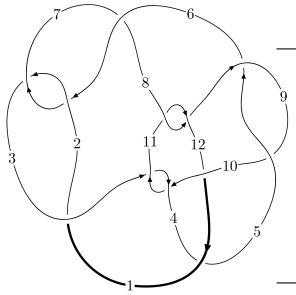
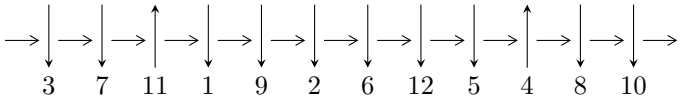
$12a_{0685}$ $(K12a_{0685})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -2.88356 \times 10^{553} u^{121} + 1.21209 \times 10^{554} u^{120} + \cdots + 8.71696 \times 10^{553} b - 3.64779 \times 10^{555}, \\
&\quad 4.27797 \times 10^{555} u^{121} - 1.73052 \times 10^{556} u^{120} + \cdots + 2.72841 \times 10^{556} a + 1.06739 \times 10^{558}, \\
&\quad u^{122} - 5u^{121} + \cdots - 2671u + 313 \rangle \\
I_2^u &= \langle 5u^{19} - 5u^{18} + \cdots + b - 13u,\ -4u^{19} + 4u^{18} + \cdots + a + 13u,\ u^{20} - u^{19} + \cdots - 4u^2 - 1 \rangle \\
I_3^u &= \langle b + 1,\ a - u - 1,\ u^2 + u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 144 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u = \langle -2.88 \times 10^{553} u^{121} + 1.21 \times 10^{554} u^{120} + \cdots + 8.72 \times 10^{553} b - 3.65 \times 10^{555},\ 4.28 \times 10^{555} u^{121} - 1.73 \times 10^{556} u^{120} + \cdots + 2.73 \times 10^{556} a + 1.07 \times 10^{558},\ u^{122} - 5u^{121} + \cdots - 2671u + 313 \rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.156793u^{121} + 0.634260u^{120} + \cdots + 256.687u - 39.1212 \\ 0.330799u^{121} - 1.39049u^{120} + \cdots - 256.314u + 41.8470 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0146363u^{121} + 0.105168u^{120} + \cdots + 7.19887u - 3.50278 \\ 0.188642u^{121} - 0.861399u^{120} + \cdots - 6.82568u + 6.22859 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.560056u^{121} - 2.92442u^{120} + \cdots + 643.200u - 60.0524 \\ -0.342976u^{121} + 1.55630u^{120} + \cdots + 93.8076u - 22.7278 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.101891u^{121} - 0.649364u^{120} + \cdots + 517.201u - 55.0592 \\ -0.436544u^{121} + 2.01244u^{120} + \cdots - 9.53506u - 14.2558 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.229119u^{121} + 0.737054u^{120} + \cdots + 913.255u - 113.107 \\ -0.130498u^{121} + 0.841269u^{120} + \cdots - 623.444u + 69.8259 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.423648u^{121} - 1.77534u^{120} + \cdots - 508.989u + 67.2783 \\ -0.822229u^{121} + 3.70501u^{120} + \cdots + 315.069u - 65.2216 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.149715u^{121} + 0.0244993u^{120} + \cdots + 1701.15u - 213.253 \\ 0.0916345u^{121} + 0.419588u^{120} + \cdots - 2068.61u + 254.915 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0978973u^{121} + 0.243033u^{120} + \cdots + 277.019u - 36.7654 \\ -0.183988u^{121} + 1.22389u^{120} + \cdots - 801.640u + 90.3639 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.345389u^{121} - 0.408893u^{120} + \cdots - 2814.41u + 346.625$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{122} + 41u^{121} + \cdots + 33207u + 121$
c_2, c_6	$u^{122} - u^{121} + \cdots + 223u + 11$
c_3, c_{10}	$u^{122} - 2u^{121} + \cdots + 169938u + 8767$
c_4	$u^{122} - 6u^{121} + \cdots + 12u - 8$
c_5, c_9	$u^{122} - 5u^{121} + \cdots - 2671u + 313$
c_8, c_{11}	$u^{122} + u^{121} + \cdots + 4149u + 108$
c_{12}	$u^{122} - 2u^{121} + \cdots + 29u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{122} + 91y^{121} + \cdots - 1012244039y + 14641$
c_2, c_6	$y^{122} - 41y^{121} + \cdots - 33207y + 121$
c_3, c_{10}	$y^{122} + 70y^{121} + \cdots + 180016550y + 76860289$
c_4	$y^{122} + 20y^{121} + \cdots + 720y + 64$
c_5, c_9	$y^{122} + 73y^{121} + \cdots + 3716843y + 97969$
c_8, c_{11}	$y^{122} - 73y^{121} + \cdots - 13689081y + 11664$
c_{12}	$y^{122} - 12y^{121} + \cdots - 81y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.507146+0.855992I$ $a=\ \ 1.39763+0.38908I$ $b=-1.58922-0.73202I$	$0.15714+3.46101I$	0
$u=-0.507146-0.855992I$ $a=\ \ 1.39763-0.38908I$ $b=-1.58922+0.73202I$	$0.15714-3.46101I$	0
$u=\ \ 0.242227+0.979225I$ $a=\ \ 0.651388-0.786992I$ $b=-1.76441+0.84561I$	$-1.76184-1.89377I$	0
$u=\ \ 0.242227-0.979225I$ $a=\ \ 0.651388+0.786992I$ $b=-1.76441-0.84561I$	$-1.76184+1.89377I$	0
$u=\ \ 0.369913+0.912696I$ $a=-1.21901+0.99429I$ $b=\ \ 1.33892-1.30519I$	$-5.98273-3.58080I$	0
$u=\ \ 0.369913-0.912696I$ $a=-1.21901-0.99429I$ $b=\ \ 1.33892+1.30519I$	$-5.98273+3.58080I$	0
$u=-0.721993+0.658333I$ $a=-0.524412-1.175230I$ $b=-0.362442+0.593749I$	$-0.417036+1.284330I$	0
$u=-0.721993-0.658333I$ $a=-0.524412+1.175230I$ $b=-0.362442-0.593749I$	$-0.417036-1.284330I$	0
$u=\ \ 0.648403+0.720029I$ $a=\ \ 0.41433-1.40827I$ $b=\ \ 0.393075+0.699599I$	$-1.05367+4.67798I$	0
$u=\ \ 0.648403-0.720029I$ $a=\ \ 0.41433+1.40827I$ $b=\ \ 0.393075-0.699599I$	$-1.05367-4.67798I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.227753 + 1.007340I$ $a = 0.479723 + 0.520123I$ $b = -1.72903 + 0.21460I$	$1.31833 - 3.84074I$	0
$u = 0.227753 - 1.007340I$ $a = 0.479723 - 0.520123I$ $b = -1.72903 - 0.21460I$	$1.31833 + 3.84074I$	0
$u = -0.523794 + 0.893580I$ $a = 0.413860 + 0.269007I$ $b = -0.395349 + 0.457081I$	$-1.71998 + 0.88588I$	0
$u = -0.523794 - 0.893580I$ $a = 0.413860 - 0.269007I$ $b = -0.395349 - 0.457081I$	$-1.71998 - 0.88588I$	0
$u = 0.036474 + 0.957207I$ $a = 0.01900 - 2.30092I$ $b = 0.028206 + 1.126470I$	$-3.98184 - 2.64884I$	0
$u = 0.036474 - 0.957207I$ $a = 0.01900 + 2.30092I$ $b = 0.028206 - 1.126470I$	$-3.98184 + 2.64884I$	0
$u = 0.144312 + 1.033520I$ $a = -0.43604 + 1.42034I$ $b = 0.47698 - 1.68915I$	$-3.56343 + 2.07493I$	0
$u = 0.144312 - 1.033520I$ $a = -0.43604 - 1.42034I$ $b = 0.47698 + 1.68915I$	$-3.56343 - 2.07493I$	0
$u = 0.618887 + 0.841397I$ $a = 0.233538 - 0.401885I$ $b = -1.47477 + 0.40985I$	$0.75469 - 3.02592I$	0
$u = 0.618887 - 0.841397I$ $a = 0.233538 + 0.401885I$ $b = -1.47477 - 0.40985I$	$0.75469 + 3.02592I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.477079 + 0.822515I$ $a = -1.59165 + 0.48054I$ $b = 1.76249 - 0.84223I$	$-0.77649 - 9.14865I$	0
$u = 0.477079 - 0.822515I$ $a = -1.59165 - 0.48054I$ $b = 1.76249 + 0.84223I$	$-0.77649 + 9.14865I$	0
$u = 1.054680 + 0.094255I$ $a = 1.218420 - 0.371226I$ $b = -0.244011 - 0.244100I$	$-9.21798 + 6.22997I$	0
$u = 1.054680 - 0.094255I$ $a = 1.218420 + 0.371226I$ $b = -0.244011 + 0.244100I$	$-9.21798 - 6.22997I$	0
$u = 0.138610 + 1.058360I$ $a = -0.532185 + 1.199180I$ $b = 1.139570 + 0.187880I$	$3.72323 - 4.84674I$	0
$u = 0.138610 - 1.058360I$ $a = -0.532185 - 1.199180I$ $b = 1.139570 - 0.187880I$	$3.72323 + 4.84674I$	0
$u = -0.359693 + 1.007070I$ $a = 0.432069 - 0.378673I$ $b = -1.106490 + 0.143329I$	$1.61424 + 3.30812I$	0
$u = -0.359693 - 1.007070I$ $a = 0.432069 + 0.378673I$ $b = -1.106490 - 0.143329I$	$1.61424 - 3.30812I$	0
$u = -0.917118 + 0.113358I$ $a = -1.316600 - 0.058252I$ $b = 0.079637 + 0.366292I$	$-5.18540 + 3.19989I$	0
$u = -0.917118 - 0.113358I$ $a = -1.316600 + 0.058252I$ $b = 0.079637 - 0.366292I$	$-5.18540 - 3.19989I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.071921+1.074860I$ $a=\ \ 0.536466+1.102590I$ $b=-1.298910+0.214239I$	$4.53635-1.19512I$	0
$u=-0.071921-1.074860I$ $a=\ \ 0.536466-1.102590I$ $b=-1.298910-0.214239I$	$4.53635+1.19512I$	0
$u=\ \ 0.065495+1.084360I$ $a=-0.548966-0.588478I$ $b=\ \ 1.45908+0.28829I$	$3.18981+0.55992I$	0
$u=\ \ 0.065495-1.084360I$ $a=-0.548966+0.588478I$ $b=\ \ 1.45908-0.28829I$	$3.18981-0.55992I$	0
$u=-0.017047+0.888778I$ $a=-0.134366+0.929996I$ $b=\ \ 1.99375+0.51223I$	$-3.06363+1.21973I$	0
$u=-0.017047-0.888778I$ $a=-0.134366-0.929996I$ $b=\ \ 1.99375-0.51223I$	$-3.06363-1.21973I$	0
$u=\ \ 0.154471+1.105440I$ $a=\ \ 0.487434-0.720037I$ $b=-2.23947+1.00600I$	$-1.92977-1.78813I$	0
$u=\ \ 0.154471-1.105440I$ $a=\ \ 0.487434+0.720037I$ $b=-2.23947-1.00600I$	$-1.92977+1.78813I$	0
$u=\ \ 0.501989+1.014050I$ $a=\ \ 1.062520-0.427536I$ $b=-2.01893+0.65151I$	$0.94916-7.19297I$	0
$u=\ \ 0.501989-1.014050I$ $a=\ \ 1.062520+0.427536I$ $b=-2.01893-0.65151I$	$0.94916+7.19297I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.228489 + 1.128820I$ $a = 0.706469 - 0.874340I$ $b = -2.01056 - 0.09616I$	$2.72426 - 9.72933I$	0
$u = 0.228489 - 1.128820I$ $a = 0.706469 + 0.874340I$ $b = -2.01056 + 0.09616I$	$2.72426 + 9.72933I$	0
$u = -0.177121 + 1.149440I$ $a = -0.686607 - 0.798525I$ $b = 1.93922 + 0.07899I$	$4.31675 + 3.76010I$	0
$u = -0.177121 - 1.149440I$ $a = -0.686607 + 0.798525I$ $b = 1.93922 - 0.07899I$	$4.31675 - 3.76010I$	0
$u = -0.517454 + 1.053270I$ $a = -1.097670 - 0.227427I$ $b = 2.04032 + 0.50754I$	$1.10043 + 2.28207I$	0
$u = -0.517454 - 1.053270I$ $a = -1.097670 + 0.227427I$ $b = 2.04032 - 0.50754I$	$1.10043 - 2.28207I$	0
$u = 0.630953 + 0.484428I$ $a = -0.50591 + 1.37090I$ $b = 0.0151728 - 0.1063120I$	$-0.57666 + 2.76411I$	0
$u = 0.630953 - 0.484428I$ $a = -0.50591 - 1.37090I$ $b = 0.0151728 + 0.1063120I$	$-0.57666 - 2.76411I$	0
$u = -0.558023 + 0.560799I$ $a = 0.258704 - 0.470798I$ $b = 1.296390 + 0.185115I$	$0.13015 + 7.94791I$	0
$u = -0.558023 - 0.560799I$ $a = 0.258704 + 0.470798I$ $b = 1.296390 - 0.185115I$	$0.13015 - 7.94791I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.461375+1.117550I$ $a=\ \ 0.667723+0.692906I$ $b=-0.806009-0.913075I$	$-2.12629+1.69618I$	0
$u=-0.461375-1.117550I$ $a=\ \ 0.667723-0.692906I$ $b=-0.806009+0.913075I$	$-2.12629-1.69618I$	0
$u=-0.418495+1.134790I$ $a=-0.962800+0.236257I$ $b=\ \ 1.92529+0.23170I$	$-1.08991+6.40452I$	0
$u=-0.418495-1.134790I$ $a=-0.962800-0.236257I$ $b=\ \ 1.92529-0.23170I$	$-1.08991-6.40452I$	0
$u=-0.686573+0.377263I$ $a=\ \ 0.41902+1.35088I$ $b=\ \ 0.146460-0.125587I$	$-0.83065+2.29413I$	0
$u=-0.686573-0.377263I$ $a=\ \ 0.41902-1.35088I$ $b=\ \ 0.146460+0.125587I$	$-0.83065-2.29413I$	0
$u=-0.767024$ $a=\ \ 1.11830$ $b=-0.231853$	-1.42025	0
$u=\ \ 0.202430+0.728860I$ $a=\ \ 0.33510-2.39306I$ $b=\ \ 0.116223+0.950572I$	$-6.96114+0.72996I$	0
$u=\ \ 0.202430-0.728860I$ $a=\ \ 0.33510+2.39306I$ $b=\ \ 0.116223-0.950572I$	$-6.96114-0.72996I$	0
$u=-1.258190+0.026736I$ $a=-0.904118+0.330926I$ $b=\ \ 0.131425+0.086046I$	$-1.97565+6.21374I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.258190-0.026736I$ $a=-0.904118-0.330926I$ $b=\ \ 0.131425-0.086046I$	$-1.97565-6.21374I$	0
$u=\ \ 0.305764+1.244400I$ $a=\ \ 0.993398+0.584367I$ $b=-1.85645+0.04560I$	$5.33674-5.20139I$	0
$u=\ \ 0.305764-1.244400I$ $a=\ \ 0.993398-0.584367I$ $b=-1.85645-0.04560I$	$5.33674+5.20139I$	0
$u=\ \ 1.287590+0.035022I$ $a=\ \ 0.912763-0.412908I$ $b=-0.178807-0.058045I$	$-2.99067+12.22930I$	0
$u=\ \ 1.287590-0.035022I$ $a=\ \ 0.912763+0.412908I$ $b=-0.178807+0.058045I$	$-2.99067-12.22930I$	0
$u=-0.342892+1.258960I$ $a=-1.058540+0.547415I$ $b=\ \ 1.90413+0.04316I$	$4.64137+11.06510I$	0
$u=-0.342892-1.258960I$ $a=-1.058540-0.547415I$ $b=\ \ 1.90413-0.04316I$	$4.64137-11.06510I$	0
$u=\ \ 0.288069+0.630674I$ $a=-0.53746+1.64812I$ $b=\ \ 0.254099+0.152010I$	$-2.92024-0.76437I$	0
$u=\ \ 0.288069-0.630674I$ $a=-0.53746-1.64812I$ $b=\ \ 0.254099-0.152010I$	$-2.92024+0.76437I$	0
$u=-0.413630+1.245240I$ $a=-0.666885-0.534985I$ $b=\ \ 1.63416+0.81728I$	$2.24606+4.27656I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.413630-1.245240I$ $a=-0.666885+0.534985I$ $b=\ \ 1.63416-0.81728I$	$2.24606-4.27656I$	0
$u=\ \ 0.359238+1.296200I$ $a=-0.415506+0.695099I$ $b=\ \ 1.58193-1.69623I$	$-4.17814-3.10881I$	0
$u=\ \ 0.359238-1.296200I$ $a=-0.415506-0.695099I$ $b=\ \ 1.58193+1.69623I$	$-4.17814+3.10881I$	0
$u=\ \ 0.630864+0.069124I$ $a=\ \ 2.18441-0.27617I$ $b=-0.221149-0.599419I$	$-8.04418-0.71542I$	$-17.0967+1.7392I$
$u=\ \ 0.630864-0.069124I$ $a=\ \ 2.18441+0.27617I$ $b=-0.221149+0.599419I$	$-8.04418+0.71542I$	$-17.0967-1.7392I$
$u=\ \ 0.628713+1.212980I$ $a=\ \ 0.628761-0.556862I$ $b=-1.56682+0.70226I$	$-0.58676-7.14016I$	0
$u=\ \ 0.628713-1.212980I$ $a=\ \ 0.628761+0.556862I$ $b=-1.56682-0.70226I$	$-0.58676+7.14016I$	0
$u=\ \ 0.244179+1.377560I$ $a=-0.719476-0.333457I$ $b=\ \ 1.43445-0.11358I$	$9.18175+0.11415I$	0
$u=\ \ 0.244179-1.377560I$ $a=-0.719476+0.333457I$ $b=\ \ 1.43445+0.11358I$	$9.18175-0.11415I$	0
$u=-0.074484+1.403190I$ $a=-0.574464-0.350721I$ $b=\ \ 1.29544+0.97751I$	$5.81324+1.62511I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.074484-1.403190I$ $a=-0.574464+0.350721I$ $b=\ \ 1.29544-0.97751I$	$5.81324-1.62511I$	0
$u=\ \ 0.073608+0.584728I$ $a=-0.156648-1.117150I$ $b=-0.88013+1.20164I$	$2.29915+3.56926I$	$-1.92611-0.98363I$
$u=\ \ 0.073608-0.584728I$ $a=-0.156648+1.117150I$ $b=-0.88013-1.20164I$	$2.29915-3.56926I$	$-1.92611+0.98363I$
$u=-0.025684+1.413150I$ $a=\ \ 0.555704-0.268203I$ $b=-1.15630+0.93671I$	$5.06356+4.48557I$	0
$u=-0.025684-1.413150I$ $a=\ \ 0.555704+0.268203I$ $b=-1.15630-0.93671I$	$5.06356-4.48557I$	0
$u=-0.30282+1.38844I$ $a=\ \ 0.697396-0.277292I$ $b=-1.390550-0.164891I$	$8.98982+6.01349I$	0
$u=-0.30282-1.38844I$ $a=\ \ 0.697396+0.277292I$ $b=-1.390550+0.164891I$	$8.98982-6.01349I$	0
$u=-0.575887+0.053854I$ $a=\ \ 0.43797+1.36280I$ $b=\ \ 0.586028+0.053066I$	$-4.09960-2.58603I$	$-15.3423+3.8817I$
$u=-0.575887-0.053854I$ $a=\ \ 0.43797-1.36280I$ $b=\ \ 0.586028-0.053066I$	$-4.09960+2.58603I$	$-15.3423-3.8817I$
$u=\ \ 0.54142+1.31566I$ $a=-0.685592+0.695747I$ $b=\ \ 1.78060-1.26482I$	$-5.38333-11.88530I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.54142 - 1.31566I$ $a = -0.685592 - 0.695747I$ $b = 1.78060 + 1.26482I$	$-5.38333 + 11.88530I$	0
$u = -0.45512 + 1.36440I$ $a = 0.560970 + 0.598672I$ $b = -1.56394 - 1.34093I$	$-0.59437 + 8.14708I$	0
$u = -0.45512 - 1.36440I$ $a = 0.560970 - 0.598672I$ $b = -1.56394 + 1.34093I$	$-0.59437 - 8.14708I$	0
$u = -0.521685$ $a = 0.0566446$ $b = -0.400783$	-1.05875	-8.98480
$u = -0.59026 + 1.39756I$ $a = 0.797067 + 0.590410I$ $b = -1.75850 - 1.08987I$	$2.45491 + 12.60890I$	0
$u = -0.59026 - 1.39756I$ $a = 0.797067 - 0.590410I$ $b = -1.75850 + 1.08987I$	$2.45491 - 12.60890I$	0
$u = 0.61662 + 1.38795I$ $a = -0.831695 + 0.620331I$ $b = 1.80616 - 1.08473I$	$1.2324 - 18.7981I$	0
$u = 0.61662 - 1.38795I$ $a = -0.831695 - 0.620331I$ $b = 1.80616 + 1.08473I$	$1.2324 + 18.7981I$	0
$u = -0.018266 + 0.473866I$ $a = 0.670205 - 0.917153I$ $b = 0.475830 + 1.181720I$	$2.86428 + 1.80692I$	$-0.18499 - 4.21230I$
$u = -0.018266 - 0.473866I$ $a = 0.670205 + 0.917153I$ $b = 0.475830 - 1.181720I$	$2.86428 - 1.80692I$	$-0.18499 + 4.21230I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.60919+1.42322I$ $a=-0.712375-0.571819I$ $b=\ \ 1.53522+0.76204I$	$6.20510+6.08526I$	0
$u=-0.60919-1.42322I$ $a=-0.712375+0.571819I$ $b=\ \ 1.53522-0.76204I$	$6.20510-6.08526I$	0
$u=\ \ 0.66085+1.41665I$ $a=\ \ 0.710039-0.593401I$ $b=-1.53047+0.75564I$	$5.46010-12.01240I$	0
$u=\ \ 0.66085-1.41665I$ $a=\ \ 0.710039+0.593401I$ $b=-1.53047-0.75564I$	$5.46010+12.01240I$	0
$u=-0.06933+1.56209I$ $a=\ \ 0.059047+0.435793I$ $b=-0.20208-1.61254I$	$7.59602+3.60881I$	0
$u=-0.06933-1.56209I$ $a=\ \ 0.059047-0.435793I$ $b=-0.20208+1.61254I$	$7.59602-3.60881I$	0
$u=\ \ 0.308470+0.299676I$ $a=\ \ 0.256000+1.188170I$ $b=-0.226868+0.493468I$	$-0.49377+1.38538I$	$-4.82093-5.16315I$
$u=\ \ 0.308470-0.299676I$ $a=\ \ 0.256000-1.188170I$ $b=-0.226868-0.493468I$	$-0.49377-1.38538I$	$-4.82093+5.16315I$
$u=-0.087457+0.356516I$ $a=\ \ 1.70937+0.74743I$ $b=\ \ 1.45278-0.50533I$	$0.18833+8.05722I$	$-8.94518-5.79512I$
$u=-0.087457-0.356516I$ $a=\ \ 1.70937-0.74743I$ $b=\ \ 1.45278+0.50533I$	$0.18833-8.05722I$	$-8.94518+5.79512I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.24933+1.18864I$ $a=\ \ 0.582356+0.281378I$ $b=-0.617452+0.046696I$	$0.86161-1.79317I$	0
$u=-1.24933-1.18864I$ $a=\ \ 0.582356-0.281378I$ $b=-0.617452-0.046696I$	$0.86161+1.79317I$	0
$u=-1.33504+1.09767I$ $a=\ \ 0.256971+0.354347I$ $b=-0.482895-0.312137I$	$2.04741+1.84177I$	0
$u=-1.33504-1.09767I$ $a=\ \ 0.256971-0.354347I$ $b=-0.482895+0.312137I$	$2.04741-1.84177I$	0
$u=\ \ 0.146999+0.118246I$ $a=-3.40056-1.80387I$ $b=-1.041310-0.634427I$	$1.27269-2.64482I$	$-5.70753+1.40210I$
$u=\ \ 0.146999-0.118246I$ $a=-3.40056+1.80387I$ $b=-1.041310+0.634427I$	$1.27269+2.64482I$	$-5.70753-1.40210I$
$u=\ \ 1.38605+1.21593I$ $a=-0.560619+0.303873I$ $b=\ \ 0.607412-0.024097I$	$0.66862-3.59542I$	0
$u=\ \ 1.38605-1.21593I$ $a=-0.560619-0.303873I$ $b=\ \ 0.607412+0.024097I$	$0.66862+3.59542I$	0
$u=\ \ 1.45579+1.17501I$ $a=-0.272961+0.386992I$ $b=\ \ 0.471732-0.314653I$	$1.66775+3.85576I$	0
$u=\ \ 1.45579-1.17501I$ $a=-0.272961-0.386992I$ $b=\ \ 0.471732+0.314653I$	$1.66775-3.85576I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.81331+1.30001I$		
$a=$	$-0.382421+0.280846I$	$-3.05641+0.12266I$	0
$b=$	$0.427458-0.169329I$		
$u=$	$1.81331-1.30001I$		
$a=$	$-0.382421-0.280846I$	$-3.05641-0.12266I$	0
$b=$	$0.427458+0.169329I$		

II. $I_2^u =$
$\langle 5u^{19}-5u^{18}+\cdots+b-13u,\ -4u^{19}+4u^{18}+\cdots+a+13u,\ u^{20}-u^{19}+\cdots-4u^2-1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 4u^{19} - 4u^{18} + \cdots + u^2 - 13u \\ -5u^{19} + 5u^{18} + \cdots - u^2 + 13u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 3u^{19} - 3u^{18} + \cdots + u^2 - 12u \\ -4u^{19} + 4u^{18} + \cdots - u^2 + 12u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{19} + 13u^{18} + \cdots + 5u - 30 \\ u^{19} - 12u^{18} + \cdots - 5u + 26 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 13u^{19} - 13u^{18} + \cdots - 34u - 1 \\ -13u^{19} + 13u^{18} + \cdots + 31u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 4u^{19} - 4u^{18} + \cdots + u^2 - 16u \\ -9u^{19} + 9u^{18} + \cdots + 22u + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -30u^{19} + 29u^{18} + \cdots + 70u + 5 \\ 26u^{19} - 25u^{18} + \cdots - 57u - 5 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 4u^{19} - 22u^{18} + \cdots - 13u + 40 \\ -4u^{19} + 19u^{18} + \cdots + 12u - 31 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -42u^{19} + 24u^{18} + \cdots + 76u + 40 \\ 23u^{19} - 8u^{18} + \cdots - 42u - 31 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -55u^{19} + 78u^{18} - 215u^{17} + 218u^{16} - 126u^{15} + 14u^{14} + 368u^{13} - 370u^{12} + 511u^{11} - 293u^{10} - 163u^9 + 207u^8 - 487u^7 + 303u^6 - 151u^5 + 37u^4 + 218u^3 - 95u^2 + 106u - 54$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} - 8u^{19} + \cdots - 11u + 1$
c_2	$u^{20} - 4u^{18} + \cdots + u + 1$
c_3	$u^{20} + 4u^{18} + \cdots + u - 1$
c_4	$u^{20} + u^{19} + \cdots + 29u + 3$
c_5	$u^{20} - u^{19} + \cdots - 4u^2 - 1$
c_6	$u^{20} - 4u^{18} + \cdots - u + 1$
c_7	$u^{20} + 8u^{19} + \cdots + 11u + 1$
c_8	$u^{20} + 8u^{19} + \cdots + 7u + 1$
c_9	$u^{20} + u^{19} + \cdots - 4u^2 - 1$
c_{10}	$u^{20} + 4u^{18} + \cdots - u - 1$
c_{11}	$u^{20} - 8u^{19} + \cdots - 7u + 1$
c_{12}	$u^{20} + 8u^{19} + \cdots + 12u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{20} + 16y^{19} + \cdots + 9y + 1$
c_2, c_6	$y^{20} - 8y^{19} + \cdots - 11y + 1$
c_3, c_{10}	$y^{20} + 8y^{19} + \cdots + 7y + 1$
c_4	$y^{20} + 11y^{19} + \cdots - 475y + 9$
c_5, c_9	$y^{20} + 7y^{19} + \cdots + 8y + 1$
c_8, c_{11}	$y^{20} - 20y^{19} + \cdots - 17y + 1$
c_{12}	$y^{20} - 6y^{19} + \cdots - 24y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.440461 + 0.887093I$ $a = 1.011110 - 0.192582I$ $b = -2.13494 + 0.17080I$	$1.63580 - 3.99791I$	$-4.05237 + 6.97033I$
$u = 0.440461 - 0.887093I$ $a = 1.011110 + 0.192582I$ $b = -2.13494 - 0.17080I$	$1.63580 + 3.99791I$	$-4.05237 - 6.97033I$
$u = 1.002750 + 0.180612I$ $a = -0.813503 + 0.481706I$ $b = 0.305552 - 0.479994I$	$1.56279 - 1.47094I$	$-8.44352 + 3.39464I$
$u = 1.002750 - 0.180612I$ $a = -0.813503 - 0.481706I$ $b = 0.305552 + 0.479994I$	$1.56279 + 1.47094I$	$-8.44352 - 3.39464I$
$u = -0.968414$ $a = 1.10107$ $b = -0.601331$	-3.16321	-11.6810
$u = -0.952644 + 0.151565I$ $a = 0.991608 + 0.507864I$ $b = -0.485665 - 0.510762I$	$1.12978 - 4.10891I$	$-8.64390 + 2.63626I$
$u = -0.952644 - 0.151565I$ $a = 0.991608 - 0.507864I$ $b = -0.485665 + 0.510762I$	$1.12978 + 4.10891I$	$-8.64390 - 2.63626I$
$u = -0.365639 + 0.861904I$ $a = -1.137270 - 0.437397I$ $b = 2.38481 + 0.24397I$	$0.60943 + 9.23667I$	$-6.79031 - 11.19751I$
$u = -0.365639 - 0.861904I$ $a = -1.137270 + 0.437397I$ $b = 2.38481 - 0.24397I$	$0.60943 - 9.23667I$	$-6.79031 + 11.19751I$
$u = -0.269639 + 1.073570I$ $a = -0.496198 - 0.545379I$ $b = 2.25289 + 1.25338I$	$-2.47111 + 2.51451I$	$-10.96980 - 7.14864I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.269639-1.073570I$ $a=-0.496198+0.545379I$ $b=\ \ 2.25289-1.25338I$	$-2.47111-2.51451I$	$-10.96980+7.14864I$
$u=\ \ 1.14484$ $a=-0.666442$ $b=\ \ 0.170982$	-1.95989	-25.7520
$u=\ \ 0.516360+1.079540I$ $a=\ \ 0.567855-0.134368I$ $b=-1.56996+0.50655I$	$0.30729-5.12932I$	$-9.17717+5.16594I$
$u=\ \ 0.516360-1.079540I$ $a=\ \ 0.567855+0.134368I$ $b=-1.56996-0.50655I$	$0.30729+5.12932I$	$-9.17717-5.16594I$
$u=-0.026852+0.751387I$ $a=-0.25165-2.33927I$ $b=\ \ 0.470745+0.636723I$	$-6.66011+1.32977I$	$-10.28878-6.51476I$
$u=-0.026852-0.751387I$ $a=-0.25165+2.33927I$ $b=\ \ 0.470745-0.636723I$	$-6.66011-1.32977I$	$-10.28878+6.51476I$
$u=-0.010454+0.694976I$ $a=-0.13434-2.97510I$ $b=\ \ 0.19228+1.63279I$	$-4.80260-2.45770I$	$-17.1646+2.6654I$
$u=-0.010454-0.694976I$ $a=-0.13434+2.97510I$ $b=\ \ 0.19228-1.63279I$	$-4.80260+2.45770I$	$-17.1646-2.6654I$
$u=\ \ 0.07745+1.50340I$ $a=\ \ 0.045081-0.289638I$ $b=-0.20053+1.45946I$	$7.96041-3.52390I$	$5.24692+0.37074I$
$u=\ \ 0.07745-1.50340I$ $a=\ \ 0.045081+0.289638I$ $b=-0.20053-1.45946I$	$7.96041+3.52390I$	$5.24692-0.37074I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -15$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=\ \ 0.500000+0.866025I$ $b=-1.00000$	-3.28987	-15.0000
$u=-0.500000-0.866025I$ $a=\ \ 0.500000-0.866025I$ $b=-1.00000$	-3.28987	-15.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{20}-8u^{19}+\cdots-11u+1)$ $\cdot(u^{122}+41u^{121}+\cdots+33207u+121)$
c_2	$((u-1)^2)(u^{20}-4u^{18}+\cdots+u+1)(u^{122}-u^{121}+\cdots+223u+11)$
c_3	$(u^2+u+1)(u^{20}+4u^{18}+\cdots+u-1)$ $\cdot(u^{122}-2u^{121}+\cdots+169938u+8767)$
c_4	$u^2(u^{20}+u^{19}+\cdots+29u+3)(u^{122}-6u^{121}+\cdots+12u-8)$
c_5	$(u^2+u+1)(u^{20}-u^{19}+\cdots-4u^2-1)(u^{122}-5u^{121}+\cdots-2671u+313)$
c_6	$((u+1)^2)(u^{20}-4u^{18}+\cdots-u+1)(u^{122}-u^{121}+\cdots+223u+11)$
c_7	$((u+1)^2)(u^{20}+8u^{19}+\cdots+11u+1)$ $\cdot(u^{122}+41u^{121}+\cdots+33207u+121)$
c_8	$((u-1)^2)(u^{20}+8u^{19}+\cdots+7u+1)(u^{122}+u^{121}+\cdots+4149u+108)$
c_9	$(u^2-u+1)(u^{20}+u^{19}+\cdots-4u^2-1)(u^{122}-5u^{121}+\cdots-2671u+313)$
c_{10}	$(u^2-u+1)(u^{20}+4u^{18}+\cdots-u-1)$ $\cdot(u^{122}-2u^{121}+\cdots+169938u+8767)$
c_{11}	$((u+1)^2)(u^{20}-8u^{19}+\cdots-7u+1)(u^{122}+u^{121}+\cdots+4149u+108)$
c_{12}	$(u^2+u+1)(u^{20}+8u^{19}+\cdots+12u+1)(u^{122}-2u^{121}+\cdots+29u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$((y-1)^2)(y^{20}+16y^{19}+\cdots+9y+1)$ $\cdot(y^{122}+91y^{121}+\cdots-1012244039y+14641)$
c_2, c_6	$((y-1)^2)(y^{20}-8y^{19}+\cdots-11y+1)$ $\cdot(y^{122}-41y^{121}+\cdots-33207y+121)$
c_3, c_{10}	$(y^2+y+1)(y^{20}+8y^{19}+\cdots+7y+1)$ $\cdot(y^{122}+70y^{121}+\cdots+180016550y+76860289)$
c_4	$y^2(y^{20}+11y^{19}+\cdots-475y+9)(y^{122}+20y^{121}+\cdots+720y+64)$
c_5, c_9	$(y^2+y+1)(y^{20}+7y^{19}+\cdots+8y+1)$ $\cdot(y^{122}+73y^{121}+\cdots+3716843y+97969)$
c_8, c_{11}	$((y-1)^2)(y^{20}-20y^{19}+\cdots-17y+1)$ $\cdot(y^{122}-73y^{121}+\cdots-13689081y+11664)$
c_{12}	$(y^2+y+1)(y^{20}-6y^{19}+\cdots-24y+1)(y^{122}-12y^{121}+\cdots-81y+1)$