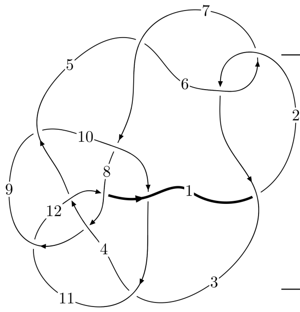
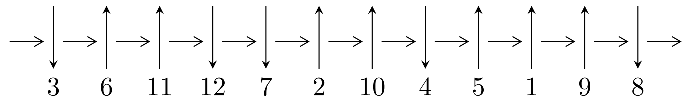
$12a_{0485}$ $(K12a_{0485})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle 192609591u^{55} - 2727061067u^{54} + \cdots + 14468204b + 16035728512,\\
&\quad 1002233032u^{55} - 8827487697u^{54} + \cdots + 14468204a + 16773966195,\ u^{56} - 9u^{55} + \cdots + 36u - 16\rangle\\
I_2^u &= \langle 5.06413 \times 10^{16}a^3u^{26} + 2.15067 \times 10^{17}a^2u^{26} + \cdots - 1.13428 \times 10^{19}a + 9.45090 \times 10^{18},\\
&\quad 3u^{26}a^3 - 9u^{26}a^2 + \cdots - 25a + 21,\ u^{27} + 2u^{26} + \cdots - 4u^2 - 1\rangle\\
I_3^u &= \langle 55u^{28} - 252u^{27} + \cdots + 21b + 61,\ 61u^{28} - 189u^{27} + \cdots + 21a - 32,\ u^{29} - 4u^{28} + \cdots - 6u^2 - 1\rangle\\
I_4^u &= \langle au + b - 1,\ a^2 + au + a + 1,\ u^2 + u + 1\rangle\\
I_5^u &= \langle au + b - u,\ a^2 - a - u - 1,\ u^2 + u + 1\rangle
\end{aligned}
$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 201 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. $I_1^u = \langle 1.93\times10^{8}u^{55} - 2.73\times10^{9}u^{54} + \cdots + 1.45\times10^{7}b + 1.60\times10^{10},\ 1.00\times10^{9}u^{55} - 8.83\times10^{9}u^{54} + \cdots + 1.45\times10^{7}a + 1.68\times10^{10},\ u^{56} - 9u^{55} + \cdots + 36u - 16\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-69.2714u^{55} + 610.130u^{54} + \cdots + 2096.44u - 1159.37\\-13.3126u^{55} + 188.486u^{54} + \cdots + 1334.40u - 1108.34\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-8.78193u^{55} + 253.245u^{54} + \cdots + 2714.47u - 2326.29\\174.208u^{55} - 1303.60u^{54} + \cdots - 2009.14u - 140.511\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-20.3141u^{55} + 164.851u^{54} + \cdots + 477.918u - 272.674\\-4.39070u^{55} + 60.8214u^{54} + \cdots + 437.619u - 425.076\end{pmatrix}$$
$$a_4 = \begin{pmatrix}79.7522u^{55} - 623.369u^{54} + \cdots - 1262.96u + 253.754\\100.284u^{55} - 911.993u^{54} + \cdots - 3411.74u + 1923.40\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^3\\u^5+u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-31.3270u^{55} + 292.918u^{54} + \cdots + 1098.99u - 564.552\\41.0305u^{55} - 290.047u^{54} + \cdots - 197.308u - 195.175\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-32.0066u^{55} + 315.058u^{54} + \cdots + 1431.56u - 896.451\\66.8287u^{55} - 495.324u^{54} + \cdots - 647.072u - 154.409\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1195774015}{3617051}u^{55} + \frac{108944419483}{3617051}u^{54} + \cdots + \frac{403094907 50}{3617051}u - \frac{22849509610}{3617051}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{56} + 17u^{55} + \cdots + 2640u + 256$
c_2, c_6	$u^{56} - 9u^{55} + \cdots + 36u - 16$
c_3, c_9	$u^{56} - u^{55} + \cdots + 166u + 34$
c_4, c_8	$u^{56} - 5u^{54} + \cdots + u - 1$
c_7, c_{10}	$u^{56} - u^{55} + \cdots - 21u + 1$
c_{11}	$u^{56} + 43u^{55} + \cdots - 34u - 4$
c_{12}	$u^{56} + 53u^{55} + \cdots - 738197504u - 33554432$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{56} + 45y^{55} + \cdots - 636672y + 65536$
c_2, c_6	$y^{56} + 17y^{55} + \cdots + 2640y + 256$
c_3, c_9	$y^{56} - 31y^{55} + \cdots - 9332y + 1156$
c_4, c_8	$y^{56} - 10y^{55} + \cdots - 9y + 1$
c_7, c_{10}	$y^{56} - 7y^{55} + \cdots - 45y + 1$
c_{11}	$y^{56} - 21y^{55} + \cdots - 508y + 16$
c_{12}	$y^{56} - 9y^{55} + \cdots + 19140298416324608y + 1125899906842624$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.148611 + 0.987288I$ $a = -0.105326 + 0.776858I$ $b = -0.751329 - 0.219436I$	$-5.08582 - 0.04483I$	0
$u = -0.148611 - 0.987288I$ $a = -0.105326 - 0.776858I$ $b = -0.751329 + 0.219436I$	$-5.08582 + 0.04483I$	0
$u = -1.02530$ $a = -0.206826$ $b = 0.212059$	1.23312	12.2390
$u = -0.388031 + 0.964876I$ $a = -0.013054 - 0.703235I$ $b = 0.683600 + 0.260282I$	$0.66649 - 6.36541I$	0
$u = -0.388031 - 0.964876I$ $a = -0.013054 + 0.703235I$ $b = 0.683600 - 0.260282I$	$0.66649 + 6.36541I$	0
$u = 0.754659 + 0.782525I$ $a = 1.31638 + 1.21329I$ $b = 0.04399 + 1.94571I$	$0.734279 + 0.907581I$	0
$u = 0.754659 - 0.782525I$ $a = 1.31638 - 1.21329I$ $b = 0.04399 - 1.94571I$	$0.734279 - 0.907581I$	0
$u = 0.410147 + 0.807610I$ $a = 0.503137 + 0.296621I$ $b = -0.033194 + 0.527996I$	$-0.05668 + 1.76377I$	$0. - 5.48632I$
$u = 0.410147 - 0.807610I$ $a = 0.503137 - 0.296621I$ $b = -0.033194 - 0.527996I$	$-0.05668 - 1.76377I$	$0. + 5.48632I$
$u = -0.461995 + 1.015350I$ $a = -0.277333 - 0.297378I$ $b = 0.430069 - 0.144203I$	$-3.28970 - 5.83406I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.461995-1.015350I$ $a=-0.277333+0.297378I$ $b=0.430069+0.144203I$	$-3.28970+5.83406I$	0
$u=0.732257+0.863189I$ $a=-0.56605-2.39805I$ $b=1.65547-2.24459I$	$2.80607+4.77645I$	0
$u=0.732257-0.863189I$ $a=-0.56605+2.39805I$ $b=1.65547+2.24459I$	$2.80607-4.77645I$	0
$u=0.090367+0.856778I$ $a=0.141600+0.932125I$ $b=-0.785828+0.205553I$	$-1.45441+1.82954I$	$-3.97315-5.04709I$
$u=0.090367-0.856778I$ $a=0.141600-0.932125I$ $b=-0.785828-0.205553I$	$-1.45441-1.82954I$	$-3.97315+5.04709I$
$u=0.721081+0.885164I$ $a=-2.05381-0.72427I$ $b=-0.83986-2.34021I$	$2.73433+0.76799I$	0
$u=0.721081-0.885164I$ $a=-2.05381+0.72427I$ $b=-0.83986+2.34021I$	$2.73433-0.76799I$	0
$u=-0.847184+0.024271I$ $a=0.512339+0.300014I$ $b=-0.441327-0.241732I$	$5.35540+10.65240I$	$8.10098-7.27900I$
$u=-0.847184-0.024271I$ $a=0.512339-0.300014I$ $b=-0.441327+0.241732I$	$5.35540-10.65240I$	$8.10098+7.27900I$
$u=-0.756418+0.870995I$ $a=0.472676+0.001674I$ $b=-0.358999+0.410431I$	$3.13677-0.64477I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.756418 - 0.870995I$ $a = 0.472676 - 0.001674I$ $b = -0.358999 - 0.410431I$	$3.13677 + 0.64477I$	0
$u = -0.315267 + 1.117870I$ $a = -0.325563 + 0.574726I$ $b = -0.539830 - 0.545129I$	$1.6611 - 14.5883I$	0
$u = -0.315267 - 1.117870I$ $a = -0.325563 - 0.574726I$ $b = -0.539830 + 0.545129I$	$1.6611 + 14.5883I$	0
$u = -0.752842 + 0.890277I$ $a = -0.412632 - 0.169367I$ $b = 0.461431 - 0.239850I$	$3.07720 - 5.07348I$	0
$u = -0.752842 - 0.890277I$ $a = -0.412632 + 0.169367I$ $b = 0.461431 + 0.239850I$	$3.07720 + 5.07348I$	0
$u = 0.910217 + 0.748706I$ $a = 1.46008 + 1.53528I$ $b = 0.17952 + 2.49061I$	$9.9171 - 14.1482I$	0
$u = 0.910217 - 0.748706I$ $a = 1.46008 - 1.53528I$ $b = 0.17952 - 2.49061I$	$9.9171 + 14.1482I$	0
$u = -0.265751 + 1.169400I$ $a = -0.415551 - 0.112866I$ $b = 0.242420 - 0.455953I$	$1.27517 + 6.83332I$	0
$u = -0.265751 - 1.169400I$ $a = -0.415551 + 0.112866I$ $b = 0.242420 + 0.455953I$	$1.27517 - 6.83332I$	0
$u = 0.734138 + 0.954130I$ $a = 0.96728 + 1.64674I$ $b = -0.86109 + 2.13185I$	$0.21426 + 4.75574I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.734138 - 0.954130I$ $a = 0.96728 - 1.64674I$ $b = -0.86109 - 2.13185I$	$0.21426 - 4.75574I$	0
$u = 0.893467 + 0.810104I$ $a = -1.68903 - 1.19547I$ $b = -0.54064 - 2.43639I$	$8.95532 - 4.37769I$	0
$u = 0.893467 - 0.810104I$ $a = -1.68903 + 1.19547I$ $b = -0.54064 + 2.43639I$	$8.95532 + 4.37769I$	0
$u = 0.942592 + 0.754576I$ $a = 0.312382 + 1.175130I$ $b = -0.59227 + 1.34338I$	$9.79014 + 6.70793I$	0
$u = 0.942592 - 0.754576I$ $a = 0.312382 - 1.175130I$ $b = -0.59227 - 1.34338I$	$9.79014 - 6.70793I$	0
$u = -0.701393 + 0.337884I$ $a = -0.066176 - 0.592967I$ $b = 0.246769 + 0.393543I$	$2.79814 + 2.42669I$	$7.0112 - 14.0897I$
$u = -0.701393 - 0.337884I$ $a = -0.066176 + 0.592967I$ $b = 0.246769 - 0.393543I$	$2.79814 - 2.42669I$	$7.0112 + 14.0897I$
$u = 0.953287 + 0.766830I$ $a = -0.948615 - 0.800138I$ $b = -0.29073 - 1.49019I$	$6.49118 - 4.87375I$	0
$u = 0.953287 - 0.766830I$ $a = -0.948615 + 0.800138I$ $b = -0.29073 + 1.49019I$	$6.49118 + 4.87375I$	0
$u = 0.013411 + 0.744426I$ $a = 0.17390 - 1.95972I$ $b = 1.46120 + 0.10317I$	$-1.08652 - 1.99360I$	$-2.94814 + 3.49725I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.013411 - 0.744426I$ $a = 0.17390 + 1.95972I$ $b = 1.46120 - 0.10317I$	$-1.08652 + 1.99360I$	$-2.94814 - 3.49725I$
$u = 0.814580 + 0.991484I$ $a = -0.94091 - 1.96051I$ $b = 1.17737 - 2.52990I$	$8.37962 + 10.69940I$	0
$u = 0.814580 - 0.991484I$ $a = -0.94091 + 1.96051I$ $b = 1.17737 + 2.52990I$	$8.37962 - 10.69940I$	0
$u = 0.792855 + 1.029230I$ $a = 1.25881 + 1.77766I$ $b = -0.83157 + 2.70503I$	$9.0363 + 20.4388I$	0
$u = 0.792855 - 1.029230I$ $a = 1.25881 - 1.77766I$ $b = -0.83157 - 2.70503I$	$9.0363 - 20.4388I$	0
$u = -0.112713 + 0.673401I$ $a = 1.041970 + 0.476281I$ $b = -0.438172 + 0.647982I$	$-0.99942 + 1.87855I$	$-2.67770 - 3.80115I$
$u = -0.112713 - 0.673401I$ $a = 1.041970 - 0.476281I$ $b = -0.438172 - 0.647982I$	$-0.99942 - 1.87855I$	$-2.67770 + 3.80115I$
$u = 0.819918 + 1.039760I$ $a = -0.595172 - 1.238170I$ $b = 0.79940 - 1.63403I$	$5.61955 + 11.37810I$	0
$u = 0.819918 - 1.039760I$ $a = -0.595172 + 1.238170I$ $b = 0.79940 + 1.63403I$	$5.61955 - 11.37810I$	0
$u = 0.820110 + 1.044490I$ $a = 0.919908 + 0.618661I$ $b = 0.10824 + 1.46820I$	$8.88440 - 0.23202I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.820110 - 1.044490I$ $a = 0.919908 - 0.618661I$ $b = 0.10824 - 1.46820I$	$8.88440 + 0.23202I$	0
$u = -0.406216 + 1.276320I$ $a = 0.102721 - 0.123005I$ $b = 0.115267 + 0.181071I$	$-3.08574 - 4.97156I$	0
$u = -0.406216 - 1.276320I$ $a = 0.102721 + 0.123005I$ $b = 0.115267 - 0.181071I$	$-3.08574 + 4.97156I$	0
$u = -0.541789 + 0.332536I$ $a = 0.584596 - 0.319325I$ $b = -0.210541 + 0.367406I$	$-1.37335 + 1.75176I$	$-0.47779 - 2.41051I$
$u = -0.541789 - 0.332536I$ $a = 0.584596 + 0.319325I$ $b = -0.210541 - 0.367406I$	$-1.37335 - 1.75176I$	$-0.47779 + 2.41051I$
$u = 0.615547$ $a = 0.989696$ $b = 0.609204$	1.54329	8.12550

II. $\boldsymbol{I_2^u = \langle 5.06 \times 10^{16} a^3 u^{26} + 2.15 \times 10^{17} a^2 u^{26} + \cdots - 1.13 \times 10^{19} a + 9.45 \times 10^{18},\ 3u^{26}a^3 - 9u^{26}a^2 + \cdots - 25a + 21,\ u^{27} + 2u^{26} + \cdots - 4u^2 - 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -0.0194228a^3u^{26} - 0.0824861a^2u^{26} + \cdots + 4.35040a - 3.62477 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.222877a^3u^{26} - 0.426660a^2u^{26} + \cdots + 0.709576a + 1.18860 \\ -0.175602a^3u^{26} + 0.512669a^2u^{26} + \cdots - 0.00724059a - 1.52161 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.356153a^3u^{26} + 0.437054a^2u^{26} + \cdots + 3.71412a - 0.591491 \\ -0.0341233a^3u^{26} + 0.112725a^2u^{26} + \cdots + 3.57675a - 2.25136 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.777942a^3u^{26} + 0.215725a^2u^{26} + \cdots - 2.73581a + 3.08163 \\ 0.0221625a^3u^{26} + 0.670679a^2u^{26} + \cdots + 1.24922a - 2.25944 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.402197a^3u^{26} + 0.289264a^2u^{26} + \cdots + 1.48602a + 1.29020 \\ 0.356960a^3u^{26} + 0.574655a^2u^{26} + \cdots + 4.05346a - 3.72719 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.324083a^3u^{26} + 0.0222001a^2u^{26} + \cdots + 5.02261a - 1.76900 \\ -0.0803756a^3u^{26} - 1.11721a^2u^{26} + \cdots - 1.52529a + 5.87076 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{5409149913549089364}{2607312645830463659}u^{26}a^3 + \frac{584973825734070008}{2607312645830463659}u^{26}a^2 + \cdots + \frac{12887390798361837140}{2607312645830463659}a + \frac{8989742691925559217}{2607312645830463659}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^{27} + 8u^{26} + \cdots - 8u - 1)^4$
c_2, c_6	$(u^{27} + 2u^{26} + \cdots - 4u^2 - 1)^4$
c_3, c_9	$u^{108} + 2u^{107} + \cdots + 53770489u + 615212329$
c_4, c_8	$u^{108} + 4u^{107} + \cdots + u + 1$
c_7, c_{10}	$u^{108} - 5u^{107} + \cdots - 770948u + 186859$
c_{11}	$(u^{27} - 13u^{26} + \cdots - 10u + 4)^4$
c_{12}	$(u^2 - u + 1)^{54}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^{27} + 24y^{26} + \cdots - 12y - 1)^4$
c_2, c_6	$(y^{27} + 8y^{26} + \cdots - 8y - 1)^4$
c_3, c_9	$y^{108} - 58y^{107} + \cdots - 1.51 \times 10^{19}y + 3.78 \times 10^{17}$
c_4, c_8	$y^{108} + 34y^{107} + \cdots + 539y + 1$
c_7, c_{10}	$y^{108} - 53y^{107} + \cdots - 468863324560y + 34916285881$
c_{11}	$(y^{27} - 5y^{26} + \cdots + 236y - 16)^4$
c_{12}	$(y^2 + y + 1)^{54}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.144711 + 0.987236I$ $a = 0.162919 + 0.975776I$ $b = -0.185953 + 0.197380I$	$-1.79198 + 2.07382I$	$-4.33067 - 4.29744I$
$u = 0.144711 + 0.987236I$ $a = -0.102844 + 0.726044I$ $b = 0.86199 - 1.22813I$	$-1.79198 + 6.13359I$	$-4.33067 - 11.22564I$
$u = 0.144711 + 0.987236I$ $a = -1.09255 - 1.03329I$ $b = -0.731660 + 0.003536I$	$-1.79198 + 6.13359I$	$-4.33067 - 11.22564I$
$u = 0.144711 + 0.987236I$ $a = 0.168697 + 0.213085I$ $b = -0.939745 + 0.302045I$	$-1.79198 + 2.07382I$	$-4.33067 - 4.29744I$
$u = 0.144711 - 0.987236I$ $a = 0.162919 - 0.975776I$ $b = -0.185953 - 0.197380I$	$-1.79198 - 2.07382I$	$-4.33067 + 4.29744I$
$u = 0.144711 - 0.987236I$ $a = -0.102844 - 0.726044I$ $b = 0.86199 + 1.22813I$	$-1.79198 - 6.13359I$	$-4.33067 + 11.22564I$
$u = 0.144711 - 0.987236I$ $a = -1.09255 + 1.03329I$ $b = -0.731660 - 0.003536I$	$-1.79198 - 6.13359I$	$-4.33067 + 11.22564I$
$u = 0.144711 - 0.987236I$ $a = 0.168697 - 0.213085I$ $b = -0.939745 - 0.302045I$	$-1.79198 - 2.07382I$	$-4.33067 + 4.29744I$
$u = 0.504183 + 0.966350I$ $a = -0.395686 + 1.137030I$ $b = -0.600094 + 0.060154I$	$0.21047 + 3.60547I$	$5.54032 + 3.53146I$
$u = 0.504183 + 0.966350I$ $a = 1.341760 - 0.156180I$ $b = 0.339181 + 0.300638I$	$0.210467 - 0.454298I$	$5.54032 + 10.45966I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.504183 + 0.966350I$ $a = -0.205741 + 0.513647I$ $b = -1.298270 + 0.190898I$	$0.21047 + 3.60547I$	$5.54032 + 3.53146I$
$u = 0.504183 + 0.966350I$ $a = 0.388483 - 0.148305I$ $b = 0.82742 + 1.21786I$	$0.210467 - 0.454298I$	$5.54032 + 10.45966I$
$u = 0.504183 - 0.966350I$ $a = -0.395686 - 1.137030I$ $b = -0.600094 - 0.060154I$	$0.21047 - 3.60547I$	$5.54032 - 3.53146I$
$u = 0.504183 - 0.966350I$ $a = 1.341760 + 0.156180I$ $b = 0.339181 - 0.300638I$	$0.210467 + 0.454298I$	$5.54032 - 10.45966I$
$u = 0.504183 - 0.966350I$ $a = -0.205741 - 0.513647I$ $b = -1.298270 - 0.190898I$	$0.21047 - 3.60547I$	$5.54032 - 3.53146I$
$u = 0.504183 - 0.966350I$ $a = 0.388483 + 0.148305I$ $b = 0.82742 - 1.21786I$	$0.210467 + 0.454298I$	$5.54032 - 10.45966I$
$u = -0.770533 + 0.784290I$ $a = -0.490276 + 0.975514I$ $b = 0.17600 + 1.72828I$	$4.10422 + 1.06197I$	$3.95591 - 0.84637I$
$u = -0.770533 + 0.784290I$ $a = 1.00912 - 1.21583I$ $b = -0.387312 - 1.136180I$	$4.10422 + 1.06197I$	$3.95591 - 0.84637I$
$u = -0.770533 + 0.784290I$ $a = 1.78110 - 1.78074I$ $b = -0.43134 - 3.24807I$	$4.10422 + 5.12173I$	$3.95591 - 7.77457I$
$u = -0.770533 + 0.784290I$ $a = -1.83240 + 2.35023I$ $b = 0.02422 + 2.76901I$	$4.10422 + 5.12173I$	$3.95591 - 7.77457I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.770533 - 0.784290I$ $a = -0.490276 - 0.975514I$ $b = 0.17600 - 1.72828I$	$4.10422 - 1.06197I$	$3.95591 + 0.84637I$
$u = -0.770533 - 0.784290I$ $a = 1.00912 + 1.21583I$ $b = -0.387312 + 1.136180I$	$4.10422 - 1.06197I$	$3.95591 + 0.84637I$
$u = -0.770533 - 0.784290I$ $a = 1.78110 + 1.78074I$ $b = -0.43134 + 3.24807I$	$4.10422 - 5.12173I$	$3.95591 + 7.77457I$
$u = -0.770533 - 0.784290I$ $a = -1.83240 - 2.35023I$ $b = 0.02422 - 2.76901I$	$4.10422 - 5.12173I$	$3.95591 + 7.77457I$
$u = 0.291946 + 1.107070I$ $a = 0.181830 + 0.662915I$ $b = 0.210999 - 0.718219I$	$1.03822 + 5.71809I$	$10.8623 - 10.3862I$
$u = 0.291946 + 1.107070I$ $a = 0.651923 + 0.130030I$ $b = -0.091528 - 0.191127I$	$1.03822 + 1.65832I$	$10.86231 - 3.45797I$
$u = 0.291946 + 1.107070I$ $a = -0.559580 - 0.338159I$ $b = -0.680809 + 0.394835I$	$1.03822 + 5.71809I$	$10.8623 - 10.3862I$
$u = 0.291946 + 1.107070I$ $a = -0.181802 + 0.034733I$ $b = 0.046374 + 0.759687I$	$1.03822 + 1.65832I$	$10.86231 - 3.45797I$
$u = 0.291946 - 1.107070I$ $a = 0.181830 - 0.662915I$ $b = 0.210999 + 0.718219I$	$1.03822 - 5.71809I$	$10.8623 + 10.3862I$
$u = 0.291946 - 1.107070I$ $a = 0.651923 - 0.130030I$ $b = -0.091528 + 0.191127I$	$1.03822 - 1.65832I$	$10.86231 + 3.45797I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.291946 - 1.107070I$ $a = -0.559580 + 0.338159I$ $b = -0.680809 - 0.394835I$	$1.03822 - 5.71809I$	$10.8623 + 10.3862I$
$u = 0.291946 - 1.107070I$ $a = -0.181802 - 0.034733I$ $b = 0.046374 - 0.759687I$	$1.03822 - 1.65832I$	$10.86231 + 3.45797I$
$u = -0.898179 + 0.746104I$ $a = -0.54214 + 1.40045I$ $b = 0.75176 + 1.70293I$	$9.05837 + 1.20396I$	$11.98510 + 0.51060I$
$u = -0.898179 + 0.746104I$ $a = 0.43666 - 1.53325I$ $b = -0.55795 - 1.66235I$	$9.05837 + 1.20396I$	$11.98510 + 0.51060I$
$u = -0.898179 + 0.746104I$ $a = -1.19414 + 1.56565I$ $b = -0.03647 + 2.44475I$	$9.05837 + 5.26372I$	$11.98510 - 6.41760I$
$u = -0.898179 + 0.746104I$ $a = 1.36189 - 1.59059I$ $b = -0.09559 - 2.29719I$	$9.05837 + 5.26372I$	$11.98510 - 6.41760I$
$u = -0.898179 - 0.746104I$ $a = -0.54214 - 1.40045I$ $b = 0.75176 - 1.70293I$	$9.05837 - 1.20396I$	$11.98510 - 0.51060I$
$u = -0.898179 - 0.746104I$ $a = 0.43666 + 1.53325I$ $b = -0.55795 + 1.66235I$	$9.05837 - 1.20396I$	$11.98510 - 0.51060I$
$u = -0.898179 - 0.746104I$ $a = -1.19414 - 1.56565I$ $b = -0.03647 - 2.44475I$	$9.05837 - 5.26372I$	$11.98510 + 6.41760I$
$u = -0.898179 - 0.746104I$ $a = 1.36189 + 1.59059I$ $b = -0.09559 + 2.29719I$	$9.05837 - 5.26372I$	$11.98510 + 6.41760I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.799598 + 0.863452I$ $a = -1.64115 - 1.19799I$ $b = -0.68299 - 2.89905I$	$7.55270 + 0.49814I$	$11.51904 - 1.43564I$
$u = 0.799598 + 0.863452I$ $a = 0.30170 + 2.08576I$ $b = -2.52729 + 1.54085I$	$7.55270 - 3.56162I$	$11.51904 + 5.49257I$
$u = 0.799598 + 0.863452I$ $a = -0.49849 + 2.46534I$ $b = -1.55972 + 1.92827I$	$7.55270 - 3.56162I$	$11.51904 + 5.49257I$
$u = 0.799598 + 0.863452I$ $a = -2.20182 - 1.24799I$ $b = -0.27785 - 2.37496I$	$7.55270 + 0.49814I$	$11.51904 - 1.43564I$
$u = 0.799598 - 0.863452I$ $a = -1.64115 + 1.19799I$ $b = -0.68299 + 2.89905I$	$7.55270 - 0.49814I$	$11.51904 + 1.43564I$
$u = 0.799598 - 0.863452I$ $a = 0.30170 - 2.08576I$ $b = -2.52729 - 1.54085I$	$7.55270 + 3.56162I$	$11.51904 - 5.49257I$
$u = 0.799598 - 0.863452I$ $a = -0.49849 - 2.46534I$ $b = -1.55972 - 1.92827I$	$7.55270 + 3.56162I$	$11.51904 - 5.49257I$
$u = 0.799598 - 0.863452I$ $a = -2.20182 + 1.24799I$ $b = -0.27785 + 2.37496I$	$7.55270 - 0.49814I$	$11.51904 + 1.43564I$
$u = 0.802525$ $a = 0.740539 + 0.485128I$ $b = -0.333487 + 0.062417I$	$4.73972 + 2.02988I$	$15.0178 - 3.4641I$
$u = 0.802525$ $a = 0.740539 - 0.485128I$ $b = -0.333487 - 0.062417I$	$4.73972 - 2.02988I$	$15.0178 + 3.4641I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.802525$ $a = -0.415547 + 0.077776I$ $b = 0.594301 + 0.389327I$	$4.73972 + 2.02988I$	$15.0178 - 3.4641I$
$u = 0.802525$ $a = -0.415547 - 0.077776I$ $b = 0.594301 - 0.389327I$	$4.73972 - 2.02988I$	$15.0178 + 3.4641I$
$u = 0.785462 + 0.911233I$ $a = 1.84243 + 0.15138I$ $b = 1.89260 + 2.66876I$	$7.40416 + 9.51222I$	$10.8841 - 11.3400I$
$u = 0.785462 + 0.911233I$ $a = -0.70561 - 2.17520I$ $b = 0.83935 - 2.65461I$	$7.40416 + 5.45245I$	$10.88411 - 4.41179I$
$u = 0.785462 + 0.911233I$ $a = -1.21585 - 1.96915I$ $b = 1.42789 - 2.35151I$	$7.40416 + 5.45245I$	$10.88411 - 4.41179I$
$u = 0.785462 + 0.911233I$ $a = 2.70741 + 0.25676I$ $b = 1.30921 + 1.79779I$	$7.40416 + 9.51222I$	$10.8841 - 11.3400I$
$u = 0.785462 - 0.911233I$ $a = 1.84243 - 0.15138I$ $b = 1.89260 - 2.66876I$	$7.40416 - 9.51222I$	$10.8841 + 11.3400I$
$u = 0.785462 - 0.911233I$ $a = -0.70561 + 2.17520I$ $b = 0.83935 + 2.65461I$	$7.40416 - 5.45245I$	$10.88411 + 4.41179I$
$u = 0.785462 - 0.911233I$ $a = -1.21585 + 1.96915I$ $b = 1.42789 + 2.35151I$	$7.40416 - 5.45245I$	$10.88411 + 4.41179I$
$u = 0.785462 - 0.911233I$ $a = 2.70741 - 0.25676I$ $b = 1.30921 - 1.79779I$	$7.40416 - 9.51222I$	$10.8841 + 11.3400I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.740227 + 0.958313I$ $a = -1.004250 + 0.871115I$ $b = 0.64829 + 1.52871I$	$3.57298 - 6.78821I$	$2.48240 + 5.88993I$
$u = -0.740227 + 0.958313I$ $a = 0.671829 - 1.195430I$ $b = -0.09143 - 1.60721I$	$3.57298 - 6.78821I$	$2.48240 + 5.88993I$
$u = -0.740227 + 0.958313I$ $a = 1.60079 - 1.88829I$ $b = -0.97104 - 3.37484I$	$3.57298 - 10.84800I$	$2.48240 + 12.81813I$
$u = -0.740227 + 0.958313I$ $a = -1.71545 + 2.33834I$ $b = 0.62462 + 2.93183I$	$3.57298 - 10.84800I$	$2.48240 + 12.81813I$
$u = -0.740227 - 0.958313I$ $a = -1.004250 - 0.871115I$ $b = 0.64829 - 1.52871I$	$3.57298 + 6.78821I$	$2.48240 - 5.88993I$
$u = -0.740227 - 0.958313I$ $a = 0.671829 + 1.195430I$ $b = -0.09143 + 1.60721I$	$3.57298 + 6.78821I$	$2.48240 - 5.88993I$
$u = -0.740227 - 0.958313I$ $a = 1.60079 + 1.88829I$ $b = -0.97104 + 3.37484I$	$3.57298 + 10.84800I$	$2.48240 - 12.81813I$
$u = -0.740227 - 0.958313I$ $a = -1.71545 - 2.33834I$ $b = 0.62462 - 2.93183I$	$3.57298 + 10.84800I$	$2.48240 - 12.81813I$
$u = -0.818350 + 0.893459I$ $a = -1.56693 + 0.67484I$ $b = -0.88903 + 2.53718I$	$8.10637 - 1.02390I$	$11.97423 - 0.74985I$
$u = -0.818350 + 0.893459I$ $a = -0.62722 + 1.83412I$ $b = 1.73682 + 1.95046I$	$8.10637 - 5.08367I$	$11.97423 + 6.17836I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.818350+0.893459I$ $a=\ \ 0.21889-2.14442I$ $b=-1.12542-2.06135I$	$8.10637-5.08367I$	$11.97423+6.17836I$
$u=-0.818350+0.893459I$ $a=\ \ 2.03983-0.87331I$ $b=\ \ 0.67936-1.95224I$	$8.10637-1.02390I$	$11.97423-0.74985I$
$u=-0.818350-0.893459I$ $a=-1.56693-0.67484I$ $b=-0.88903-2.53718I$	$8.10637+1.02390I$	$11.97423+0.74985I$
$u=-0.818350-0.893459I$ $a=-0.62722-1.83412I$ $b=\ \ 1.73682-1.95046I$	$8.10637+5.08367I$	$11.97423-6.17836I$
$u=-0.818350-0.893459I$ $a=\ \ 0.21889+2.14442I$ $b=-1.12542+2.06135I$	$8.10637+5.08367I$	$11.97423-6.17836I$
$u=-0.818350-0.893459I$ $a=\ \ 2.03983+0.87331I$ $b=\ \ 0.67936+1.95224I$	$8.10637+1.02390I$	$11.97423+0.74985I$
$u=-0.194164+0.737666I$ $a=\ \ 0.282919-0.103964I$ $b=\ \ 1.68593+0.47614I$	$1.79902-2.73940I$	$4.58487+7.85357I$
$u=-0.194164+0.737666I$ $a=-0.04074+2.13248I$ $b=\ \ 1.32188-1.38731I$	$1.79902-6.79917I$	$4.5849+14.7818I$
$u=-0.194164+0.737666I$ $a=\ \ 0.04105-2.29630I$ $b=\ \ 0.021758+0.228886I$	$1.79902-2.73940I$	$4.58487+7.85357I$
$u=-0.194164+0.737666I$ $a=-2.19994-1.21292I$ $b=-1.56515-0.44411I$	$1.79902-6.79917I$	$4.5849+14.7818I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.194164-0.737666I$ $a=\ \ 0.282919+0.103964I$ $b=\ \ 1.68593-0.47614I$	$1.79902+2.73940I$	$4.58487-7.85357I$
$u=-0.194164-0.737666I$ $a=-0.04074-2.13248I$ $b=\ \ 1.32188+1.38731I$	$1.79902+6.79917I$	$4.5849-14.7818I$
$u=-0.194164-0.737666I$ $a=\ \ 0.04105+2.29630I$ $b=\ \ 0.021758-0.228886I$	$1.79902+2.73940I$	$4.58487-7.85357I$
$u=-0.194164-0.737666I$ $a=-2.19994+1.21292I$ $b=-1.56515+0.44411I$	$1.79902+6.79917I$	$4.5849-14.7818I$
$u=-0.786810+1.024740I$ $a=-1.18684+0.77153I$ $b=-0.13781+2.02356I$	$8.18774-7.43937I$	$10.33045+4.74153I$
$u=-0.786810+1.024740I$ $a=\ \ 1.30727-0.86927I$ $b=\ \ 0.14320-1.82325I$	$8.18774-7.43937I$	$10.33045+4.74153I$
$u=-0.786810+1.024740I$ $a=\ \ 1.23532-1.62329I$ $b=-0.52071-2.64792I$	$8.18774-11.49910I$	$10.3304+11.6697I$
$u=-0.786810+1.024740I$ $a=-1.38017+1.56786I$ $b=\ \ 0.69149+2.54310I$	$8.18774-11.49910I$	$10.3304+11.6697I$
$u=-0.786810-1.024740I$ $a=-1.18684-0.77153I$ $b=-0.13781-2.02356I$	$8.18774+7.43937I$	$10.33045-4.74153I$
$u=-0.786810-1.024740I$ $a=\ \ 1.30727+0.86927I$ $b=\ \ 0.14320+1.82325I$	$8.18774+7.43937I$	$10.33045-4.74153I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.786810 - 1.024740I$ $a = 1.23532 + 1.62329I$ $b = -0.52071 + 2.64792I$	$8.18774 + 11.49910I$	$10.3304 - 11.6697I$
$u = -0.786810 - 1.024740I$ $a = -1.38017 - 1.56786I$ $b = 0.69149 - 2.54310I$	$8.18774 + 11.49910I$	$10.3304 - 11.6697I$
$u = 0.522984 + 0.315101I$ $a = 1.033620 + 0.005607I$ $b = 0.906076 - 0.080080I$	$1.87589 + 0.34577I$	$7.69627 - 1.59195I$
$u = 0.522984 + 0.315101I$ $a = 0.812617 + 1.107510I$ $b = -1.013690 + 0.291758I$	$1.87589 + 4.40553I$	$7.69627 - 8.52015I$
$u = 0.522984 + 0.315101I$ $a = 1.20340 - 0.87818I$ $b = 0.538800 + 0.328627I$	$1.87589 + 0.34577I$	$7.69627 - 1.59195I$
$u = 0.522984 + 0.315101I$ $a = -1.17546 + 1.26609I$ $b = 0.076008 + 0.835268I$	$1.87589 + 4.40553I$	$7.69627 - 8.52015I$
$u = 0.522984 - 0.315101I$ $a = 1.033620 - 0.005607I$ $b = 0.906076 + 0.080080I$	$1.87589 - 0.34577I$	$7.69627 + 1.59195I$
$u = 0.522984 - 0.315101I$ $a = 0.812617 - 1.107510I$ $b = -1.013690 - 0.291758I$	$1.87589 - 4.40553I$	$7.69627 + 8.52015I$
$u = 0.522984 - 0.315101I$ $a = 1.20340 + 0.87818I$ $b = 0.538800 - 0.328627I$	$1.87589 - 0.34577I$	$7.69627 + 1.59195I$
$u = 0.522984 - 0.315101I$ $a = -1.17546 - 1.26609I$ $b = 0.076008 - 0.835268I$	$1.87589 - 4.40553I$	$7.69627 + 8.52015I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.241884 + 0.503654I$ $a = 1.039760 - 0.018154I$ $b = 1.074950 + 0.695362I$	$2.43974 + 0.80218I$	$8.50674 + 4.74457I$
$u = -0.241884 + 0.503654I$ $a = 1.37398 - 0.98256I$ $b = -1.63834 - 0.82035I$	$2.43974 + 4.86195I$	$8.50674 - 2.18363I$
$u = -0.241884 + 0.503654I$ $a = 0.28897 - 2.27308I$ $b = -0.242357 + 0.528068I$	$2.43974 + 0.80218I$	$8.50674 + 4.74457I$
$u = -0.241884 + 0.503654I$ $a = -0.05408 + 3.27888I$ $b = 0.162526 + 0.929674I$	$2.43974 + 4.86195I$	$8.50674 - 2.18363I$
$u = -0.241884 - 0.503654I$ $a = 1.039760 + 0.018154I$ $b = 1.074950 - 0.695362I$	$2.43974 - 0.80218I$	$8.50674 - 4.74457I$
$u = -0.241884 - 0.503654I$ $a = 1.37398 + 0.98256I$ $b = -1.63834 + 0.82035I$	$2.43974 - 4.86195I$	$8.50674 + 2.18363I$
$u = -0.241884 - 0.503654I$ $a = 0.28897 + 2.27308I$ $b = -0.242357 - 0.528068I$	$2.43974 - 0.80218I$	$8.50674 - 4.74457I$
$u = -0.241884 - 0.503654I$ $a = -0.05408 - 3.27888I$ $b = 0.162526 - 0.929674I$	$2.43974 - 4.86195I$	$8.50674 + 2.18363I$

III. $I_3^u = \langle 55u^{28} - 252u^{27} + \cdots + 21b + 61,\ 61u^{28} - 189u^{27} + \cdots + 21a - 32,\ u^{29} - 4u^{28} + \cdots - 6u^2 - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2.90476u^{28} + 9u^{27} + \cdots - 0.619048u + 1.52381 \\ -2.61905u^{28} + 12u^{27} + \cdots + 1.52381u - 2.90476 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.90476u^{28} + 5u^{27} + \cdots - 3.61905u - 3.47619 \\ -2.61905u^{28} + 9u^{27} + \cdots - 2.47619u - 1.90476 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{5}{7}u^{28} + 2u^{27} + \cdots + \frac{8}{7}u + \frac{32}{7} \\ -0.380952u^{28} + 3u^{27} + \cdots + 1.47619u - 1.09524 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{44}{7}u^{28} + 26u^{27} + \cdots + \frac{62}{7}u - \frac{32}{7} \\ 2.04762u^{28} - 2u^{27} + \cdots - 5.80952u - 5.23810 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{23}{7}u^{28} + 10u^{27} + \cdots + \frac{6}{7}u + \frac{17}{7} \\ -1.61905u^{28} + 8u^{27} + \cdots + 1.52381u - 2.90476 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{30}{7}u^{28} - 14u^{27} + \cdots - \frac{13}{7}u + \frac{39}{7} \\ 2.61905u^{28} - 10u^{27} + \cdots + 4.47619u + 3.90476 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{4}{21}u^{28} + 16u^{27} + \cdots + \frac{16}{21}u - \frac{146}{21}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{29} - 10u^{28} + \cdots - 12u + 1$
c_2	$u^{29} - 4u^{28} + \cdots - 6u^2 - 1$
c_3, c_9	$u^{29} + u^{28} + \cdots + 2u - 2$
c_4, c_8	$u^{29} + 5u^{27} + \cdots + u + 1$
c_6	$u^{29} + 4u^{28} + \cdots + 6u^2 + 1$
c_7, c_{10}	$u^{29} + 7u^{28} + \cdots + 11u + 1$
c_{11}	$u^{29} - 20u^{28} + \cdots + 3738u - 441$
c_{12}	$u^{29} - 10u^{28} + \cdots + 24u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{29} + 22y^{28} + \cdots + 16y - 1$
c_2, c_6	$y^{29} + 10y^{28} + \cdots - 12y - 1$
c_3, c_9	$y^{29} - 15y^{28} + \cdots + 24y - 4$
c_4, c_8	$y^{29} + 10y^{28} + \cdots - 11y - 1$
c_7, c_{10}	$y^{29} - 15y^{28} + \cdots + 25y - 1$
c_{11}	$y^{29} - 16y^{28} + \cdots + 797328y - 194481$
c_{12}	$y^{29} - 10y^{28} + \cdots + 60y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.381046 + 0.994636I$ $a = 0.394422 - 0.036263I$ $b = -0.114224 + 0.406124I$	$0.380435 - 0.893832I$	$3.98943 - 2.64300I$
$u = -0.381046 - 0.994636I$ $a = 0.394422 + 0.036263I$ $b = -0.114224 - 0.406124I$	$0.380435 + 0.893832I$	$3.98943 + 2.64300I$
$u = 0.933476$ $a = 0.470002$ $b = 0.438735$	0.839659	-11.2680
$u = 0.102637 + 0.920918I$ $a = -0.921307 - 0.423879I$ $b = 0.295797 - 0.891953I$	$0.77087 - 5.12193I$	$0.80745 + 4.16902I$
$u = 0.102637 - 0.920918I$ $a = -0.921307 + 0.423879I$ $b = 0.295797 + 0.891953I$	$0.77087 + 5.12193I$	$0.80745 - 4.16902I$
$u = -0.302805 + 1.032930I$ $a = 0.252124 - 0.612762I$ $b = 0.556595 + 0.445973I$	$0.14121 - 5.25589I$	$0.91305 + 5.96486I$
$u = -0.302805 - 1.032930I$ $a = 0.252124 + 0.612762I$ $b = 0.556595 - 0.445973I$	$0.14121 + 5.25589I$	$0.91305 - 5.96486I$
$u = 0.739534 + 0.818554I$ $a = 0.81317 + 2.64099I$ $b = -1.56043 + 2.61872I$	$5.00038 - 3.87176I$	$8.07245 + 2.05460I$
$u = 0.739534 - 0.818554I$ $a = 0.81317 - 2.64099I$ $b = -1.56043 - 2.61872I$	$5.00038 + 3.87176I$	$8.07245 - 2.05460I$
$u = 0.717708 + 0.930722I$ $a = 2.23453 + 0.96250I$ $b = 0.70792 + 2.77052I$	$4.64934 + 9.43078I$	$6.92090 - 8.42058I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.717708 - 0.930722I$ $a = 2.23453 - 0.96250I$ $b = 0.70792 - 2.77052I$	$4.64934 - 9.43078I$	$6.92090 + 8.42058I$
$u = 0.892893 + 0.774986I$ $a = -1.37205 - 1.37025I$ $b = -0.16318 - 2.28681I$	$8.08954 - 4.12661I$	$6.25922 + 1.62386I$
$u = 0.892893 - 0.774986I$ $a = -1.37205 + 1.37025I$ $b = -0.16318 + 2.28681I$	$8.08954 + 4.12661I$	$6.25922 - 1.62386I$
$u = -0.817743 + 0.884003I$ $a = 0.296499 + 0.102921I$ $b = -0.333443 + 0.177943I$	$6.98004 + 1.96846I$	$8.21768 - 1.67839I$
$u = -0.817743 - 0.884003I$ $a = 0.296499 - 0.102921I$ $b = -0.333443 - 0.177943I$	$6.98004 - 1.96846I$	$8.21768 + 1.67839I$
$u = -0.803936 + 0.898254I$ $a = -0.343383 + 0.030655I$ $b = 0.248522 - 0.333090I$	$6.93049 - 8.02852I$	$7.93809 + 6.50291I$
$u = -0.803936 - 0.898254I$ $a = -0.343383 - 0.030655I$ $b = 0.248522 + 0.333090I$	$6.93049 + 8.02852I$	$7.93809 - 6.50291I$
$u = 0.814198 + 0.892612I$ $a = -1.39320 - 1.71325I$ $b = 0.39493 - 2.63852I$	$8.03691 + 3.04142I$	$12.07509 - 2.75183I$
$u = 0.814198 - 0.892612I$ $a = -1.39320 + 1.71325I$ $b = 0.39493 + 2.63852I$	$8.03691 - 3.04142I$	$12.07509 + 2.75183I$
$u = 0.795789 + 1.009530I$ $a = -1.13869 - 1.65579I$ $b = 0.76542 - 2.46720I$	$7.35018 + 10.38150I$	$5.17331 - 6.23608I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.795789 - 1.009530I$ $a = -1.13869 + 1.65579I$ $b = 0.76542 + 2.46720I$	$7.35018 - 10.38150I$	$5.17331 + 6.23608I$
$u = 0.093113 + 0.676164I$ $a = -0.91249 + 2.19288I$ $b = -1.56771 - 0.41280I$	$1.73448 + 5.99989I$	$2.11994 - 3.13699I$
$u = 0.093113 - 0.676164I$ $a = -0.91249 - 2.19288I$ $b = -1.56771 + 0.41280I$	$1.73448 - 5.99989I$	$2.11994 + 3.13699I$
$u = 0.441114 + 1.253380I$ $a = -0.159594 + 0.165424I$ $b = -0.277739 - 0.127061I$	$-3.12845 + 4.78394I$	$-2.9636 + 14.9800I$
$u = 0.441114 - 1.253380I$ $a = -0.159594 - 0.165424I$ $b = -0.277739 + 0.127061I$	$-3.12845 - 4.78394I$	$-2.9636 - 14.9800I$
$u = -0.590522 + 0.197460I$ $a = -0.447464 - 0.749791I$ $b = 0.412292 + 0.354412I$	$2.96129 + 1.89751I$	$11.45632 - 0.75702I$
$u = -0.590522 - 0.197460I$ $a = -0.447464 + 0.749791I$ $b = 0.412292 - 0.354412I$	$2.96129 - 1.89751I$	$11.45632 + 0.75702I$
$u = -0.167670 + 0.470199I$ $a = -0.53757 - 1.75616I$ $b = 0.915879 + 0.041690I$	$2.32133 - 1.86969I$	$9.65457 + 2.80785I$
$u = -0.167670 - 0.470199I$ $a = -0.53757 + 1.75616I$ $b = 0.915879 - 0.041690I$	$2.32133 + 1.86969I$	$9.65457 - 2.80785I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 13u+5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-0.148403+0.632502I$ $b=\ \ 1.47356+0.44477I$	$-4.05977I$	$-1.50000+11.25833I$
$u=-0.500000+0.866025I$ $a=-0.35160-1.49853I$ $b=-0.473561-0.444772I$	$-4.05977I$	$-1.50000+11.25833I$
$u=-0.500000-0.866025I$ $a=-0.148403-0.632502I$ $b=\ \ 1.47356-0.44477I$	$4.05977I$	$-1.50000-11.25833I$
$u=-0.500000-0.866025I$ $a=-0.35160+1.49853I$ $b=-0.473561+0.444772I$	$4.05977I$	$-1.50000-11.25833I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u + 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.473561 - 0.444772I$ $b = -1.12196 + 1.05376I$	0	$-1.50000 + 4.33013I$
$u = -0.500000 + 0.866025I$ $a = 1.47356 + 0.44477I$ $b = 0.621964 - 0.187730I$	0	$-1.50000 + 4.33013I$
$u = -0.500000 - 0.866025I$ $a = -0.473561 + 0.444772I$ $b = -1.12196 - 1.05376I$	0	$-1.50000 - 4.33013I$
$u = -0.500000 - 0.866025I$ $a = 1.47356 - 0.44477I$ $b = 0.621964 + 0.187730I$	0	$-1.50000 - 4.33013I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$((u^2-u+1)^4)(u^{27}+8u^{26}+\cdots-8u-1)^4$ $\cdot(u^{29}-10u^{28}+\cdots-12u+1)(u^{56}+17u^{55}+\cdots+2640u+256)$
c_2	$((u^2+u+1)^4)(u^{27}+2u^{26}+\cdots-4u^2-1)^4(u^{29}-4u^{28}+\cdots-6u^2-1)$ $\cdot(u^{56}-9u^{55}+\cdots+36u-16)$
c_3, c_9	$(u^4-u^3+2u+1)(u^4+2u^3-u+1)(u^{29}+u^{28}+\cdots+2u-2)$ $\cdot(u^{56}-u^{55}+\cdots+166u+34)$ $\cdot(u^{108}+2u^{107}+\cdots+53770489u+615212329)$
c_4, c_8	$(u^4-u^3+2u+1)(u^4+2u^3-u+1)(u^{29}+5u^{27}+\cdots+u+1)$ $\cdot(u^{56}-5u^{54}+\cdots+u-1)(u^{108}+4u^{107}+\cdots+u+1)$
c_6	$((u^2-u+1)^4)(u^{27}+2u^{26}+\cdots-4u^2-1)^4(u^{29}+4u^{28}+\cdots+6u^2+1)$ $\cdot(u^{56}-9u^{55}+\cdots+36u-16)$
c_7, c_{10}	$((u^2+u+1)^4)(u^{29}+7u^{28}+\cdots+11u+1)(u^{56}-u^{55}+\cdots-21u+1)$ $\cdot(u^{108}-5u^{107}+\cdots-770948u+186859)$
c_{11}	$u^8(u^{27}-13u^{26}+\cdots-10u+4)^4(u^{29}-20u^{28}+\cdots+3738u-441)$ $\cdot(u^{56}+43u^{55}+\cdots-34u-4)$
c_{12}	$((u^2-u+1)^{54})(u^2+u+1)^4(u^{29}-10u^{28}+\cdots+24u-2)$ $\cdot(u^{56}+53u^{55}+\cdots-738197504u-33554432)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y^2+y+1)^4)(y^{27}+24y^{26}+\cdots-12y-1)^4$ $\cdot(y^{29}+22y^{28}+\cdots+16y-1)(y^{56}+45y^{55}+\cdots-636672y+65536)$
c_2, c_6	$((y^2+y+1)^4)(y^{27}+8y^{26}+\cdots-8y-1)^4$ $\cdot(y^{29}+10y^{28}+\cdots-12y-1)(y^{56}+17y^{55}+\cdots+2640y+256)$
c_3, c_9	$(y^4-4y^3+6y^2-y+1)(y^4-y^3+6y^2-4y+1)$ $\cdot(y^{29}-15y^{28}+\cdots+24y-4)(y^{56}-31y^{55}+\cdots-9332y+1156)$ $\cdot(y^{108}-58y^{107}+\cdots-1.51\times10^{19}y+3.78\times10^{17})$
c_4, c_8	$(y^4-4y^3+6y^2-y+1)(y^4-y^3+6y^2-4y+1)$ $\cdot(y^{29}+10y^{28}+\cdots-11y-1)(y^{56}-10y^{55}+\cdots-9y+1)$ $\cdot(y^{108}+34y^{107}+\cdots+539y+1)$
c_7, c_{10}	$((y^2+y+1)^4)(y^{29}-15y^{28}+\cdots+25y-1)(y^{56}-7y^{55}+\cdots-45y+1)$ $\cdot(y^{108}-53y^{107}+\cdots-468863324560y+34916285881)$
c_{11}	$y^8(y^{27}-5y^{26}+\cdots+236y-16)^4$ $\cdot(y^{29}-16y^{28}+\cdots+797328y-194481)$ $\cdot(y^{56}-21y^{55}+\cdots-508y+16)$
c_{12}	$((y^2+y+1)^{58})(y^{29}-10y^{28}+\cdots+60y-4)$ $\cdot(y^{56}-9y^{55}+\cdots+19140298416324608y+1125899906842624)$