
$u=\ \ 0.086556-0.161978I$ $a=\ \ 4.05051+2.38193I$ $b=-0.340109+0.515693I$	$-1.75512+0.68895I$	$-4.16314+0.31578I$

II.

$\boldsymbol{I_2^u = \langle 3a^5u - 19a^4u + \cdots + 29a + 7,\ -a^5u - 4a^4u + \cdots + 2a + 1,\ u^2 - u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} a \\ -0.230769a^5u + 1.46154a^4u + \cdots - 2.23077a - 0.538462 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.538462a^5u - 0.0769231a^4u + \cdots + 1.53846a + 1.92308 \\ 0.153846a^5u + 0.692308a^4u + \cdots + 1.15385a + 0.692308 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0769231a^5u - 0.846154a^4u + \cdots + 1.92308a + 0.153846 \\ 0.461538a^5u + 0.0769231a^4u + \cdots + 2.46154a + 0.0769231 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.384615a^5u - 0.769231a^4u + \cdots + 0.384615a + 1.23077 \\ 0.153846a^5u + 0.692308a^4u + \cdots + 1.15385a + 0.692308 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ u - 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.0769231a^5u - 0.153846a^4u + \cdots + 0.0769231a + 0.846154 \\ -0.0769231a^5u + 0.153846a^4u + \cdots + 1.92308a + 0.153846 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.384615a^5u - 0.769231a^4u + \cdots + 0.384615a + 1.23077 \\ 0.153846a^5u + 0.692308a^4u + \cdots + 1.15385a + 0.692308 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= \frac{3}{13}a^5u - \frac{43}{13}a^5 + \frac{98}{13}a^4u - \frac{5}{13}a^4 + \frac{137}{13}a^3u - \frac{135}{13}a^3 + \frac{64}{13}a^2u + \frac{218}{13}a^2 + \frac{170}{13}au - \frac{23}{13}a + \frac{63}{13}u + \frac{72}{13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 - 3u^5 + 5u^4 - 4u^3 + 2u^2 - u + 1)^2$
c_2, c_7	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)^2$
c_3, c_4	$(u^6 - u^5 - u^4 + 2u^3 - u + 1)^2$
c_5, c_9	u^{12}
c_6	$(u^6 + 3u^5 + 5u^4 + 4u^3 + 2u^2 + u + 1)^2$
c_8, c_{12}	$(u^2 - u + 1)^6$
c_{10}, c_{11}	$(u^2 + u + 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)^2$
c_2, c_3, c_4 c_7	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)^2$
c_5, c_9	y^{12}
c_8, c_{10}, c_{11} c_{12}	$(y^2 + y + 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.104427 - 1.024660I$ $b = -0.428243 - 0.664531I$	$-1.89061 - 2.95419I$	$-4.61123 + 3.83711I$
$u = 0.500000 + 0.866025I$ $a = -0.67283 - 1.28640I$ $b = 1.002190 - 0.295542I$	$1.89061 - 2.95419I$	$4.53097 + 3.97184I$
$u = 0.500000 + 0.866025I$ $a = -0.160939 - 0.449445I$ $b = 1.002190 + 0.295542I$	$1.89061 - 1.10558I$	$7.73749 + 2.70506I$
$u = 0.500000 + 0.866025I$ $a = -0.288082 + 0.269440I$ $b = -1.073950 - 0.558752I$	$3.66314I$	$3.68173 - 0.75872I$
$u = 0.500000 + 0.866025I$ $a = 0.67970 + 1.59070I$ $b = -1.073950 + 0.558752I$	$-7.72290I$	$-0.57335 + 8.68103I$
$u = 0.500000 + 0.866025I$ $a = 1.04658 + 1.76640I$ $b = -0.428243 + 0.664531I$	$-1.89061 - 1.10558I$	$-0.765607 + 0.616236I$
$u = 0.500000 - 0.866025I$ $a = -0.104427 + 1.024660I$ $b = -0.428243 + 0.664531I$	$-1.89061 + 2.95419I$	$-4.61123 - 3.83711I$
$u = 0.500000 - 0.866025I$ $a = -0.67283 + 1.28640I$ $b = 1.002190 + 0.295542I$	$1.89061 + 2.95419I$	$4.53097 - 3.97184I$
$u = 0.500000 - 0.866025I$ $a = -0.160939 + 0.449445I$ $b = 1.002190 - 0.295542I$	$1.89061 + 1.10558I$	$7.73749 - 2.70506I$
$u = 0.500000 - 0.866025I$ $a = -0.288082 - 0.269440I$ $b = -1.073950 + 0.558752I$	$-3.66314I$	$3.68173 + 0.75872I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 - 0.866025I$ $a = 0.67970 - 1.59070I$ $b = -1.073950 - 0.558752I$	$7.72290I$	$-0.57335 - 8.68103I$
$u = 0.500000 - 0.866025I$ $a = 1.04658 - 1.76640I$ $b = -0.428243 - 0.664531I$	$-1.89061 + 1.10558I$	$-0.765607 - 0.616236I$

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

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^3 + 2u^2 + 2u \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3 + 2u^2 + 2u \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^3 + u^2 + 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2u^3 + 2u^2 + 2u \\ u^3 + u^2 + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^3 \\ -u^3 - u^2 - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^3 + 3u^2 + 8u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^4$
c_3, c_6, c_7	y^4
c_5, c_9, c_{10} c_{12}	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_8, c_{11}	$y^4 + y^3 + 3y^2 + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.351808 + 0.720342I$ $a = -0.59074 + 2.34806I$ $b = 0$	$-1.43393 - 1.41510I$	$3.14142 + 7.60220I$
$u = 0.351808 - 0.720342I$ $a = -0.59074 - 2.34806I$ $b = 0$	$-1.43393 + 1.41510I$	$3.14142 - 7.60220I$
$u = -0.851808 + 0.911292I$ $a = -0.409261 - 0.055548I$ $b = 0$	$-8.43568 + 3.16396I$	$-11.64142 - 1.04769I$
$u = -0.851808 - 0.911292I$ $a = -0.409261 + 0.055548I$ $b = 0$	$-8.43568 - 3.16396I$	$-11.64142 + 1.04769I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^4(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^{104}+57u^{103}+\cdots-38u+1)$
c_2	$((u-1)^4)(u^6+u^5+\cdots+u+1)^2(u^{104}-7u^{103}+\cdots-2u+1)$
c_3	$u^4(u^6-u^5+\cdots-u+1)^2(u^{104}-3u^{103}+\cdots+56u+16)$
c_4	$((u+1)^4)(u^6-u^5+\cdots-u+1)^2(u^{104}-7u^{103}+\cdots-2u+1)$
c_5	$u^{12}(u^4+u^3+3u^2+2u+1)(u^{104}+2u^{103}+\cdots+8192u+4096)$
c_6	$u^4(u^6+3u^5+5u^4+4u^3+2u^2+u+1)^2$ $\cdot(u^{104}-33u^{103}+\cdots-3136u+256)$
c_7	$u^4(u^6+u^5+\cdots+u+1)^2(u^{104}-3u^{103}+\cdots+56u+16)$
c_8	$((u^2-u+1)^6)(u^4+u^3+u^2+1)(u^{104}-8u^{103}+\cdots+26u^2+1)$
c_9	$u^{12}(u^4-u^3+3u^2-2u+1)(u^{104}+2u^{103}+\cdots+8192u+4096)$
c_{10}	$((u^2+u+1)^6)(u^4+u^3+3u^2+2u+1)(u^{104}-32u^{103}+\cdots-52u+1)$
c_{11}	$((u^2+u+1)^6)(u^4-u^3+u^2+1)(u^{104}-8u^{103}+\cdots+26u^2+1)$
c_{12}	$((u^2-u+1)^6)(u^4-u^3+3u^2-2u+1)(u^{104}-32u^{103}+\cdots-52u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^4(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{104}-13y^{103}+\cdots+1086y+1)$
c_2, c_4	$(y-1)^4(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{104}-57y^{103}+\cdots+38y+1)$
c_3, c_7	$y^4(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{104}-33y^{103}+\cdots-3136y+256)$
c_5, c_9	$y^{12}(y^4+5y^3+7y^2+2y+1)$ $\cdot(y^{104}+70y^{103}+\cdots+251658240y+16777216)$
c_6	$y^4(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{104}+71y^{103}+\cdots+4435968y+65536)$
c_8, c_{11}	$((y^2+y+1)^6)(y^4+y^3+3y^2+2y+1)(y^{104}+32y^{103}+\cdots+52y+1)$
c_{10}, c_{12}	$((y^2+y+1)^6)(y^4+5y^3+\cdots+2y+1)(y^{104}+88y^{103}+\cdots+772y+1)$