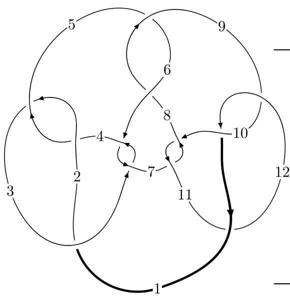
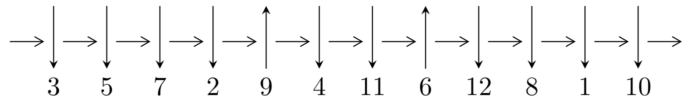
$12a_{0044}$ ($K12a_{0044}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -84627704u^{20} - 128973875u^{19} + \cdots + 514524411b - 272407188,\ a-1,\ u^{21} + u^{20} + \cdots + 4u - 1\rangle$$
$$I_2^u = \langle 5.22206 \times 10^{409}u^{113} + 1.42485 \times 10^{410}u^{112} + \cdots + 5.53920 \times 10^{411}b + 3.35281 \times 10^{412},$$
$$-1.67844 \times 10^{410}u^{113} - 6.46598 \times 10^{410}u^{112} + \cdots + 1.10784 \times 10^{412}a + 1.29452 \times 10^{413},$$
$$u^{114} + 4u^{113} + \cdots - 9216u - 512\rangle$$
$$I_3^u = \langle -u^8 - 2u^7 - 4u^6 - 4u^5 - 6u^4 - 5u^3 - 6u^2 + b - 3u - 3,\ a,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1\rangle$$
$$I_4^u = \langle u^2 + b + 2,\ a+1,\ u^3 - u^2 + 2u - 1\rangle$$
$$I_5^u = \langle -2au + b + 2u - 1,\ u^2a + a^2 - au + 3u^2 + a - u + 5,\ u^3 - u^2 + 2u - 1\rangle$$

$$I_1^v = \langle a,\ 4v^8 - 372v^7 - 2334v^6 - 5550v^5 - 4357v^4 + 2618v^3 + 3887v^2 + 683b - 3400v - 4863,$$
$$v^9 + 7v^8 + 20v^7 + 25v^6 + 5v^5 - 15v^4 + 22v^2 + 13v - 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 162 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. $\boldsymbol{I_1^u = \langle -8.46\times 10^{7}u^{20} - 1.29\times 10^{8}u^{19} + \cdots + 5.15\times 10^{7}b - 2.72\times 10^{8},\ a - 1,\ u^{21} + u^{20} + \cdots + 4u - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1\\1.64478u^{20} + 2.50666u^{19} + \cdots - 5.18329u + 5.29435\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u\\-0.861887u^{20} - 0.812044u^{19} + \cdots + 2.28475u - 1.64478\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.192548u^{20} - 0.0736292u^{19} + \cdots - 2.06126u + 0.0498433\\-0.603909u^{20} - 0.670769u^{19} + \cdots + 2.48075u - 1.86111\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.265940u^{20} + 0.118547u^{19} + \cdots + 2.50924u - 0.0261450\\0.310547u^{20} + 0.573803u^{19} + \cdots - 1.29066u + 1.04156\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.265940u^{20} + 0.118547u^{19} + \cdots + 2.50924u - 0.0261450\\-0.276831u^{20} - 0.685016u^{19} + \cdots - 0.513226u - 0.657077\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.542770u^{20} - 0.566469u^{19} + \cdots + 1.99601u - 0.683222\\-0.276831u^{20} - 0.685016u^{19} + \cdots - 0.513226u - 0.657077\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^2 + 1\\1.59493u^{20} + 2.26427u^{19} + \cdots - 6.98606u + 6.15624\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.293060u^{20} - 0.196829u^{19} + \cdots - 0.0371231u + 0.621597\\1.30711u^{20} + 1.61748u^{19} + \cdots - 6.43899u + 4.90053\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1476285438}{51452411}u^{20} - \frac{1893823898}{51452411}u^{19} + \cdots + \frac{5145089090}{51452411}u - \frac{4384281402}{51452411}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{21} + 11u^{20} + \cdots - 4u + 1$
c_2, c_4, c_9 c_{12}	$u^{21} - 3u^{20} + \cdots - 2u + 1$
c_3, c_6, c_7 c_{10}	$u^{21} - u^{20} + \cdots + 4u + 1$
c_5, c_8	$u^{21} + 7u^{20} + \cdots - 24u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{21} + y^{20} + \cdots + 60y - 1$
c_2, c_4, c_9 c_{12}	$y^{21} - 11y^{20} + \cdots - 4y - 1$
c_3, c_6, c_7 c_{10}	$y^{21} + 9y^{20} + \cdots + 4y - 1$
c_5, c_8	$y^{21} + 7y^{20} + \cdots + 384y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.654628 + 0.778929I$ $a = 1.00000$ $b = 0.301139 - 1.121240I$	$-6.57363 + 8.18913I$	$-13.0291 - 11.3346I$
$u = -0.654628 - 0.778929I$ $a = 1.00000$ $b = 0.301139 + 1.121240I$	$-6.57363 - 8.18913I$	$-13.0291 + 11.3346I$
$u = -0.448527 + 0.840581I$ $a = 1.00000$ $b = 2.61918 - 0.41086I$	$-5.92018 + 0.83164I$	$-11.63192 - 4.49260I$
$u = -0.448527 - 0.840581I$ $a = 1.00000$ $b = 2.61918 + 0.41086I$	$-5.92018 - 0.83164I$	$-11.63192 + 4.49260I$
$u = -1.041870 + 0.475093I$ $a = 1.00000$ $b = 1.97284 - 0.75695I$	$-4.35380 - 5.94110I$	$-11.79339 + 6.03278I$
$u = -1.041870 - 0.475093I$ $a = 1.00000$ $b = 1.97284 + 0.75695I$	$-4.35380 + 5.94110I$	$-11.79339 - 6.03278I$
$u = 0.752000 + 0.272051I$ $a = 1.00000$ $b = 2.06444 + 1.49682I$	$-2.27847 + 1.35735I$	$-12.26664 - 3.16411I$
$u = 0.752000 - 0.272051I$ $a = 1.00000$ $b = 2.06444 - 1.49682I$	$-2.27847 - 1.35735I$	$-12.26664 + 3.16411I$
$u = 0.148758 + 0.737388I$ $a = 1.00000$ $b = -0.679107 + 0.183414I$	$0.94396 - 2.98921I$	$-0.51194 + 9.40250I$
$u = 0.148758 - 0.737388I$ $a = 1.00000$ $b = -0.679107 - 0.183414I$	$0.94396 + 2.98921I$	$-0.51194 - 9.40250I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.371460 + 1.226140I$ $a = 1.00000$ $b = 0.88921 - 1.56579I$	$6.79620 + 1.15294I$	$-1.115456 + 0.635021I$
$u = -0.371460 - 1.226140I$ $a = 1.00000$ $b = 0.88921 + 1.56579I$	$6.79620 - 1.15294I$	$-1.115456 - 0.635021I$
$u = 0.507858 + 0.499877I$ $a = 1.00000$ $b = 0.321354 + 0.105246I$	$-0.56389 - 1.48786I$	$-4.78639 + 4.72577I$
$u = 0.507858 - 0.499877I$ $a = 1.00000$ $b = 0.321354 - 0.105246I$	$-0.56389 + 1.48786I$	$-4.78639 - 4.72577I$
$u = 0.663991 + 1.165250I$ $a = 1.00000$ $b = 1.13756 + 2.28315I$	$2.55725 - 12.07520I$	$-7.44072 + 8.70390I$
$u = 0.663991 - 1.165250I$ $a = 1.00000$ $b = 1.13756 - 2.28315I$	$2.55725 + 12.07520I$	$-7.44072 - 8.70390I$
$u = 0.525082 + 1.301340I$ $a = 1.00000$ $b = 1.23361 + 1.22991I$	$5.42762 - 7.34188I$	$-2.93735 + 4.03622I$
$u = 0.525082 - 1.301340I$ $a = 1.00000$ $b = 1.23361 - 1.22991I$	$5.42762 + 7.34188I$	$-2.93735 - 4.03622I$
$u = -0.75692 + 1.26041I$ $a = 1.00000$ $b = 1.65886 - 1.96882I$	$0.4705 + 19.1772I$	$-8.57373 - 11.20098I$
$u = -0.75692 - 1.26041I$ $a = 1.00000$ $b = 1.65886 + 1.96882I$	$0.4705 - 19.1772I$	$-8.57373 + 11.20098I$

Solutions to I_1^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	0.351418		
$a =$	1.00000	-2.88079	-73.8270
$b =$	4.96186		

II. $\boldsymbol{I_2^u = \langle 5.22 \times 10^{409} u^{113} + 1.42 \times 10^{410} u^{112} + \cdots + 5.54 \times 10^{411} b + 3.35 \times 10^{412},\ -1.68 \times 10^{410} u^{113} - 6.47 \times 10^{410} u^{112} + \cdots + 1.11 \times 10^{412} a + 1.29 \times 10^{413},\ u^{114} + 4u^{113} + \cdots - 9216u - 512\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} 0.0151506u^{113} + 0.0583657u^{112} + \cdots - 71.2863u - 11.6851 \\ -0.00942747u^{113} - 0.0257230u^{112} + \cdots - 85.0764u - 6.05288 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00640765u^{113} + 0.0482909u^{112} + \cdots - 348.071u - 16.0079 \\ -0.0200164u^{113} - 0.0770575u^{112} + \cdots + 160.460u + 8.88052 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} 0.0236246u^{113} + 0.116816u^{112} + \cdots - 519.094u - 25.3276 \\ -0.0133962u^{113} - 0.0432854u^{112} + \cdots - 4.90955u - 0.614850 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.00304677u^{113} - 0.0105289u^{112} + \cdots - 11.0996u + 0.184583 \\ 0.0000978210u^{113} - 0.00258173u^{112} + \cdots + 28.5323u + 1.65333 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00304677u^{113} - 0.0105289u^{112} + \cdots - 11.0996u + 0.184583 \\ 0.00182149u^{113} + 0.00762875u^{112} + \cdots - 14.8107u - 0.804353 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00122528u^{113} - 0.00290018u^{112} + \cdots - 25.9103u - 0.619770 \\ 0.00182149u^{113} + 0.00762875u^{112} + \cdots - 14.8107u - 0.804353 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.00828771u^{113} - 0.0146138u^{112} + \cdots - 171.414u - 21.2570 \\ -0.0134184u^{113} - 0.0492643u^{112} + \cdots + 101.594u + 4.68353 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0205689u^{113} + 0.112245u^{112} + \cdots - 615.942u - 42.6036 \\ -0.0227900u^{113} - 0.0797952u^{112} + \cdots + 70.9865u + 2.43153 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0149552u^{113} - 0.0815478u^{112} + \cdots + 396.932u + 14.1706$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{114} + 53u^{113} + \cdots + 60814u + 1$
c_2, c_4, c_9 c_{12}	$u^{114} - 11u^{113} + \cdots + 244u + 1$
c_3, c_6, c_7 c_{10}	$u^{114} - 4u^{113} + \cdots + 9216u - 512$
c_5, c_8	$(u^{57} - 2u^{56} + \cdots - 28u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{114} + 27y^{113} + \cdots - 3695912450y + 1$
c_2, c_4, c_9 c_{12}	$y^{114} - 53y^{113} + \cdots - 60814y + 1$
c_3, c_6, c_7 c_{10}	$y^{114} + 60y^{113} + \cdots - 63963136y + 262144$
c_5, c_8	$(y^{57} + 28y^{56} + \cdots + 976y - 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.378129 + 0.927561I$ $a = -0.095736 + 1.080570I$ $b = 0.328302 + 0.445998I$	$-5.22774 + 3.33747I$	0
$u = -0.378129 - 0.927561I$ $a = -0.095736 - 1.080570I$ $b = 0.328302 - 0.445998I$	$-5.22774 - 3.33747I$	0
$u = -0.451577 + 0.889017I$ $a = -1.012040 - 0.571682I$ $b = -0.539472 + 1.090330I$	$-2.71251 + 4.62043I$	0
$u = -0.451577 - 0.889017I$ $a = -1.012040 + 0.571682I$ $b = -0.539472 - 1.090330I$	$-2.71251 - 4.62043I$	0
$u = 0.970693 + 0.323388I$ $a = 0.120545 + 1.128560I$ $b = -1.17594 + 0.89067I$	$2.00680 + 0.99841I$	0
$u = 0.970693 - 0.323388I$ $a = 0.120545 - 1.128560I$ $b = -1.17594 - 0.89067I$	$2.00680 - 0.99841I$	0
$u = 0.452424 + 0.843604I$ $a = -0.553257 - 0.833010I$ $b = 1.24519$	-0.0831767	0
$u = 0.452424 - 0.843604I$ $a = -0.553257 + 0.833010I$ $b = 1.24519$	-0.0831767	0
$u = -0.847621 + 0.438436I$ $a = -0.938703 - 0.312693I$ $b = -1.71537 - 0.03530I$	$-2.88934 - 1.48893I$	0
$u = -0.847621 - 0.438436I$ $a = -0.938703 + 0.312693I$ $b = -1.71537 + 0.03530I$	$-2.88934 + 1.48893I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.940806 + 0.478051I$ $a = -0.056741 - 1.201070I$ $b = 1.73261 - 0.98404I$	$0.39261 + 6.15931I$	0
$u = 0.940806 - 0.478051I$ $a = -0.056741 + 1.201070I$ $b = 1.73261 + 0.98404I$	$0.39261 - 6.15931I$	0
$u = 0.932761 + 0.146516I$ $a = -0.958897 - 0.319420I$ $b = -1.71537 + 0.03530I$	$-2.88934 + 1.48893I$	0
$u = 0.932761 - 0.146516I$ $a = -0.958897 + 0.319420I$ $b = -1.71537 - 0.03530I$	$-2.88934 - 1.48893I$	0
$u = -0.274548 + 1.020150I$ $a = -1.168810 - 0.169782I$ $b = -1.82379 + 0.42850I$	$-0.72077 + 3.96419I$	0
$u = -0.274548 - 1.020150I$ $a = -1.168810 + 0.169782I$ $b = -1.82379 - 0.42850I$	$-0.72077 - 3.96419I$	0
$u = -0.966092 + 0.497395I$ $a = -0.081353 + 0.918231I$ $b = 0.328302 - 0.445998I$	$-5.22774 - 3.33747I$	0
$u = -0.966092 - 0.497395I$ $a = -0.081353 - 0.918231I$ $b = 0.328302 + 0.445998I$	$-5.22774 + 3.33747I$	0
$u = 1.091000 + 0.041803I$ $a = 0.319454 - 1.036770I$ $b = 0.531188 - 0.668667I$	$1.42672 + 1.76217I$	0
$u = 1.091000 - 0.041803I$ $a = 0.319454 + 1.036770I$ $b = 0.531188 + 0.668667I$	$1.42672 - 1.76217I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.435064 + 0.778638I$ $a = 1.339470 + 0.178918I$ $b = 1.75566 + 1.76606I$	$-0.28156 - 3.75363I$	$-8.00000 + 5.48916I$
$u = 0.435064 - 0.778638I$ $a = 1.339470 - 0.178918I$ $b = 1.75566 - 1.76606I$	$-0.28156 + 3.75363I$	$-8.00000 - 5.48916I$
$u = -0.405963 + 0.790427I$ $a = -0.559904 + 1.232660I$ $b = 0.522462 - 0.855107I$	$-6.11667 + 2.79727I$	$-8.00000 - 5.24994I$
$u = -0.405963 - 0.790427I$ $a = -0.559904 - 1.232660I$ $b = 0.522462 + 0.855107I$	$-6.11667 - 2.79727I$	$-8.00000 + 5.24994I$
$u = -0.861996 + 0.131943I$ $a = 0.25986 - 1.45863I$ $b = 0.67289 - 1.32552I$	$2.57214 - 2.93898I$	$-5.24430 + 8.01628I$
$u = -0.861996 - 0.131943I$ $a = 0.25986 + 1.45863I$ $b = 0.67289 + 1.32552I$	$2.57214 + 2.93898I$	$-5.24430 - 8.01628I$
$u = -0.113238 + 1.125090I$ $a = -0.714068 - 0.092339I$ $b = -1.85448 + 1.17635I$	$0.91644 - 1.21025I$	0
$u = -0.113238 - 1.125090I$ $a = -0.714068 + 0.092339I$ $b = -1.85448 - 1.17635I$	$0.91644 + 1.21025I$	0
$u = 0.965247 + 0.641559I$ $a = -0.749081 - 0.423143I$ $b = -0.539472 - 1.090330I$	$-2.71251 - 4.62043I$	0
$u = 0.965247 - 0.641559I$ $a = -0.749081 + 0.423143I$ $b = -0.539472 + 1.090330I$	$-2.71251 + 4.62043I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.247950 + 1.134470I$ $a = 0.093578 - 0.876090I$ $b = -1.17594 + 0.89067I$	$2.00680 + 0.99841I$	0
$u = -0.247950 - 1.134470I$ $a = 0.093578 + 0.876090I$ $b = -1.17594 - 0.89067I$	$2.00680 - 0.99841I$	0
$u = -0.353816 + 1.115940I$ $a = 1.125470 + 0.246163I$ $b = 1.72422 - 0.87401I$	$-3.08563 + 9.35831I$	0
$u = -0.353816 - 1.115940I$ $a = 1.125470 - 0.246163I$ $b = 1.72422 + 0.87401I$	$-3.08563 - 9.35831I$	0
$u = 0.135138 + 1.162980I$ $a = -1.173600 - 0.503314I$ $b = -0.394880 + 0.599648I$	$6.31677 + 3.78842I$	0
$u = 0.135138 - 1.162980I$ $a = -1.173600 + 0.503314I$ $b = -0.394880 - 0.599648I$	$6.31677 - 3.78842I$	0
$u = 0.258009 + 1.148030I$ $a = 0.065708 + 0.507725I$ $b = -0.608537 - 1.186480I$	$2.11375 - 2.54354I$	0
$u = 0.258009 - 1.148030I$ $a = 0.065708 - 0.507725I$ $b = -0.608537 + 1.186480I$	$2.11375 + 2.54354I$	0
$u = 0.775698 + 0.270746I$ $a = -0.315732 + 0.938237I$ $b = -0.645088 - 0.860304I$	$-3.38914 - 0.67754I$	$-11.03837 - 0.57218I$
$u = 0.775698 - 0.270746I$ $a = -0.315732 - 0.938237I$ $b = -0.645088 + 0.860304I$	$-3.38914 + 0.67754I$	$-11.03837 + 0.57218I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.342433+0.746014I$ $a=\ 1.35153+0.66467I$ $b=\ 0.477401-1.153940I$	$-5.85242-0.17004I$	$-10.50922-4.42750I$
$u=-0.342433-0.746014I$ $a=\ 1.35153-0.66467I$ $b=\ 0.477401+1.153940I$	$-5.85242+0.17004I$	$-10.50922+4.42750I$
$u=\ 0.391866+1.117770I$ $a=\ 0.271428-0.880901I$ $b=\ 0.531188+0.668667I$	$1.42672-1.76217I$	0
$u=\ 0.391866-1.117770I$ $a=\ 0.271428+0.880901I$ $b=\ 0.531188-0.668667I$	$1.42672+1.76217I$	0
$u=\ 0.184750+0.792934I$ $a=-1.377390-0.178116I$ $b=-1.85448-1.17635I$	$0.91644+1.21025I$	$-2.66130-1.26504I$
$u=\ 0.184750-0.792934I$ $a=-1.377390+0.178116I$ $b=-1.85448+1.17635I$	$0.91644-1.21025I$	$-2.66130+1.26504I$
$u=-0.498937+0.642305I$ $a=-0.322183-0.957409I$ $b=-0.645088-0.860304I$	$-3.38914-0.67754I$	$-11.03837-0.57218I$
$u=-0.498937-0.642305I$ $a=-0.322183+0.957409I$ $b=-0.645088+0.860304I$	$-3.38914+0.67754I$	$-11.03837+0.57218I$
$u=\ 1.177850+0.158092I$ $a=-0.386060+1.031110I$ $b=-1.21846+0.73693I$	$-0.66955+6.99715I$	0
$u=\ 1.177850-0.158092I$ $a=-0.386060-1.031110I$ $b=-1.21846-0.73693I$	$-0.66955-6.99715I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.121580 + 0.420524I$ $a = -0.054160 - 1.102670I$ $b = -0.993470 - 0.568490I$	$0.38987 - 6.64143I$	0
$u = -1.121580 - 0.420524I$ $a = -0.054160 + 1.102670I$ $b = -0.993470 + 0.568490I$	$0.38987 + 6.64143I$	0
$u = -0.747029 + 0.942978I$ $a = -0.305466 + 0.672503I$ $b = 0.522462 + 0.855107I$	$-6.11667 - 2.79727I$	0
$u = -0.747029 - 0.942978I$ $a = -0.305466 - 0.672503I$ $b = 0.522462 - 0.855107I$	$-6.11667 + 2.79727I$	0
$u = 0.443441 + 1.120800I$ $a = 0.733479 - 0.097974I$ $b = 1.75566 + 1.76606I$	$-0.28156 - 3.75363I$	0
$u = 0.443441 - 1.120800I$ $a = 0.733479 + 0.097974I$ $b = 1.75566 - 1.76606I$	$-0.28156 + 3.75363I$	0
$u = -0.437125 + 1.155790I$ $a = 1.049980 - 0.697534I$ $b = 0.0289154 - 0.0801418I$	$5.11807 + 1.34577I$	0
$u = -0.437125 - 1.155790I$ $a = 1.049980 + 0.697534I$ $b = 0.0289154 + 0.0801418I$	$5.11807 - 1.34577I$	0
$u = -0.958661 + 0.780654I$ $a = 0.595803 - 0.293011I$ $b = 0.477401 - 1.153940I$	$-5.85242 - 0.17004I$	0
$u = -0.958661 - 0.780654I$ $a = 0.595803 + 0.293011I$ $b = 0.477401 + 1.153940I$	$-5.85242 + 0.17004I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.474338 + 1.144020I$ $a = -1.096510 - 0.064026I$ $b = -1.02854 + 1.94274I$	$4.87423 + 6.70670I$	0
$u = -0.474338 - 1.144020I$ $a = -1.096510 + 0.064026I$ $b = -1.02854 - 1.94274I$	$4.87423 - 6.70670I$	0
$u = 0.786568 + 0.959161I$ $a = 0.330534 + 0.513610I$ $b = -0.526269 + 0.568826I$	$-1.75595 - 1.61826I$	0
$u = 0.786568 - 0.959161I$ $a = 0.330534 - 0.513610I$ $b = -0.526269 - 0.568826I$	$-1.75595 + 1.61826I$	0
$u = -0.232648 + 0.721025I$ $a = 0.88604 - 1.37679I$ $b = -0.526269 + 0.568826I$	$-1.75595 - 1.61826I$	$-5.03383 - 2.66235I$
$u = -0.232648 - 0.721025I$ $a = 0.88604 + 1.37679I$ $b = -0.526269 - 0.568826I$	$-1.75595 + 1.61826I$	$-5.03383 + 2.66235I$
$u = 0.245927 + 1.219920I$ $a = 1.120700 + 0.336396I$ $b = 0.532169 - 0.140359I$	$7.34550 - 2.45066I$	0
$u = 0.245927 - 1.219920I$ $a = 1.120700 - 0.336396I$ $b = 0.532169 + 0.140359I$	$7.34550 + 2.45066I$	0
$u = 0.494096 + 1.145740I$ $a = -0.837894 - 0.121713I$ $b = -1.82379 - 0.42850I$	$-0.72077 - 3.96419I$	0
$u = 0.494096 - 1.145740I$ $a = -0.837894 + 0.121713I$ $b = -1.82379 + 0.42850I$	$-0.72077 + 3.96419I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.520791 + 1.157100I$ $a = -0.039246 - 0.830736I$ $b = 1.73261 + 0.98404I$	$0.39261 - 6.15931I$	0
$u = 0.520791 - 1.157100I$ $a = -0.039246 + 0.830736I$ $b = 1.73261 - 0.98404I$	$0.39261 + 6.15931I$	0
$u = -1.183100 + 0.486590I$ $a = 0.145098 + 1.077200I$ $b = 1.56639 + 0.48932I$	$-2.02455 - 12.24910I$	0
$u = -1.183100 - 0.486590I$ $a = 0.145098 - 1.077200I$ $b = 1.56639 - 0.48932I$	$-2.02455 + 12.24910I$	0
$u = -0.788592 + 1.007410I$ $a = -0.229654 + 0.436834I$ $b = 0.674394 + 0.466433I$	$-5.07109 + 6.54642I$	0
$u = -0.788592 - 1.007410I$ $a = -0.229654 - 0.436834I$ $b = 0.674394 - 0.466433I$	$-5.07109 - 6.54642I$	0
$u = -0.031547 + 1.291620I$ $a = 0.118383 + 0.664486I$ $b = 0.67289 - 1.32552I$	$2.57214 - 2.93898I$	0
$u = -0.031547 - 1.291620I$ $a = 0.118383 - 0.664486I$ $b = 0.67289 + 1.32552I$	$2.57214 + 2.93898I$	0
$u = -0.508892 + 1.204970I$ $a = -1.066370 + 0.490251I$ $b = -0.355539 + 0.508325I$	$5.81781 + 7.86530I$	0
$u = -0.508892 - 1.204970I$ $a = -1.066370 - 0.490251I$ $b = -0.355539 - 0.508325I$	$5.81781 - 7.86530I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.617731 + 1.153460I$ $a = -0.318470 - 0.850588I$ $b = -1.21846 + 0.73693I$	$-0.66955 + 6.99715I$	0
$u = -0.617731 - 1.153460I$ $a = -0.318470 + 0.850588I$ $b = -1.21846 - 0.73693I$	$-0.66955 - 6.99715I$	0
$u = 0.524446 + 1.213960I$ $a = -0.044437 + 0.904704I$ $b = -0.993470 - 0.568490I$	$0.38987 - 6.64143I$	0
$u = 0.524446 - 1.213960I$ $a = -0.044437 - 0.904704I$ $b = -0.993470 + 0.568490I$	$0.38987 + 6.64143I$	0
$u = 0.274368 + 1.311570I$ $a = -0.151842 + 0.453578I$ $b = -1.26882 - 2.03678I$	$1.99622 - 2.68142I$	0
$u = 0.274368 - 1.311570I$ $a = -0.151842 - 0.453578I$ $b = -1.26882 + 2.03678I$	$1.99622 + 2.68142I$	0
$u = -0.672912 + 1.168860I$ $a = 0.847954 - 0.185465I$ $b = 1.72422 - 0.87401I$	$-3.08563 + 9.35831I$	0
$u = -0.672912 - 1.168860I$ $a = 0.847954 + 0.185465I$ $b = 1.72422 + 0.87401I$	$-3.08563 - 9.35831I$	0
$u = -0.636558 + 0.074703I$ $a = -0.66368 + 1.98252I$ $b = -1.26882 + 2.03678I$	$1.99622 + 2.68142I$	$-6.1768 + 16.3931I$
$u = -0.636558 - 0.074703I$ $a = -0.66368 - 1.98252I$ $b = -1.26882 - 2.03678I$	$1.99622 - 2.68142I$	$-6.1768 - 16.3931I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.593362 + 1.224050I$ $a = -0.908888 - 0.053071I$ $b = -1.02854 - 1.94274I$	$4.87423 - 6.70670I$	0
$u = 0.593362 - 1.224050I$ $a = -0.908888 + 0.053071I$ $b = -1.02854 + 1.94274I$	$4.87423 + 6.70670I$	0
$u = -0.258965 + 0.575839I$ $a = -0.94289 + 1.79350I$ $b = 0.674394 - 0.466433I$	$-5.07109 - 6.54642I$	$-7.01072 - 2.60029I$
$u = -0.258965 - 0.575839I$ $a = -0.94289 - 1.79350I$ $b = 0.674394 + 0.466433I$	$-5.07109 + 6.54642I$	$-7.01072 + 2.60029I$
$u = -0.695822 + 1.203830I$ $a = 0.122817 + 0.911787I$ $b = 1.56639 - 0.48932I$	$-2.02455 + 12.24910I$	0
$u = -0.695822 - 1.203830I$ $a = 0.122817 - 0.911787I$ $b = 1.56639 + 0.48932I$	$-2.02455 - 12.24910I$	0
$u = -0.565931 + 0.206433I$ $a = 0.25070 - 1.93713I$ $b = -0.608537 - 1.186480I$	$2.11375 - 2.54354I$	$-0.09108 + 1.48335I$
$u = -0.565931 - 0.206433I$ $a = 0.25070 + 1.93713I$ $b = -0.608537 + 1.186480I$	$2.11375 + 2.54354I$	$-0.09108 - 1.48335I$
$u = -0.70600 + 1.25571I$ $a = -1.003890 + 0.086046I$ $b = -1.41732 + 1.65047I$	$3.05680 + 13.20750I$	0
$u = -0.70600 - 1.25571I$ $a = -1.003890 - 0.086046I$ $b = -1.41732 - 1.65047I$	$3.05680 - 13.20750I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.60069 + 1.32134I$ $a = -0.988863 + 0.084758I$ $b = -1.41732 - 1.65047I$	$3.05680 - 13.20750I$	0
$u = 0.60069 - 1.32134I$ $a = -0.988863 - 0.084758I$ $b = -1.41732 + 1.65047I$	$3.05680 + 13.20750I$	0
$u = -0.13477 + 1.44989I$ $a = 0.818549 - 0.245701I$ $b = 0.532169 - 0.140359I$	$7.34550 - 2.45066I$	0
$u = -0.13477 - 1.44989I$ $a = 0.818549 + 0.245701I$ $b = 0.532169 + 0.140359I$	$7.34550 + 2.45066I$	0
$u = 0.518627$ $a = -0.122794$ $b = -0.674449$	-1.19406	-8.42600
$u = 0.42674 + 1.43289I$ $a = -0.719708 - 0.308657I$ $b = -0.394880 - 0.599648I$	$6.31677 - 3.78842I$	0
$u = 0.42674 - 1.43289I$ $a = -0.719708 + 0.308657I$ $b = -0.394880 + 0.599648I$	$6.31677 + 3.78842I$	0
$u = -0.04807 + 1.53442I$ $a = -0.774142 + 0.355904I$ $b = -0.355539 - 0.508325I$	$5.81781 - 7.86530I$	0
$u = -0.04807 - 1.53442I$ $a = -0.774142 - 0.355904I$ $b = -0.355539 + 0.508325I$	$5.81781 + 7.86530I$	0
$u = 0.34723 + 1.51846I$ $a = 0.660775 + 0.438973I$ $b = 0.0289154 - 0.0801418I$	$5.11807 + 1.34577I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.34723 - 1.51846I$ $a = 0.660775 - 0.438973I$ $b = 0.0289154 + 0.0801418I$	$5.11807 - 1.34577I$	0
$u = 0.366123 + 0.098479I$ $a = 0.865065 - 0.501660I$ $b = 4.46804$	-2.88161	$-57.8315 + 0.I$
$u = 0.366123 - 0.098479I$ $a = 0.865065 + 0.501660I$ $b = 4.46804$	-2.88161	$-57.8315 + 0.I$
$u = -0.0636841$ $a = -8.14374$ $b = -0.674449$	-1.19406	-8.42600

III.

$$\boldsymbol{I_3^u = \langle -u^8 - 2u^7 + \cdots + b - 3,\ a,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} 0 \\ u^8 + 2u^7 + 4u^6 + 4u^5 + 6u^4 + 5u^3 + 6u^2 + 3u + 3 \end{pmatrix}$$

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

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

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

$$a_5 = \begin{pmatrix} u^5 + u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 0 \\ u^8 + 2u^7 + 4u^6 + 4u^5 + 6u^4 + 5u^3 + 6u^2 + 3u + 3 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^3 \\ u^8 + 2u^7 + 4u^6 + 3u^5 + 6u^4 + 4u^3 + 6u^2 + 2u + 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 45u^8 + 63u^7 + 119u^6 + 104u^5 + 184u^4 + 133u^3 + 157u^2 + 83u + 73$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$
c_2	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_3	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_4	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_5	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_6	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_7, c_{10}	u^9
c_8	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_9, c_{11}	$(u-1)^9$
c_{12}	$(u+1)^9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_2, c_4	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_3, c_6	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_5, c_8	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_7, c_{10}	y^9
c_9, c_{11}, c_{12}	$(y-1)^9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$ $a = 0$ $b = -0.449406 + 0.973624I$	$0.13850 - 2.09337I$	$-6.65973 + 4.50528I$
$u = 0.140343 - 0.966856I$ $a = 0$ $b = -0.449406 - 0.973624I$	$0.13850 + 2.09337I$	$-6.65973 - 4.50528I$
$u = 0.628449 + 0.875112I$ $a = 0$ $b = -0.764470 - 0.234457I$	$-2.26187 - 2.45442I$	$-9.69685 + 4.13179I$
$u = 0.628449 - 0.875112I$ $a = 0$ $b = -0.764470 + 0.234457I$	$-2.26187 + 2.45442I$	$-9.69685 - 4.13179I$
$u = -0.796005 + 0.733148I$ $a = 0$ $b = 0.485105 - 0.622283I$	$-6.01628 - 1.33617I$	$-13.00050 + 1.13735I$
$u = -0.796005 - 0.733148I$ $a = 0$ $b = 0.485105 + 0.622283I$	$-6.01628 + 1.33617I$	$-13.00050 - 1.13735I$
$u = -0.728966 + 0.986295I$ $a = 0$ $b = 0.511281 - 0.180088I$	$-5.24306 + 7.08493I$	$-11.6081 - 10.4867I$
$u = -0.728966 - 0.986295I$ $a = 0$ $b = 0.511281 + 0.180088I$	$-5.24306 - 7.08493I$	$-11.6081 + 10.4867I$
$u = 0.512358$ $a = 0$ $b = 7.43498$	-2.84338	193.930

IV. $I_4^u = \langle u^2 + b + 2,\ a + 1,\ u^3 - u^2 + 2u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^2 + 8u - 20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.215080 + 1.307140I$ $a = -1.00000$ $b = -0.337641 - 0.562280I$	$6.04826 - 5.65624I$	$-4.98049 + 5.95889I$
$u = \ \ 0.215080 - 1.307140I$ $a = -1.00000$ $b = -0.337641 + 0.562280I$	$6.04826 + 5.65624I$	$-4.98049 - 5.95889I$
$u = \ \ 0.569840$ $a = -1.00000$ $b = -2.32472$	-2.22691	-18.0390

V.

$\boldsymbol{I^u_5 = \langle -2au + b + 2u - 1,\ u^2a + a^2 - au + 3u^2 + a - u + 5,\ u^3 - u^2 + 2u - 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ 2au - 2u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -au + 2u^2 + a - u + 3 \\ au + 2u^2 - u + 4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u^2 - u + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -au + 2u^2 + a - u + 3 \\ au + 2u^2 - u + 4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ u^2 - u + 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ -u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -au + u^2 + 1 \\ -2u^2a + 3au + u^2 - 2a - 3u + 3 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ u^2a + 2au - 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -19u^2a - 5au + 5u - 39$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.947279 + 0.320410I$ $b = 0.139681$	6.04826	$-3.50653 + 0.I$
$u = 0.215080 + 1.307140I$ $a = -0.069840 + 0.424452I$ $b = -0.56984 - 2.61428I$	$1.91067 - 2.82812I$	$-32.7467 + 20.6881I$
$u = 0.215080 - 1.307140I$ $a = 0.947279 - 0.320410I$ $b = 0.139681$	6.04826	$-3.50653 + 0.I$
$u = 0.215080 - 1.307140I$ $a = -0.069840 - 0.424452I$ $b = -0.56984 + 2.61428I$	$1.91067 + 2.82812I$	$-32.7467 - 20.6881I$
$u = 0.569840$ $a = -0.37744 + 2.29387I$ $b = -0.56984 + 2.61428I$	$1.91067 + 2.82812I$	$-32.7467 - 20.6881I$
$u = 0.569840$ $a = -0.37744 - 2.29387I$ $b = -0.56984 - 2.61428I$	$1.91067 - 2.82812I$	$-32.7467 + 20.6881I$

VI. $\boldsymbol{I_1^v = \langle a,\ 4v^8 - 372v^7 + \cdots + 683b - 4863,\ v^9 + 7v^8 + \cdots + 13v - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -0.00585652v^8 + 0.544656v^7 + \cdots + 4.97804v + 7.12006 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} v \\ 0.595900v^8 + 3.58126v^7 + \cdots + 7.48463v + 3.28404 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.00439v^8 + 5.59151v^7 + \cdots + 9.26647v - 0.590044 \\ 0.595900v^8 + 3.58126v^7 + \cdots + 7.48463v + 3.28404 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.00439v^8 + 5.59151v^7 + \cdots + 9.26647v - 0.590044 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.00439v^8 - 5.59151v^7 + \cdots - 9.26647v + 1.59004 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.00439v^8 - 5.59151v^7 + \cdots - 9.26647v + 0.590044 \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.565154v^8 - 3.44070v^7 + \cdots - 7.61933v + 0.585652 \\ 0.0527086v^8 + 1.09810v^7 + \cdots + 7.19766v + 8.91947 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.43924v^8 - 8.15081v^7 + \cdots - 14.6471v + 1.00439 \\ -0.169839v^8 - 0.204978v^7 + \cdots + 4.36310v + 6.48170 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= \frac{9459}{683}v^8 + \frac{66268}{683}v^7 + \frac{189529}{683}v^6 + \frac{238191}{683}v^5 + \frac{51918}{683}v^4 - \frac{136738}{683}v^3 - \frac{1226}{683}v^2 + \frac{202294}{683}v + \frac{118563}{683}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_6	u^9
c_4	$(u+1)^9$
c_5	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_7	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_8	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_9	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_{10}	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_{11}	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$
c_{12}	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_6	y^9
c_5, c_8	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_7, c_{10}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_9, c_{12}	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_{11}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.763784 + 0.496693I$ $a = 0$ $b = -0.449406 - 0.973624I$	$0.13850 + 2.09337I$	$-6.65973 - 4.50528I$
$v = 0.763784 - 0.496693I$ $a = 0$ $b = -0.449406 + 0.973624I$	$0.13850 - 2.09337I$	$-6.65973 + 4.50528I$
$v = -1.072290 + 0.815867I$ $a = 0$ $b = -0.764470 + 0.234457I$	$-2.26187 + 2.45442I$	$-9.69685 - 4.13179I$
$v = -1.072290 - 0.815867I$ $a = 0$ $b = -0.764470 - 0.234457I$	$-2.26187 - 2.45442I$	$-9.69685 + 4.13179I$
$v = -1.353070 + 0.224375I$ $a = 0$ $b = 0.485105 + 0.622283I$	$-6.01628 + 1.33617I$	$-13.00050 - 1.13735I$
$v = -1.353070 - 0.224375I$ $a = 0$ $b = 0.485105 - 0.622283I$	$-6.01628 - 1.33617I$	$-13.00050 + 1.13735I$
$v = 0.0689118$ $a = 0$ $b = 7.43498$	-2.84338	193.930
$v = -1.87288 + 1.26938I$ $a = 0$ $b = 0.511281 - 0.180088I$	$-5.24306 + 7.08493I$	$-11.6081 - 10.4867I$
$v = -1.87288 - 1.26938I$ $a = 0$ $b = 0.511281 + 0.180088I$	$-5.24306 - 7.08493I$	$-11.6081 + 10.4867I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u-1)^9(u^3-u^2+2u-1)^3$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{21}+11u^{20}+\cdots-4u+1)(u^{114}+53u^{113}+\cdots+60814u+1)$
c_2, c_9	$(u-1)^9(u^3+u^2-1)^3(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{21}-3u^{20}+\cdots-2u+1)(u^{114}-11u^{113}+\cdots+244u+1)$
c_3, c_7	$u^9(u^3-u^2+2u-1)^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{21}-u^{20}+\cdots+4u+1)(u^{114}-4u^{113}+\cdots+9216u-512)$
c_4, c_{12}	$(u+1)^9(u^3-u^2+1)^3(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{21}-3u^{20}+\cdots-2u+1)(u^{114}-11u^{113}+\cdots+244u+1)$
c_5	$u^9(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^2$ $\cdot(u^{21}+7u^{20}+\cdots-24u-8)(u^{57}-2u^{56}+\cdots-28u+8)^2$
c_6, c_{10}	$u^9(u^3+u^2+2u+1)^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{21}-u^{20}+\cdots+4u+1)(u^{114}-4u^{113}+\cdots+9216u-512)$
c_8	$u^9(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)^2$ $\cdot(u^{21}+7u^{20}+\cdots-24u-8)(u^{57}-2u^{56}+\cdots-28u+8)^2$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y-1)^9(y^3+3y^2+2y-1)^3$ $\cdot\,(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot\,(y^{21}+y^{20}+\cdots+60y-1)(y^{114}+27y^{113}+\cdots-3695912450y+1)$
c_2, c_4, c_9 c_{12}	$(y-1)^9(y^3-y^2+2y-1)^3$ $\cdot\,(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot\,(y^{21}-11y^{20}+\cdots-4y-1)(y^{114}-53y^{113}+\cdots-60814y+1)$
c_3, c_6, c_7 c_{10}	$y^9(y^3+3y^2+2y-1)^3$ $\cdot\,(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot\,(y^{21}+9y^{20}+\cdots+4y-1)$ $\cdot\,(y^{114}+60y^{113}+\cdots-63963136y+262144)$
c_5, c_8	$y^9(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^2$ $\cdot\,(y^{21}+7y^{20}+\cdots+384y-64)(y^{57}+28y^{56}+\cdots+976y-64)^2$