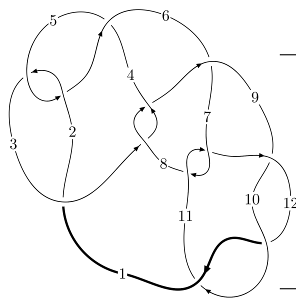
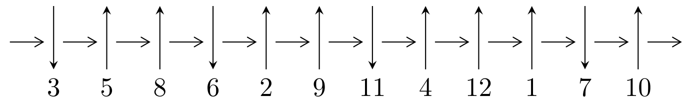
$12a_{0123}$ ($K12a_{0123}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.51942\times 10^{285}u^{92} + 8.00642\times 10^{285}u^{91} + \cdots + 4.40333\times 10^{288}b - 5.99526\times 10^{288},$$
$$3.85027\times 10^{286}u^{92} + 1.46536\times 10^{287}u^{91} + \cdots + 8.80666\times 10^{288}a - 6.43241\times 10^{289},$$
$$u^{93} + 3u^{92} + \cdots - 1024u + 512\rangle$$
$$I_2^u = \langle u^2a + b + a,\ -u^4a + u^3a + u^4 - 2u^2a + a^2 + au + u^2 - a + u,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle$$

$$I_1^v = \langle a,\ v^8 + 4v^7 + 7v^6 + 4v^5 - 3v^4 - 6v^3 - 2v^2 + b + 1,\ v^9 + 5v^8 + 12v^7 + 15v^6 + 9v^5 - v^4 - 4v^3 - 2v^2 + v + 1$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 112 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. $\boldsymbol{I_1^u = \langle 2.52 \times 10^{285} u^{92} + 8.01 \times 10^{285} u^{91} + \cdots + 4.40 \times 10^{288} b - 6.00 \times 10^{288},\ 3.85 \times 10^{286} u^{92} + 1.47 \times 10^{287} u^{91} + \cdots + 8.81 \times 10^{288} a - 6.43 \times 10^{289},\ u^{93} + 3u^{92} + \cdots - 1024u + 512 \rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.00437199u^{92} - 0.0166393u^{91} + \cdots + 5.57776u + 7.30402 \\ -0.000572162u^{92} - 0.00181826u^{91} + \cdots - 0.396111u + 1.36153 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.0121780u^{92} - 0.0398559u^{91} + \cdots - 3.82371u + 10.7352 \\ 0.00336113u^{92} + 0.0126239u^{91} + \cdots - 0.559837u - 5.16081 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00881684u^{92} - 0.0272320u^{91} + \cdots - 4.38355u + 5.57440 \\ 0.00336113u^{92} + 0.0126239u^{91} + \cdots - 0.559837u - 5.16081 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.00881684u^{92} - 0.0272320u^{91} + \cdots - 4.38355u + 5.57440 \\ -0.00804363u^{92} - 0.0257825u^{91} + \cdots - 3.15420u + 4.76072 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.000573324u^{92} - 0.00638541u^{91} + \cdots + 8.37452u + 3.38703 \\ -0.00392517u^{92} - 0.0143906u^{91} + \cdots - 0.0783778u + 4.69374 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.00770029u^{92} + 0.0301959u^{91} + \cdots - 2.38268u - 3.55915 \\ 0.000870195u^{92} + 0.00510555u^{91} + \cdots + 0.0219210u + 0.395882 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.00441454u^{92} - 0.0207171u^{91} + \cdots + 8.92302u + 2.84951 \\ -0.00237340u^{92} - 0.00983384u^{91} + \cdots - 1.33682u + 1.89139 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.00236713u^{92} - 0.00962072u^{91} + \cdots + 4.13460u - 0.151447 \\ -0.00720868u^{92} - 0.0248131u^{91} + \cdots - 3.72884u + 5.65750 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0147962u^{92} - 0.0552504u^{91} + \cdots + 35.4620u + 14.3294$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{93} + 29u^{92} + \cdots + 3u - 1$
c_2, c_5	$u^{93} + 7u^{92} + \cdots + 3u - 1$
c_3, c_8	$u^{93} - 2u^{92} + \cdots - 4096u + 1024$
c_6	$u^{93} + 4u^{92} + \cdots + 7544u + 1681$
c_7, c_{11}	$u^{93} + 3u^{92} + \cdots - 1024u + 512$
c_9, c_{10}, c_{12}	$u^{93} + 12u^{92} + \cdots + 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{93} + 77y^{92} + \cdots + 1907y - 1$
c_2, c_5	$y^{93} + 29y^{92} + \cdots + 3y - 1$
c_3, c_8	$y^{93} - 60y^{92} + \cdots + 10485760y - 1048576$
c_6	$y^{93} - 62y^{92} + \cdots - 79232254y - 2825761$
c_7, c_{11}	$y^{93} + 63y^{92} + \cdots + 1048576y - 262144$
c_9, c_{10}, c_{12}	$y^{93} - 94y^{92} + \cdots + 46y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.716646 + 0.701981I$ $a = 0.105914 + 0.387753I$ $b = 0.124940 + 0.652647I$	$2.16512 + 5.38944I$	0
$u = -0.716646 - 0.701981I$ $a = 0.105914 - 0.387753I$ $b = 0.124940 - 0.652647I$	$2.16512 - 5.38944I$	0
$u = 0.326973 + 0.954295I$ $a = 0.619905 + 0.869125I$ $b = 0.546397 + 0.505887I$	$6.00254 - 8.25583I$	0
$u = 0.326973 - 0.954295I$ $a = 0.619905 - 0.869125I$ $b = 0.546397 - 0.505887I$	$6.00254 + 8.25583I$	0
$u = -0.684870 + 0.783633I$ $a = -0.099146 - 0.337681I$ $b = -0.207481 - 0.628643I$	$2.41502 - 0.18063I$	0
$u = -0.684870 - 0.783633I$ $a = -0.099146 + 0.337681I$ $b = -0.207481 + 0.628643I$	$2.41502 + 0.18063I$	0
$u = 0.920090 + 0.240027I$ $a = 0.041844 - 0.175746I$ $b = -0.504669 + 0.954860I$	$1.78871 + 0.48442I$	0
$u = 0.920090 - 0.240027I$ $a = 0.041844 + 0.175746I$ $b = -0.504669 - 0.954860I$	$1.78871 - 0.48442I$	0
$u = -0.416522 + 0.984253I$ $a = -0.108854 - 0.193496I$ $b = -0.494465 - 0.255957I$	$-0.72672 + 2.38399I$	0
$u = -0.416522 - 0.984253I$ $a = -0.108854 + 0.193496I$ $b = -0.494465 + 0.255957I$	$-0.72672 - 2.38399I$	0

	Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.106666+1.072270I$		
$a=$	$1.262650+0.357117I$	$1.77787-2.72179I$	0
$b=$	$0.857579+0.565640I$		
$u=$	$0.106666-1.072270I$		
$a=$	$1.262650-0.357117I$	$1.77787+2.72179I$	0
$b=$	$0.857579-0.565640I$		
$u=$	$0.705042+0.824626I$		
$a=$	$0.028648+0.267284I$	$5.76366+4.24931I$	0
$b=$	$1.12864-1.02229I$		
$u=$	$0.705042-0.824626I$		
$a=$	$0.028648-0.267284I$	$5.76366-4.24931I$	0
$b=$	$1.12864+1.02229I$		
$u=$	$0.781820+0.757204I$		
$a=$	$-0.012561-0.256334I$	$5.87081-1.54110I$	0
$b=$	$-1.07841+1.07714I$		
$u=$	$0.781820-0.757204I$		
$a=$	$-0.012561+0.256334I$	$5.87081+1.54110I$	0
$b=$	$-1.07841-1.07714I$		
$u=$	$0.417115+1.028530I$		
$a=$	$-0.329817-0.655686I$	$6.69196-2.98020I$	0
$b=$	$-0.444154-0.451529I$		
$u=$	$0.417115-1.028530I$		
$a=$	$-0.329817+0.655686I$	$6.69196+2.98020I$	0
$b=$	$-0.444154+0.451529I$		
$u=$	$0.118297+1.105340I$		
$a=$	$0.33533+1.91548I$	$1.72008+1.14890I$	0
$b=$	$0.804701-0.588763I$		
$u=$	$0.118297-1.105340I$		
$a=$	$0.33533-1.91548I$	$1.72008-1.14890I$	0
$b=$	$0.804701+0.588763I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.188180+0.116830I$ $a=\ \ 1.95026+0.30013I$ $b=-3.83727-0.30619I$	$3.58259-3.65771I$	0
$u=-1.188180-0.116830I$ $a=\ \ 1.95026-0.30013I$ $b=-3.83727+0.30619I$	$3.58259+3.65771I$	0
$u=-0.181784+1.192720I$ $a=\ \ 0.155333+0.205316I$ $b=\ \ 0.955229+0.002377I$	$4.35591-0.27954I$	0
$u=-0.181784-1.192720I$ $a=\ \ 0.155333-0.205316I$ $b=\ \ 0.955229-0.002377I$	$4.35591+0.27954I$	0
$u=\ \ 0.328044+1.167600I$ $a=-0.27690+1.96117I$ $b=\ \ 1.39765-0.23420I$	$1.21815-6.10394I$	0
$u=\ \ 0.328044-1.167600I$ $a=-0.27690-1.96117I$ $b=\ \ 1.39765+0.23420I$	$1.21815+6.10394I$	0
$u=-0.215840+0.754790I$ $a=\ \ 0.294553+0.012206I$ $b=\ \ 0.255474-0.390927I$	$0.429600+1.174350I$	$4.96827-5.78542I$
$u=-0.215840-0.754790I$ $a=\ \ 0.294553-0.012206I$ $b=\ \ 0.255474+0.390927I$	$0.429600-1.174350I$	$4.96827+5.78542I$
$u=-0.080295+1.215380I$ $a=\ \ 1.59238-0.35167I$ $b=\ \ 1.47149+0.74346I$	$5.35775+3.59410I$	0
$u=-0.080295-1.215380I$ $a=\ \ 1.59238+0.35167I$ $b=\ \ 1.47149-0.74346I$	$5.35775-3.59410I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.254594 + 1.203760I$ $a = -0.151299 - 0.203013I$ $b = -0.925300 - 0.111558I$	$4.19460 + 5.47852I$	0
$u = -0.254594 - 1.203760I$ $a = -0.151299 + 0.203013I$ $b = -0.925300 + 0.111558I$	$4.19460 - 5.47852I$	0
$u = 0.215406 + 1.216710I$ $a = 0.00099 - 1.80977I$ $b = -1.052840 + 0.222334I$	$5.09762 - 2.63896I$	0
$u = 0.215406 - 1.216710I$ $a = 0.00099 + 1.80977I$ $b = -1.052840 - 0.222334I$	$5.09762 + 2.63896I$	0
$u = 1.248400 + 0.039111I$ $a = 0.001301 - 0.176183I$ $b = -0.06146 + 1.43162I$	$6.41890 + 2.89431I$	0
$u = 1.248400 - 0.039111I$ $a = 0.001301 + 0.176183I$ $b = -0.06146 - 1.43162I$	$6.41890 - 2.89431I$	0
$u = -1.26787$ $a = -1.82174$ $b = 3.74933$	7.24874	0
$u = 0.023239 + 1.281130I$ $a = -1.208500 + 0.307783I$ $b = -1.37475 - 0.35528I$	$6.92419 - 1.52206I$	0
$u = 0.023239 - 1.281130I$ $a = -1.208500 - 0.307783I$ $b = -1.37475 + 0.35528I$	$6.92419 + 1.52206I$	0
$u = 0.697459 + 0.106150I$ $a = -2.05513 - 0.08168I$ $b = 1.150630 - 0.024496I$	$4.30707 + 7.71222I$	$3.50170 - 6.75559I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.697459 - 0.106150I$ $a = -2.05513 + 0.08168I$ $b = 1.150630 + 0.024496I$	$4.30707 - 7.71222I$	$3.50170 + 6.75559I$
$u = -0.052453 + 1.296170I$ $a = 0.30713 + 1.48441I$ $b = 0.367207 - 0.064350I$	$8.99975 + 6.38792I$	0
$u = -0.052453 - 1.296170I$ $a = 0.30713 - 1.48441I$ $b = 0.367207 + 0.064350I$	$8.99975 - 6.38792I$	0
$u = 0.339408 + 1.257430I$ $a = -0.542089 + 0.027267I$ $b = -0.650667 + 0.054172I$	$6.36795 - 3.44151I$	0
$u = 0.339408 - 1.257430I$ $a = -0.542089 - 0.027267I$ $b = -0.650667 - 0.054172I$	$6.36795 + 3.44151I$	0
$u = 0.167910 + 0.674065I$ $a = 0.192935 + 0.477941I$ $b = 0.805837 - 0.947893I$	$0.66358 + 1.44577I$	$8.36312 - 2.48349I$
$u = 0.167910 - 0.674065I$ $a = 0.192935 - 0.477941I$ $b = 0.805837 + 0.947893I$	$0.66358 - 1.44577I$	$8.36312 + 2.48349I$
$u = -0.526782 + 0.452563I$ $a = -0.096556 + 0.612229I$ $b = -0.013650 + 0.517969I$	$-2.29291 + 1.46330I$	$-3.12922 - 3.73940I$
$u = -0.526782 - 0.452563I$ $a = -0.096556 - 0.612229I$ $b = -0.013650 - 0.517969I$	$-2.29291 - 1.46330I$	$-3.12922 + 3.73940I$
$u = 0.001100 + 1.307870I$ $a = -0.24813 - 1.51407I$ $b = -0.493959 + 0.042171I$	$9.74889 + 0.18700I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.001100 - 1.307870I$ $a = -0.24813 + 1.51407I$ $b = -0.493959 - 0.042171I$	$9.74889 - 0.18700I$	0
$u = 0.663828 + 0.079069I$ $a = 2.13002 + 0.09244I$ $b = -1.098470 + 0.018862I$	$5.08023 + 1.81268I$	$4.74416 - 1.60295I$
$u = 0.663828 - 0.079069I$ $a = 2.13002 - 0.09244I$ $b = -1.098470 - 0.018862I$	$5.08023 - 1.81268I$	$4.74416 + 1.60295I$
$u = 0.380156 + 1.303240I$ $a = 0.33177 - 1.62783I$ $b = -1.350340 - 0.110866I$	$8.99022 - 5.87602I$	0
$u = 0.380156 - 1.303240I$ $a = 0.33177 + 1.62783I$ $b = -1.350340 + 0.110866I$	$8.99022 + 5.87602I$	0
$u = 0.419100 + 1.292060I$ $a = -0.40732 + 1.62182I$ $b = 1.42991 + 0.12717I$	$8.0548 - 12.0517I$	0
$u = 0.419100 - 1.292060I$ $a = -0.40732 - 1.62182I$ $b = 1.42991 - 0.12717I$	$8.0548 + 12.0517I$	0
$u = 0.536124 + 1.253660I$ $a = 0.245774 - 0.324193I$ $b = 0.170908 - 0.518899I$	$5.01510 - 5.87964I$	0
$u = 0.536124 - 1.253660I$ $a = 0.245774 + 0.324193I$ $b = 0.170908 + 0.518899I$	$5.01510 + 5.87964I$	0
$u = -1.346770 + 0.245568I$ $a = 1.56067 + 0.37615I$ $b = -3.44942 - 0.23902I$	$10.7002 - 9.3495I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.346770-0.245568I$ $a=\ \ 1.56067-0.37615I$ $b=-3.44942+0.23902I$	$10.7002+9.3495I$	0
$u=-1.359400+0.198057I$ $a=-1.57991-0.30459I$ $b=\ \ 3.49858+0.19464I$	$11.55180-3.13531I$	0
$u=-1.359400-0.198057I$ $a=-1.57991+0.30459I$ $b=\ \ 3.49858-0.19464I$	$11.55180+3.13531I$	0
$u=\ \ 0.013634+0.620332I$ $a=\ \ 1.024120+0.659773I$ $b=\ \ 0.081044-1.114670I$	$0.80001+1.38974I$	$9.06195-5.30423I$
$u=\ \ 0.013634-0.620332I$ $a=\ \ 1.024120-0.659773I$ $b=\ \ 0.081044+1.114670I$	$0.80001-1.38974I$	$9.06195+5.30423I$
$u=\ \ 0.539158+0.220242I$ $a=-2.16591+0.12543I$ $b=\ \ 1.083310+0.212051I$	$-1.64742+2.59719I$	$-1.56655-4.74635I$
$u=\ \ 0.539158-0.220242I$ $a=-2.16591-0.12543I$ $b=\ \ 1.083310-0.212051I$	$-1.64742-2.59719I$	$-1.56655+4.74635I$
$u=\ \ 0.224026+0.525069I$ $a=-2.12240-0.17767I$ $b=\ \ 0.653616+1.040690I$	$0.07245-2.77451I$	$3.04583-0.54563I$
$u=\ \ 0.224026-0.525069I$ $a=-2.12240+0.17767I$ $b=\ \ 0.653616-1.040690I$	$0.07245+2.77451I$	$3.04583+0.54563I$
$u=\ \ 0.530631$ $a=\ \ 0.296252$ $b=-1.11874$	2.15469	2.08140

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500625$ $a = 2.26750$ $b = -0.949182$	1.53592	5.87220
$u = -0.47269 + 1.43484I$ $a = -0.41240 + 1.96747I$ $b = -3.24772 + 0.33128I$	$8.66015 + 2.14339I$	0
$u = -0.47269 - 1.43484I$ $a = -0.41240 - 1.96747I$ $b = -3.24772 - 0.33128I$	$8.66015 - 2.14339I$	0
$u = -0.475892 + 0.063884I$ $a = -0.026871 + 1.187250I$ $b = -0.017488 + 0.392777I$	$0.87050 - 2.57947I$	$1.01592 + 3.11295I$
$u = -0.475892 - 0.063884I$ $a = -0.026871 - 1.187250I$ $b = -0.017488 - 0.392777I$	$0.87050 + 2.57947I$	$1.01592 - 3.11295I$
$u = -0.59655 + 1.40349I$ $a = 0.24650 + 1.98611I$ $b = -3.22566 + 0.79330I$	$7.69431 + 10.06070I$	0
$u = -0.59655 - 1.40349I$ $a = 0.24650 - 1.98611I$ $b = -3.22566 - 0.79330I$	$7.69431 - 10.06070I$	0
$u = 0.56984 + 1.44902I$ $a = 0.416518 - 0.388950I$ $b = 0.539327 - 0.858010I$	$10.9765 - 9.3795I$	0
$u = 0.56984 - 1.44902I$ $a = 0.416518 + 0.388950I$ $b = 0.539327 + 0.858010I$	$10.9765 + 9.3795I$	0
$u = 0.52288 + 1.46731I$ $a = -0.439913 + 0.377803I$ $b = -0.641224 + 0.806368I$	$11.34270 - 3.40968I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.52288 - 1.46731I$ $a = -0.439913 - 0.377803I$ $b = -0.641224 - 0.806368I$	$11.34270 + 3.40968I$	0
$u = -0.55003 + 1.47001I$ $a = 0.06072 - 1.79945I$ $b = 3.13549 - 0.58444I$	$12.03550 + 6.48389I$	0
$u = -0.55003 - 1.47001I$ $a = 0.06072 + 1.79945I$ $b = 3.13549 + 0.58444I$	$12.03550 - 6.48389I$	0
$u = -0.70078 + 1.42632I$ $a = 0.47338 + 1.62875I$ $b = -2.98031 + 0.84391I$	$14.4974 + 16.5945I$	0
$u = -0.70078 - 1.42632I$ $a = 0.47338 - 1.62875I$ $b = -2.98031 - 0.84391I$	$14.4974 - 16.5945I$	0
$u = -0.68210 + 1.45122I$ $a = -0.37508 - 1.62489I$ $b = 3.00283 - 0.79833I$	$15.5835 + 10.3685I$	0
$u = -0.68210 - 1.45122I$ $a = -0.37508 + 1.62489I$ $b = 3.00283 + 0.79833I$	$15.5835 - 10.3685I$	0
$u = -0.375100 + 0.126927I$ $a = 0.24476 + 2.34220I$ $b = -0.24576 - 3.61476I$	$1.95064 - 2.18031I$	$-23.8772 - 10.0587I$
$u = -0.375100 - 0.126927I$ $a = 0.24476 - 2.34220I$ $b = -0.24576 + 3.61476I$	$1.95064 + 2.18031I$	$-23.8772 + 10.0587I$
$u = -0.36012 + 1.61251I$ $a = -0.507192 + 1.263010I$ $b = -2.67480 + 0.39946I$	$17.1546 - 3.0296I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.36012-1.61251I$ $a=-0.507192-1.263010I$ $b=-2.67480-0.39946I$	$17.1546+3.0296I$	0
$u=-0.41001+1.60645I$ $a=\ \ 0.421539-1.334630I$ $b=\ \ 2.76878-0.43730I$	$17.7186+3.3774I$	0
$u=-0.41001-1.60645I$ $a=\ \ 0.421539+1.334630I$ $b=\ \ 2.76878+0.43730I$	$17.7186-3.3774I$	0

II. $I_2^u = \langle u^2a+b+a,\ -u^4a+u^4+\cdots+a^2-a,\ u^5-u^4+2u^3-u^2+u-1\rangle$

(i) Arc colorings

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

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

$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} u^3 \\ -u^4+u^3-u^2-1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ -u^2a-a \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3 \\ u^4-u^3+u^2+1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^4a+a \\ -u^3a \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^4+2u^3-2u^2+a+u-1 \\ -u^2a+u^2-a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^4a-3u^3a+u^4+u^2a-5u^3+2au+7u^2-5u+8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5	$(y^2 + y + 1)^5$
c_3, c_8	y^{10}
c_6	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^2$
c_7, c_{11}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^2$
c_9, c_{10}, c_{12}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.339110 + 0.822375I$ $a = -1.114310 - 0.148503I$ $b = 0.571671 - 0.556363I$	$0.329100 - 0.499304I$	$2.59686 - 1.45733I$
$u = -0.339110 + 0.822375I$ $a = 0.685764 - 0.890773I$ $b = 0.195989 + 0.773263I$	$0.32910 + 3.56046I$	$6.44749 - 8.37485I$
$u = -0.339110 - 0.822375I$ $a = -1.114310 + 0.148503I$ $b = 0.571671 + 0.556363I$	$0.329100 + 0.499304I$	$2.59686 + 1.45733I$
$u = -0.339110 - 0.822375I$ $a = 0.685764 + 0.890773I$ $b = 0.195989 - 0.773263I$	$0.32910 - 3.56046I$	$6.44749 + 8.37485I$
$u = 0.766826$ $a = 0.652039 + 1.129360I$ $b = -1.03545 - 1.79345I$	$2.40108 - 2.02988I$	$7.10008 + 1.25892I$
$u = 0.766826$ $a = 0.652039 - 1.129360I$ $b = -1.03545 + 1.79345I$	$2.40108 + 2.02988I$	$7.10008 - 1.25892I$
$u = 0.455697 + 1.200150I$ $a = -0.492416 - 0.603584I$ $b = -0.774795 + 0.398153I$	$5.87256 - 6.43072I$	$11.57979 + 6.03904I$
$u = 0.455697 + 1.200150I$ $a = 0.768927 - 0.124653I$ $b = 0.042587 - 0.870069I$	$5.87256 - 2.37095I$	$6.27578 - 1.37298I$
$u = 0.455697 - 1.200150I$ $a = -0.492416 + 0.603584I$ $b = -0.774795 - 0.398153I$	$5.87256 + 6.43072I$	$11.57979 - 6.03904I$
$u = 0.455697 - 1.200150I$ $a = 0.768927 + 0.124653I$ $b = 0.042587 + 0.870069I$	$5.87256 + 2.37095I$	$6.27578 + 1.37298I$

III. $\boldsymbol{I_1^v = \langle a,\ v^8 + 4v^7 + \cdots + b + 1,\ v^9 + 5v^8 + \cdots + v + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ -v^8 - 4v^7 - 7v^6 - 4v^5 + 3v^4 + 6v^3 + 2v^2 - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} v \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} v+1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -v \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} v^7 + 3v^6 + 4v^5 + v^4 - 2v^3 - 2v^2 + 1 \\ -v^8 - 4v^7 - 7v^6 - 4v^5 + 3v^4 + 6v^3 + 2v^2 - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} v^2 + v \\ v \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -v^7 - 3v^6 - 5v^5 - 4v^4 - 2v^3 + v^2 + v \\ v^5 + 2v^4 + 2v^3 + v \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -v^3 - v^2 - v \\ v \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5v^8 + 24v^7 + 51v^6 + 47v^5 + 2v^4 - 34v^3 - 18v^2 + 2v + 17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.336947 + 0.788921I$ $a = 0$ $b = 0.900982 + 0.594909I$	$-0.13850 - 2.09337I$	$2.03658 + 4.61282I$
$v = -0.336947 - 0.788921I$ $a = 0$ $b = 0.900982 - 0.594909I$	$-0.13850 + 2.09337I$	$2.03658 - 4.61282I$
$v = -0.682165$ $a = 0$ $b = -1.21075$	2.84338	15.2670
$v = 0.527091 + 0.209303I$ $a = 0$ $b = 0.249476 + 1.304240I$	$2.26187 + 2.45442I$	$8.82413 - 4.82524I$
$v = 0.527091 - 0.209303I$ $a = 0$ $b = 0.249476 - 1.304240I$	$2.26187 - 2.45442I$	$8.82413 + 4.82524I$
$v = -1.22475 + 0.91930I$ $a = 0$ $b = -0.766570 - 0.255687I$	$6.01628 - 1.33617I$	$12.05808 - 1.14063I$
$v = -1.22475 - 0.91930I$ $a = 0$ $b = -0.766570 + 0.255687I$	$6.01628 + 1.33617I$	$12.05808 + 1.14063I$
$v = -1.12431 + 1.17337I$ $a = 0$ $b = 0.721488 + 0.307914I$	$5.24306 - 7.08493I$	$9.44791 + 3.65320I$
$v = -1.12431 - 1.17337I$ $a = 0$ $b = 0.721488 - 0.307914I$	$5.24306 + 7.08493I$	$9.44791 - 3.65320I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^2-u+1)^5$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{93}+29u^{92}+\cdots+3u-1)$
c_2	$(u^2+u+1)^5(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{93}+7u^{92}+\cdots+3u-1)$
c_3	$u^{10}(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{93}-2u^{92}+\cdots-4096u+1024)$
c_5	$(u^2-u+1)^5(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{93}+7u^{92}+\cdots+3u-1)$
c_6	$(u^5+3u^4+4u^3+u^2-u-1)^2$ $\cdot(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{93}+4u^{92}+\cdots+7544u+1681)$
c_7	$u^9(u^5+u^4+\cdots+u+1)^2(u^{93}+3u^{92}+\cdots-1024u+512)$
c_8	$u^{10}(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{93}-2u^{92}+\cdots-4096u+1024)$
c_9, c_{10}	$((u+1)^9)(u^5-u^4+\cdots+u+1)^2(u^{93}+12u^{92}+\cdots+6u+1)$
c_{11}	$u^9(u^5-u^4+\cdots+u-1)^2(u^{93}+3u^{92}+\cdots-1024u+512)$
c_{12}	$((u-1)^9)(u^5+u^4+\cdots+u-1)^2(u^{93}+12u^{92}+\cdots+6u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^5)(y^9+7y^8+\cdots+13y-1)$ $\cdot(y^{93}+77y^{92}+\cdots+1907y-1)$
c_2, c_5	$(y^2+y+1)^5$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{93}+29y^{92}+\cdots+3y-1)$
c_3, c_8	$y^{10}(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{93}-60y^{92}+\cdots+10485760y-1048576)$
c_6	$(y^5-y^4+8y^3-3y^2+3y-1)^2$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{93}-62y^{92}+\cdots-79232254y-2825761)$
c_7, c_{11}	$y^9(y^5+3y^4+4y^3+y^2-y-1)^2$ $\cdot(y^{93}+63y^{92}+\cdots+1048576y-262144)$
c_9, c_{10}, c_{12}	$((y-1)^9)(y^5-5y^4+\cdots-y-1)^2(y^{93}-94y^{92}+\cdots+46y-1)$