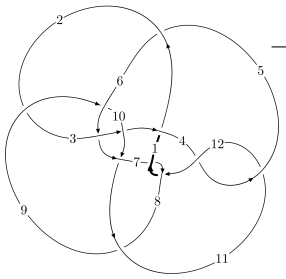
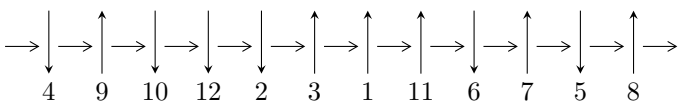
$12a_{1167}$ $(K12a_{1167})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 4.59872 \times 10^{1554} u^{217} - 9.84331 \times 10^{1554} u^{216} + \cdots + 7.30909 \times 10^{1556} b - 1.10702 \times 10^{1560}, \\ & 1.07881 \times 10^{1569} u^{217} + 1.14742 \times 10^{1569} u^{216} + \cdots + 8.66519 \times 10^{1570} a + 2.46881 \times 10^{1575}, \\ & u^{218} - u^{217} + \cdots + 1084332u + 800958 \rangle \\ I_2^u = \langle & 8.39999 \times 10^{88} u^{59} - 2.76464 \times 10^{88} u^{58} + \cdots + 8.73404 \times 10^{87} b - 3.20535 \times 10^{89}, \\ & - 6.26274 \times 10^{91} u^{59} - 5.42884 \times 10^{91} u^{58} + \cdots + 1.55466 \times 10^{91} a - 9.36581 \times 10^{92}, \\ & u^{60} + 21u^{58} + \cdots + 40u + 20 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 278 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. $\boldsymbol{I_1^u = \langle 4.60 \times 10^{1554} u^{217} - 9.84 \times 10^{1554} u^{216} + \cdots + 7.31 \times 10^{1556} b - 1.11 \times 10^{1560},\ 1.08 \times 10^{1569} u^{217} + 1.15 \times 10^{1569} u^{216} + \cdots + 8.67 \times 10^{1570} a + 2.47 \times 10^{1575},\ u^{218} - u^{217} + \cdots + 1084332u + 800958 \rangle}$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} -0.0124500u^{217} - 0.0132417u^{216} + \cdots - 57143.3u - 28491.1 \\ -0.00629178u^{217} + 0.0134672u^{216} + \cdots - 5937.11u + 1514.57 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0187418u^{217} + 0.000225544u^{216} + \cdots - 63080.4u - 26976.6 \\ -0.00629178u^{217} + 0.0134672u^{216} + \cdots - 5937.11u + 1514.57 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0200316u^{217} + 0.0391073u^{216} + \cdots + 40964.8u + 19242.7 \\ -0.0144419u^{217} + 0.0238159u^{216} + \cdots - 25081.4u + 1435.38 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0378271u^{217} - 0.0347035u^{216} + \cdots + 77782.1u + 773.143 \\ -0.00425950u^{217} + 0.0280317u^{216} + \cdots + 14309.1u + 20325.0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0210500u^{217} + 0.0336813u^{216} + \cdots - 24851.7u + 3718.28 \\ 0.0149998u^{217} - 0.0269724u^{216} + \cdots + 20949.7u - 907.805 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.00566707u^{217} + 0.0502761u^{216} + \cdots + 49142.3u + 27148.3 \\ 0.0461777u^{217} - 0.0612084u^{216} + \cdots + 61781.7u + 17922.2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0296511u^{217} + 0.0393404u^{216} + \cdots - 37179.5u - 3303.97 \\ 0.0174703u^{217} - 0.0258301u^{216} + \cdots + 23198.2u + 3757.99 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0266976u^{217} - 0.0219209u^{216} + \cdots - 69036.9u - 44256.4 \\ -0.0194184u^{217} + 0.0258173u^{216} + \cdots - 36011.2u - 10545.3 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.102226u^{217} + 0.313054u^{216} + \cdots + 38230.4u + 152101.$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{218}+7u^{217}+\cdots-325966059u+13035439$
c_2	$6(6u^{218}-6u^{217}+\cdots-603u+1721)$
c_3	$6(6u^{218}+6u^{217}+\cdots+603u+1721)$
c_4, c_{11}	$u^{218}+u^{217}+\cdots-1084332u+800958$
c_5	$u^{218}-6u^{217}+\cdots-4497810u+159275$
c_6	$u^{218}-7u^{217}+\cdots+5706u+1086$
c_7, c_{12}	$u^{218}-u^{217}+\cdots+1084332u+800958$
c_8	$u^{218}-7u^{217}+\cdots+325966059u+13035439$
c_9	$u^{218}+7u^{217}+\cdots-5706u+1086$
c_{10}	$u^{218}+6u^{217}+\cdots+4497810u+159275$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{218} - 27y^{217} + \cdots - 75149030070299023y + 169922669922721$
c_2, c_3	$36(36y^{218} + 228y^{217} + \cdots - 2.18635 \times 10^8 y + 2961841)$
c_4, c_7, c_{11} c_{12}	$y^{218} + 127y^{217} + \cdots + 37988843650536y + 641533717764$
c_5, c_{10}	$y^{218} - 26y^{217} + \cdots - 2357094900150y + 25368525625$
c_6, c_9	$y^{218} - 7y^{217} + \cdots - 16168524y + 1179396$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.437041+0.900025I$ $a=-0.212197+0.783889I$ $b=\ \ 0.470183-1.256570I$	$1.89033+0.72271I$	0
$u=-0.437041-0.900025I$ $a=-0.212197-0.783889I$ $b=\ \ 0.470183+1.256570I$	$1.89033-0.72271I$	0
$u=-1.003990+0.150540I$ $a=\ \ 0.46765+1.53202I$ $b=-0.394463-1.163640I$	$1.04005-7.54869I$	0
$u=-1.003990-0.150540I$ $a=\ \ 0.46765-1.53202I$ $b=-0.394463+1.163640I$	$1.04005+7.54869I$	0
$u=-0.100843+0.975368I$ $a=\ \ 0.608586+0.384135I$ $b=-0.462739+0.668047I$	$-2.24226+5.02667I$	0
$u=-0.100843-0.975368I$ $a=\ \ 0.608586-0.384135I$ $b=-0.462739-0.668047I$	$-2.24226-5.02667I$	0
$u=\ \ 0.308123+0.973343I$ $a=\ \ 0.052320+0.205725I$ $b=\ \ 1.035720-0.074637I$	$-1.48317+2.08145I$	0
$u=\ \ 0.308123-0.973343I$ $a=\ \ 0.052320-0.205725I$ $b=\ \ 1.035720+0.074637I$	$-1.48317-2.08145I$	0
$u=-0.613126+0.759553I$ $a=\ \ 1.40770-0.75603I$ $b=\ \ 0.499855+0.732282I$	$1.94446+0.55451I$	0
$u=-0.613126-0.759553I$ $a=\ \ 1.40770+0.75603I$ $b=\ \ 0.499855-0.732282I$	$1.94446-0.55451I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.462881+0.921010I$ $a=\ \ 1.65931-0.95682I$ $b=\ \ 0.303325+1.215080I$	$5.39866-2.44724I$	0
$u=-0.462881-0.921010I$ $a=\ \ 1.65931+0.95682I$ $b=\ \ 0.303325-1.215080I$	$5.39866+2.44724I$	0
$u=\ \ 1.035720+0.074637I$ $a=-0.123358+1.070400I$ $b=\ \ 0.308123-0.973343I$	$1.48317+2.08145I$	0
$u=\ \ 1.035720-0.074637I$ $a=-0.123358-1.070400I$ $b=\ \ 0.308123+0.973343I$	$1.48317-2.08145I$	0
$u=-1.019800+0.230367I$ $a=\ \ 0.04271-1.76667I$ $b=-0.245349+1.164410I$	$5.69009+2.69649I$	0
$u=-1.019800-0.230367I$ $a=\ \ 0.04271+1.76667I$ $b=-0.245349-1.164410I$	$5.69009-2.69649I$	0
$u=-0.940943+0.473748I$ $a=-0.511895+1.294760I$ $b=\ \ 0.551520-1.222040I$	$3.67220+6.74825I$	0
$u=-0.940943-0.473748I$ $a=-0.511895-1.294760I$ $b=\ \ 0.551520+1.222040I$	$3.67220-6.74825I$	0
$u=\ \ 0.417538+0.847320I$ $a=-0.434386-1.022500I$ $b=\ \ 0.14556+1.62539I$	$3.61073+9.93097I$	0
$u=\ \ 0.417538-0.847320I$ $a=-0.434386+1.022500I$ $b=\ \ 0.14556-1.62539I$	$3.61073-9.93097I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.918583 + 0.207533I$ $a = 0.158984 + 1.222530I$ $b = 0.617526 - 0.420082I$	$-0.55926 - 1.41093I$	0
$u = 0.918583 - 0.207533I$ $a = 0.158984 - 1.222530I$ $b = 0.617526 + 0.420082I$	$-0.55926 + 1.41093I$	0
$u = -0.876472 + 0.598057I$ $a = 0.85061 - 1.35338I$ $b = -0.212076 + 1.158300I$	$4.47322 + 1.53890I$	0
$u = -0.876472 - 0.598057I$ $a = 0.85061 + 1.35338I$ $b = -0.212076 - 1.158300I$	$4.47322 - 1.53890I$	0
$u = 0.280150 + 1.026020I$ $a = 2.78942 + 0.08607I$ $b = 0.222875 - 1.137530I$	$1.77355 + 9.93813I$	0
$u = 0.280150 - 1.026020I$ $a = 2.78942 - 0.08607I$ $b = 0.222875 + 1.137530I$	$1.77355 - 9.93813I$	0
$u = -0.305306 + 0.885243I$ $a = -1.67577 + 0.37643I$ $b = -0.441025 - 1.259580I$	$4.46515 - 1.74939I$	0
$u = -0.305306 - 0.885243I$ $a = -1.67577 - 0.37643I$ $b = -0.441025 + 1.259580I$	$4.46515 + 1.74939I$	0
$u = -0.683089 + 0.622922I$ $a = -1.30428 + 2.09014I$ $b = 0.169104 - 0.739046I$	$0.471008 + 0.398019I$	0
$u = -0.683089 - 0.622922I$ $a = -1.30428 - 2.09014I$ $b = 0.169104 + 0.739046I$	$0.471008 - 0.398019I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.599761 + 0.900295I$ $a = 0.936810 + 0.857137I$ $b = 0.535570 - 1.197750I$	$1.59135 + 1.88450I$	0
$u = 0.599761 - 0.900295I$ $a = 0.936810 - 0.857137I$ $b = 0.535570 + 1.197750I$	$1.59135 - 1.88450I$	0
$u = 0.654387 + 0.863274I$ $a = -1.18552 - 0.97649I$ $b = -0.712791 + 1.018320I$	$3.35203 + 9.91892I$	0
$u = 0.654387 - 0.863274I$ $a = -1.18552 + 0.97649I$ $b = -0.712791 - 1.018320I$	$3.35203 - 9.91892I$	0
$u = 0.852196 + 0.669721I$ $a = -0.078282 - 0.811383I$ $b = 0.465569 + 1.148550I$	$3.96693 - 4.42004I$	0
$u = 0.852196 - 0.669721I$ $a = -0.078282 + 0.811383I$ $b = 0.465569 - 1.148550I$	$3.96693 + 4.42004I$	0
$u = -0.297555 + 0.858019I$ $a = -1.63283 + 1.32850I$ $b = -0.11319 - 1.61653I$	$5.12076 - 1.34522I$	0
$u = -0.297555 - 0.858019I$ $a = -1.63283 - 1.32850I$ $b = -0.11319 + 1.61653I$	$5.12076 + 1.34522I$	0
$u = 0.048733 + 0.898701I$ $a = -0.637885 + 0.115788I$ $b = -1.56815 - 0.17899I$	$-5.09439 - 4.03171I$	0
$u = 0.048733 - 0.898701I$ $a = -0.637885 - 0.115788I$ $b = -1.56815 + 0.17899I$	$-5.09439 + 4.03171I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.231329+1.076970I$		
$a=$	$0.210849+0.060273I$	$-6.24818+5.10916I$	0
$b=$	$1.45238+0.43315I$		
$u=$	$0.231329-1.076970I$		
$a=$	$0.210849-0.060273I$	$-6.24818-5.10916I$	0
$b=$	$1.45238-0.43315I$		
$u=$	$-0.231325+1.078200I$		
$a=$	$0.154807-0.301137I$	$-6.50971+3.37301I$	0
$b=$	$1.31711-0.51509I$		
$u=$	$-0.231325-1.078200I$		
$a=$	$0.154807+0.301137I$	$-6.50971-3.37301I$	0
$b=$	$1.31711+0.51509I$		
$u=$	$0.457581+1.005390I$		
$a=$	$0.838236+0.551028I$	$2.18813+2.01931I$	0
$b=$	$0.80753-1.19940I$		
$u=$	$0.457581-1.005390I$		
$a=$	$0.838236-0.551028I$	$2.18813-2.01931I$	0
$b=$	$0.80753+1.19940I$		
$u=$	$-0.456995+1.006320I$		
$a=$	$0.461164-0.001249I$	$0.871914+0.606568I$	0
$b=$	$0.659626-0.133765I$		
$u=$	$-0.456995-1.006320I$		
$a=$	$0.461164+0.001249I$	$0.871914-0.606568I$	0
$b=$	$0.659626+0.133765I$		
$u=$	$0.587380+0.938448I$		
$a=$	$0.904126+0.520229I$	$-1.79288+4.49429I$	0
$b=$	$-0.141926-0.323075I$		
$u=$	$0.587380-0.938448I$		
$a=$	$0.904126-0.520229I$	$-1.79288-4.49429I$	0
$b=$	$-0.141926+0.323075I$		

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.001784+0.890176I$		
$a=$	$1.47851-1.97142I$	$-1.49293-5.19189I$	0
$b=$	$0.414190+1.163180I$		
$u=$	$0.001784-0.890176I$		
$a=$	$1.47851+1.97142I$	$-1.49293+5.19189I$	0
$b=$	$0.414190-1.163180I$		
$u=$	$0.499855+0.732282I$		
$a=$	$-0.63104-2.00328I$	$-1.94446-0.55451I$	0
$b=$	$-0.613126+0.759553I$		
$u=$	$0.499855-0.732282I$		
$a=$	$-0.63104+2.00328I$	$-1.94446+0.55451I$	0
$b=$	$-0.613126-0.759553I$		
$u=$	$-0.400012+0.781762I$		
$a=$	$1.55396-2.03173I$	$6.08780-1.75437I$	0
$b=$	$0.02640+1.45390I$		
$u=$	$-0.400012-0.781762I$		
$a=$	$1.55396+2.03173I$	$6.08780+1.75437I$	0
$b=$	$0.02640-1.45390I$		
$u=$	$-0.249759+0.838626I$		
$a=$	$-0.50515+1.32541I$	$4.72681-0.80347I$	0
$b=$	$0.17906-1.59970I$		
$u=$	$-0.249759-0.838626I$		
$a=$	$-0.50515-1.32541I$	$4.72681+0.80347I$	0
$b=$	$0.17906+1.59970I$		
$u=$	$-0.347244+0.800650I$		
$a=$	$0.06808-2.15938I$	$2.93174-5.03893I$	0
$b=$	$0.146770+1.255100I$		
$u=$	$-0.347244-0.800650I$		
$a=$	$0.06808+2.15938I$	$2.93174+5.03893I$	0
$b=$	$0.146770-1.255100I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.360891+0.783303I$ $a=\ \ 2.43073-0.59779I$ $b=-0.028929+0.843147I$	$2.95474+1.76216I$	0
$u=-0.360891-0.783303I$ $a=\ \ 2.43073+0.59779I$ $b=-0.028929-0.843147I$	$2.95474-1.76216I$	0
$u=\ \ 0.478952+0.712106I$ $a=-1.53516-0.79069I$ $b=-0.423654+1.290220I$	$3.95917-6.15252I$	0
$u=\ \ 0.478952-0.712106I$ $a=-1.53516+0.79069I$ $b=-0.423654-1.290220I$	$3.95917+6.15252I$	0
$u=-0.028929+0.843147I$ $a=-2.16685-1.18164I$ $b=-0.360891+0.783303I$	$-2.95474-1.76216I$	0
$u=-0.028929-0.843147I$ $a=-2.16685+1.18164I$ $b=-0.360891-0.783303I$	$-2.95474+1.76216I$	0
$u=\ \ 0.222875+1.137530I$ $a=\ \ 2.04824+2.09156I$ $b=\ \ 0.280150-1.026020I$	$-1.77355+9.93813I$	0
$u=\ \ 0.222875-1.137530I$ $a=\ \ 2.04824-2.09156I$ $b=\ \ 0.280150+1.026020I$	$-1.77355-9.93813I$	0
$u=\ \ 0.492848+1.054720I$ $a=\ \ 0.066722-0.384063I$ $b=-1.204180-0.427493I$	$-1.31280+5.76610I$	0
$u=\ \ 0.492848-1.054720I$ $a=\ \ 0.066722+0.384063I$ $b=-1.204180+0.427493I$	$-1.31280-5.76610I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.485058+0.675673I$ $a=\ \ 0.71648-1.71839I$ $b=-0.09723+1.42923I$	$6.16346-1.48072I$	0
$u=-0.485058-0.675673I$ $a=\ \ 0.71648+1.71839I$ $b=-0.09723-1.42923I$	$6.16346+1.48072I$	0
$u=-0.334184+1.120090I$ $a=-1.087770+0.371028I$ $b=-0.778130-1.146260I$	$0.68932-6.27683I$	0
$u=-0.334184-1.120090I$ $a=-1.087770-0.371028I$ $b=-0.778130+1.146260I$	$0.68932+6.27683I$	0
$u=-1.128100+0.310890I$ $a=\ \ 0.44682-1.47507I$ $b=-0.474782+1.184610I$	$4.45442+7.05483I$	0
$u=-1.128100-0.310890I$ $a=\ \ 0.44682+1.47507I$ $b=-0.474782-1.184610I$	$4.45442-7.05483I$	0
$u=-0.212076+1.158300I$ $a=-0.529572-0.285491I$ $b=-0.876472+0.598057I$	$-4.47322-1.53890I$	0
$u=-0.212076-1.158300I$ $a=-0.529572+0.285491I$ $b=-0.876472-0.598057I$	$-4.47322+1.53890I$	0
$u=-0.815024+0.089394I$ $a=\ \ 0.298810+1.035750I$ $b=-0.815024-0.089394I$	$10.6392I$	0
$u=-0.815024-0.089394I$ $a=\ \ 0.298810-1.035750I$ $b=-0.815024+0.089394I$	$-10.6392I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.462739+0.668047I$ $a=-0.765955-1.027670I$ $b=-0.100843+0.975368I$	$2.24226-5.02667I$	0
$u=-0.462739-0.668047I$ $a=-0.765955+1.027670I$ $b=-0.100843-0.975368I$	$2.24226+5.02667I$	0
$u=-0.245349+1.164410I$ $a=-0.406813+0.382344I$ $b=-1.019800+0.230367I$	$-5.69009-2.69649I$	0
$u=-0.245349-1.164410I$ $a=-0.406813-0.382344I$ $b=-1.019800-0.230367I$	$-5.69009+2.69649I$	0
$u=\ 0.633855+0.501954I$ $a=\ 0.443590+1.034730I$ $b=-0.005538-1.314790I$	$2.61763+2.89255I$	0
$u=\ 0.633855-0.501954I$ $a=\ 0.443590-1.034730I$ $b=-0.005538+1.314790I$	$2.61763-2.89255I$	0
$u=-0.305013+0.742816I$ $a=-1.73612+0.63594I$ $b=-0.832514-0.986584I$	$2.55700-3.98943I$	0
$u=-0.305013-0.742816I$ $a=-1.73612-0.63594I$ $b=-0.832514+0.986584I$	$2.55700+3.98943I$	0
$u=-0.650441+0.418846I$ $a=-0.337752+0.136335I$ $b=-0.455370+0.573274I$	$2.53070-4.91173I$	0
$u=-0.650441-0.418846I$ $a=-0.337752-0.136335I$ $b=-0.455370-0.573274I$	$2.53070+4.91173I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.394463+1.163640I$ $a=-0.310280-0.005624I$ $b=-1.003990-0.150540I$	$-1.04005-7.54869I$	0
$u=-0.394463-1.163640I$ $a=-0.310280+0.005624I$ $b=-1.003990+0.150540I$	$-1.04005+7.54869I$	0
$u=0.414190+1.163180I$ $a=-1.48076+0.09417I$ $b=0.001784+0.890176I$	$1.49293+5.19189I$	0
$u=0.414190-1.163180I$ $a=-1.48076-0.09417I$ $b=0.001784-0.890176I$	$1.49293-5.19189I$	0
$u=1.208630+0.270590I$ $a=0.28128+1.41196I$ $b=-0.507492-1.213560I$	$3.3016-15.4845I$	0
$u=1.208630-0.270590I$ $a=0.28128-1.41196I$ $b=-0.507492+1.213560I$	$3.3016+15.4845I$	0
$u=0.465569+1.148550I$ $a=-0.440419-0.087771I$ $b=0.852196+0.669721I$	$-3.96693+4.42004I$	0
$u=0.465569-1.148550I$ $a=-0.440419+0.087771I$ $b=0.852196-0.669721I$	$-3.96693-4.42004I$	0
$u=0.169104+0.739046I$ $a=-2.07639-0.56469I$ $b=-0.683089-0.622922I$	$-0.471008+0.398019I$	0
$u=0.169104-0.739046I$ $a=-2.07639+0.56469I$ $b=-0.683089+0.622922I$	$-0.471008-0.398019I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.712791+1.018320I$ $a=\ 0.47230-1.58594I$ $b=\ 0.654387+0.863274I$	$-3.35203-9.91892I$	0
$u=-0.712791-1.018320I$ $a=\ 0.47230+1.58594I$ $b=\ 0.654387-0.863274I$	$-3.35203+9.91892I$	0
$u=-0.169692+1.232880I$ $a=-0.057350+0.475952I$ $b=\ 0.539677+0.075169I$	$-4.55571+1.39410I$	0
$u=-0.169692-1.232880I$ $a=-0.057350-0.475952I$ $b=\ 0.539677-0.075169I$	$-4.55571-1.39410I$	0
$u=\ 0.040178+0.753764I$ $a=\ 4.35446+0.61006I$ $b=\ 0.040178-0.753764I$	$-\ 8.63608I$	0
$u=\ 0.040178-0.753764I$ $a=\ 4.35446-0.61006I$ $b=\ 0.040178+0.753764I$	$8.63608I$	0
$u=\ 0.725964+0.188776I$ $a=\ 0.34164+1.91784I$ $b=\ 0.451957-1.184490I$	$1.37563+4.28259I$	0
$u=\ 0.725964-0.188776I$ $a=\ 0.34164-1.91784I$ $b=\ 0.451957+1.184490I$	$1.37563-4.28259I$	0
$u=\ 0.303325+1.215080I$ $a=-1.08607-1.21454I$ $b=-0.462881+0.921010I$	$-5.39866+2.44724I$	0
$u=\ 0.303325-1.215080I$ $a=-1.08607+1.21454I$ $b=-0.462881-0.921010I$	$-5.39866-2.44724I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.617526+0.420082I$		
$a=$	$0.071190+1.406190I$	$0.55926-1.41093I$	0
$b=$	$0.918583-0.207533I$		
$u=$	$0.617526-0.420082I$		
$a=$	$0.071190-1.406190I$	$0.55926+1.41093I$	0
$b=$	$0.918583+0.207533I$		
$u=$	$0.470758+1.166590I$		
$a=$	$0.90729+1.23869I$	$-3.85707+3.73345I$	0
$b=$	$0.73676-1.26291I$		
$u=$	$0.470758-1.166590I$		
$a=$	$0.90729-1.23869I$	$-3.85707-3.73345I$	0
$b=$	$0.73676+1.26291I$		
$u=$	$-0.611244+1.099830I$		
$a=$	$0.79969-1.47275I$	$2.80969-7.03935I$	0
$b=$	$0.453658+1.273930I$		
$u=$	$-0.611244-1.099830I$		
$a=$	$0.79969+1.47275I$	$2.80969+7.03935I$	0
$b=$	$0.453658-1.273930I$		
$u=$	$0.146770+1.255100I$		
$a=$	$-0.441704+0.465763I$	$-2.93174+5.03893I$	0
$b=$	$-0.347244+0.800650I$		
$u=$	$0.146770-1.255100I$		
$a=$	$-0.441704-0.465763I$	$-2.93174-5.03893I$	0
$b=$	$-0.347244-0.800650I$		
$u=$	$1.250100+0.201164I$		
$a=$	$-0.136026-1.301990I$	$2.15430-6.74283I$	0
$b=$	$0.433149+1.189940I$		
$u=$	$1.250100-0.201164I$		
$a=$	$-0.136026+1.301990I$	$2.15430+6.74283I$	0
$b=$	$0.433149-1.189940I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.433149 + 1.189940I$ $a = -0.046827 + 0.314042I$ $b = 1.250100 + 0.201164I$	$-2.15430 + 6.74283I$	0
$u = 0.433149 - 1.189940I$ $a = -0.046827 - 0.314042I$ $b = 1.250100 - 0.201164I$	$-2.15430 - 6.74283I$	0
$u = 0.451957 + 1.184490I$ $a = 0.379669 + 0.514378I$ $b = 0.725964 - 0.188776I$	$-1.37563 + 4.28259I$	0
$u = 0.451957 - 1.184490I$ $a = 0.379669 - 0.514378I$ $b = 0.725964 + 0.188776I$	$-1.37563 - 4.28259I$	0
$u = -0.455370 + 0.573274I$ $a = 1.034710 - 0.440478I$ $b = -0.650441 + 0.418846I$	$-2.53070 + 4.91173I$	0
$u = -0.455370 - 0.573274I$ $a = 1.034710 + 0.440478I$ $b = -0.650441 - 0.418846I$	$-2.53070 - 4.91173I$	0
$u = 0.434473 + 1.195780I$ $a = -1.31107 - 1.19134I$ $b = -0.547865 + 1.287550I$	$-2.29993 + 8.31240I$	0
$u = 0.434473 - 1.195780I$ $a = -1.31107 + 1.19134I$ $b = -0.547865 - 1.287550I$	$-2.29993 - 8.31240I$	0
$u = -0.474782 + 1.184610I$ $a = -0.196482 + 0.181604I$ $b = -1.128100 + 0.310890I$	$-4.45442 - 7.05483I$	0
$u = -0.474782 - 1.184610I$ $a = -0.196482 - 0.181604I$ $b = -1.128100 - 0.310890I$	$-4.45442 + 7.05483I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.204180+0.427493I$ $a=-0.200985+1.257090I$ $b=\ \ 0.492848-1.054720I$	$1.31280+5.76610I$	0
$u=-1.204180-0.427493I$ $a=-0.200985-1.257090I$ $b=\ \ 0.492848+1.054720I$	$1.31280-5.76610I$	0
$u=\ \ 0.717471+0.067440I$ $a=\ \ 0.499171-0.085517I$ $b=-0.459887-0.102542I$	$1.92837+0.04107I$	0
$u=\ \ 0.717471-0.067440I$ $a=\ \ 0.499171+0.085517I$ $b=-0.459887+0.102542I$	$1.92837-0.04107I$	0
$u=\ \ 0.133802+0.702055I$ $a=-0.269370+0.587036I$ $b=-0.30749-1.71403I$	$3.84197+1.01021I$	0
$u=\ \ 0.133802-0.702055I$ $a=-0.269370-0.587036I$ $b=-0.30749+1.71403I$	$3.84197-1.01021I$	0
$u=-0.832514+0.986584I$ $a=-0.54477+1.51782I$ $b=-0.305013-0.742816I$	$-2.55700-3.98943I$	0
$u=-0.832514-0.986584I$ $a=-0.54477-1.51782I$ $b=-0.305013+0.742816I$	$-2.55700+3.98943I$	0
$u=\ \ 0.240365+0.655131I$ $a=\ \ 0.28756+3.11518I$ $b=-0.186101-1.338880I$	$3.03308-7.46850I$	0
$u=\ \ 0.240365-0.655131I$ $a=\ \ 0.28756-3.11518I$ $b=-0.186101+1.338880I$	$3.03308+7.46850I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.694261 + 0.058031I$ $a = 0.852789 + 1.068380I$ $b = -0.670310 - 0.118989I$	$1.34576 + 2.65416I$	0
$u = 0.694261 - 0.058031I$ $a = 0.852789 - 1.068380I$ $b = -0.670310 + 0.118989I$	$1.34576 - 2.65416I$	0
$u = 0.535570 + 1.197750I$ $a = 0.410032 + 1.176650I$ $b = 0.599761 - 0.900295I$	$-1.59135 + 1.88450I$	0
$u = 0.535570 - 1.197750I$ $a = 0.410032 - 1.176650I$ $b = 0.599761 + 0.900295I$	$-1.59135 - 1.88450I$	0
$u = -0.005538 + 1.314790I$ $a = 0.033562 + 0.317961I$ $b = 0.633855 - 0.501954I$	$-2.61763 + 2.89255I$	0
$u = -0.005538 - 1.314790I$ $a = 0.033562 - 0.317961I$ $b = 0.633855 + 0.501954I$	$-2.61763 - 2.89255I$	0
$u = -0.507492 + 1.213560I$ $a = 0.029317 - 0.281791I$ $b = 1.208630 - 0.270590I$	$-3.3016 - 15.4845I$	0
$u = -0.507492 - 1.213560I$ $a = 0.029317 + 0.281791I$ $b = 1.208630 + 0.270590I$	$-3.3016 + 15.4845I$	0
$u = -0.670310 + 0.118989I$ $a = 0.275481 - 0.950205I$ $b = 0.694261 - 0.058031I$	$-1.34576 + 2.65416I$	0
$u = -0.670310 - 0.118989I$ $a = 0.275481 + 0.950205I$ $b = 0.694261 + 0.058031I$	$-1.34576 - 2.65416I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.659626 + 0.133765I$ $a = \ 0.89925 + 1.62106I$ $b = -0.456995 - 1.006320I$	$-0.871914 + 0.606568I$	0
$u = \ 0.659626 - 0.133765I$ $a = \ 0.89925 - 1.62106I$ $b = -0.456995 + 1.006320I$	$-0.871914 - 0.606568I$	0
$u = -0.648449 + 1.161100I$ $a = -0.97380 + 1.35083I$ $b = -0.71755 - 1.28381I$	$1.48839 - 12.59350I$	0
$u = -0.648449 - 1.161100I$ $a = -0.97380 - 1.35083I$ $b = -0.71755 + 1.28381I$	$1.48839 + 12.59350I$	0
$u = -0.441025 + 1.259580I$ $a = -0.78093 + 1.40720I$ $b = -0.305306 - 0.885243I$	$-4.46515 - 1.74939I$	0
$u = -0.441025 - 1.259580I$ $a = -0.78093 - 1.40720I$ $b = -0.305306 + 0.885243I$	$-4.46515 + 1.74939I$	0
$u = \ 0.551520 + 1.222040I$ $a = -0.0117497 - 0.0640070I$ $b = -0.940943 - 0.473748I$	$-3.67220 + 6.74825I$	0
$u = \ 0.551520 - 1.222040I$ $a = -0.0117497 + 0.0640070I$ $b = -0.940943 + 0.473748I$	$-3.67220 - 6.74825I$	0
$u = \ 0.470183 + 1.256570I$ $a = \ 0.224627 + 0.332881I$ $b = -0.437041 - 0.900025I$	$-1.89033 + 0.72271I$	0
$u = \ 0.470183 - 1.256570I$ $a = \ 0.224627 - 0.332881I$ $b = -0.437041 + 0.900025I$	$-1.89033 - 0.72271I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.186101+1.338880I$ $a=\ \ 0.245514-0.885078I$ $b=\ \ 0.240365-0.655131I$	$-3.03308-7.46850I$	0
$u=-0.186101-1.338880I$ $a=\ \ 0.245514+0.885078I$ $b=\ \ 0.240365+0.655131I$	$-3.03308+7.46850I$	0
$u=\ \ 0.453658+1.273930I$ $a=-0.909141-0.753474I$ $b=-0.611244+1.099830I$	$-2.80969+7.03935I$	0
$u=\ \ 0.453658-1.273930I$ $a=-0.909141+0.753474I$ $b=-0.611244-1.099830I$	$-2.80969-7.03935I$	0
$u=-0.423654+1.290220I$ $a=\ \ 0.511274-1.170730I$ $b=\ \ 0.478952+0.712106I$	$-3.95917+6.15252I$	0
$u=-0.423654-1.290220I$ $a=\ \ 0.511274+1.170730I$ $b=\ \ 0.478952-0.712106I$	$-3.95917-6.15252I$	0
$u=-0.481157+1.273590I$ $a=\ \ 0.733520-1.009610I$ $b=\ \ 0.73972+1.32017I$	$-3.15931-12.53180I$	0
$u=-0.481157-1.273590I$ $a=\ \ 0.733520+1.009610I$ $b=\ \ 0.73972-1.32017I$	$-3.15931+12.53180I$	0
$u=-0.404101+1.302230I$ $a=-0.555826+0.886295I$ $b=-0.404101-1.302230I$	$-2.14632I$	0
$u=-0.404101-1.302230I$ $a=-0.555826-0.886295I$ $b=-0.404101+1.302230I$	$2.14632I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.778130+1.146260I$ $a=-0.48859+1.63320I$ $b=-0.334184-1.120090I$	$-0.68932-6.27683I$	0
$u=-0.778130-1.146260I$ $a=-0.48859-1.63320I$ $b=-0.334184+1.120090I$	$-0.68932+6.27683I$	0
$u=-0.547865+1.287550I$ $a=\ \ 1.17610-1.21708I$ $b=\ \ 0.434473+1.195780I$	$2.29993-8.31240I$	0
$u=-0.547865-1.287550I$ $a=\ \ 1.17610+1.21708I$ $b=\ \ 0.434473-1.195780I$	$2.29993+8.31240I$	0
$u=\ \ 1.31711+0.51509I$ $a=\ \ 0.102019+1.308380I$ $b=-0.231325-1.078200I$	$6.50971+3.37301I$	0
$u=\ \ 1.31711-0.51509I$ $a=\ \ 0.102019-1.308380I$ $b=-0.231325+1.078200I$	$6.50971-3.37301I$	0
$u=-0.64650+1.26072I$ $a=\ \ 0.84740-1.37280I$ $b=\ \ 0.64921+1.32913I$	$1.42727-13.32260I$	0
$u=-0.64650-1.26072I$ $a=\ \ 0.84740+1.37280I$ $b=\ \ 0.64921-1.32913I$	$1.42727+13.32260I$	0
$u=-0.09723+1.42923I$ $a=-0.394062-0.046651I$ $b=-0.485058+0.675673I$	$-6.16346+1.48072I$	0
$u=-0.09723-1.42923I$ $a=-0.394062+0.046651I$ $b=-0.485058-0.675673I$	$-6.16346-1.48072I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.80753+1.19940I$		
$a=$	$0.236384+1.330520I$	$-2.18813+2.01931I$	0
$b=$	$0.457581-1.005390I$		
$u=$	$0.80753-1.19940I$		
$a=$	$0.236384-1.330520I$	$-2.18813-2.01931I$	0
$b=$	$0.457581+1.005390I$		
$u=$	$0.41756+1.38513I$		
$a=$	$0.105789+0.186038I$	$-2.89620+3.52272I$	0
$b=$	$-0.221369-0.445432I$		
$u=$	$0.41756-1.38513I$		
$a=$	$0.105789-0.186038I$	$-2.89620-3.52272I$	0
$b=$	$-0.221369+0.445432I$		
$u=$	$0.02640+1.45390I$		
$a=$	$-1.006150-0.142374I$	$-6.08780+1.75437I$	0
$b=$	$-0.400012+0.781762I$		
$u=$	$0.02640-1.45390I$		
$a=$	$-1.006150+0.142374I$	$-6.08780-1.75437I$	0
$b=$	$-0.400012-0.781762I$		
$u=$	$0.539677+0.075169I$		
$a=$	$1.25696-1.10365I$	$4.55571-1.39410I$	0
$b=$	$-0.169692+1.232880I$		
$u=$	$0.539677-0.075169I$		
$a=$	$1.25696+1.10365I$	$4.55571+1.39410I$	0
$b=$	$-0.169692-1.232880I$		
$u=$	$0.73676+1.26291I$		
$a=$	$0.84984+1.13098I$	$3.85707+3.73345I$	0
$b=$	$0.470758-1.166590I$		
$u=$	$0.73676-1.26291I$		
$a=$	$0.84984-1.13098I$	$3.85707-3.73345I$	0
$b=$	$0.470758+1.166590I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.66634 + 1.30774I$ $a = 0.90056 + 1.28249I$ $b = 0.66634 - 1.30774I$	$22.0594I$	0
$u = 0.66634 - 1.30774I$ $a = 0.90056 - 1.28249I$ $b = 0.66634 + 1.30774I$	$-22.0594I$	0
$u = -0.71755 + 1.28381I$ $a = -0.85336 + 1.27064I$ $b = -0.648449 - 1.161100I$	$-1.48839 - 12.59350I$	0
$u = -0.71755 - 1.28381I$ $a = -0.85336 - 1.27064I$ $b = -0.648449 + 1.161100I$	$-1.48839 + 12.59350I$	0
$u = 0.64921 + 1.32913I$ $a = -0.89254 - 1.12251I$ $b = -0.64650 + 1.26072I$	$-1.42727 + 13.32260I$	0
$u = 0.64921 - 1.32913I$ $a = -0.89254 + 1.12251I$ $b = -0.64650 - 1.26072I$	$-1.42727 - 13.32260I$	0
$u = 0.189220 + 0.478100I$ $a = 0.668648 + 0.541128I$ $b = 0.189220 - 0.478100I$	$1.16154I$	0
$u = 0.189220 - 0.478100I$ $a = 0.668648 - 0.541128I$ $b = 0.189220 + 0.478100I$	$-1.16154I$	0
$u = -0.221369 + 0.445432I$ $a = -0.204931 + 0.800117I$ $b = 0.41756 - 1.38513I$	$2.89620 + 3.52272I$	$8.89827 + 0.I$
$u = -0.221369 - 0.445432I$ $a = -0.204931 - 0.800117I$ $b = 0.41756 + 1.38513I$	$2.89620 - 3.52272I$	$8.89827 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.73972 + 1.32017I$ $a = -0.638784 - 1.194480I$ $b = -0.481157 + 1.273590I$	$3.15931 + 12.53180I$	0
$u = 0.73972 - 1.32017I$ $a = -0.638784 + 1.194480I$ $b = -0.481157 - 1.273590I$	$3.15931 - 12.53180I$	0
$u = 1.45238 + 0.43315I$ $a = -0.266576 - 1.232410I$ $b = 0.231329 + 1.076970I$	$6.24818 - 5.10916I$	0
$u = 1.45238 - 0.43315I$ $a = -0.266576 + 1.232410I$ $b = 0.231329 - 1.076970I$	$6.24818 + 5.10916I$	0
$u = -0.459887 + 0.102542I$ $a = 0.023560 + 0.292884I$ $b = 0.717471 - 0.067440I$	$-1.92837 + 0.04107I$	$-5.86831 + 1.18325I$
$u = -0.459887 - 0.102542I$ $a = 0.023560 - 0.292884I$ $b = 0.717471 + 0.067440I$	$-1.92837 - 0.04107I$	$-5.86831 - 1.18325I$
$u = -1.56815 + 0.17899I$ $a = -0.174589 + 1.246310I$ $b = 0.048733 - 0.898701I$	$5.09439 - 4.03171I$	0
$u = -1.56815 - 0.17899I$ $a = -0.174589 - 1.246310I$ $b = 0.048733 + 0.898701I$	$5.09439 + 4.03171I$	0
$u = 0.17906 + 1.59970I$ $a = -0.148067 + 0.178133I$ $b = -0.249759 - 0.838626I$	$-4.72681 - 0.80347I$	0
$u = 0.17906 - 1.59970I$ $a = -0.148067 - 0.178133I$ $b = -0.249759 + 0.838626I$	$-4.72681 + 0.80347I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.11319+1.61653I$ $a=-0.836418+0.532832I$ $b=-0.297555-0.858019I$	$-5.12076-1.34522I$	0
$u=-0.11319-1.61653I$ $a=-0.836418-0.532832I$ $b=-0.297555+0.858019I$	$-5.12076+1.34522I$	0
$u=0.14556+1.62539I$ $a=0.030241-0.385776I$ $b=0.417538+0.847320I$	$-3.61073-9.93097I$	0
$u=0.14556-1.62539I$ $a=0.030241+0.385776I$ $b=0.417538-0.847320I$	$-3.61073+9.93097I$	0
$u=-0.141926+0.323075I$ $a=2.45571-0.26571I$ $b=0.587380-0.938448I$	$1.79288+4.49429I$	$-0.07810-11.91705I$
$u=-0.141926-0.323075I$ $a=2.45571+0.26571I$ $b=0.587380+0.938448I$	$1.79288-4.49429I$	$-0.07810+11.91705I$
$u=-0.30749+1.71403I$ $a=-0.241741+0.459945I$ $b=0.133802-0.702055I$	$-3.84197+1.01021I$	0
$u=-0.30749-1.71403I$ $a=-0.241741-0.459945I$ $b=0.133802+0.702055I$	$-3.84197-1.01021I$	0

II. $I_2^u = \langle 8.40\times 10^{88}u^{59} - 2.76\times 10^{88}u^{58} + \cdots + 8.73\times 10^{87}b - 3.21\times 10^{89},\ -6.26\times 10^{91}u^{59} - 5.43\times 10^{91}u^{58} + \cdots + 1.55\times 10^{91}a - 9.37\times 10^{92},\ u^{60} + 21u^{58} + \cdots + 40u + 20\rangle$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} 4.02837u^{59} + 3.49198u^{58} + \cdots + 250.773u + 60.2435 \\ -9.61754u^{59} + 3.16536u^{58} + \cdots - 303.153u + 36.6995 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -5.58916u^{59} + 6.65734u^{58} + \cdots - 52.3797u + 96.9431 \\ -9.61754u^{59} + 3.16536u^{58} + \cdots - 303.153u + 36.6995 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -10.1505u^{59} + 3.66139u^{58} + \cdots - 69.6267u + 191.290 \\ 0.950423u^{59} + 1.05095u^{58} + \cdots + 2.55106u - 13.8649 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 10.6921u^{59} - 1.19824u^{58} + \cdots + 270.184u - 63.9013 \\ 2.29210u^{59} + 8.34141u^{58} + \cdots + 702.735u + 361.114 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 8.45175u^{59} - 4.95512u^{58} + \cdots + 59.0636u - 180.678 \\ -1.43574u^{59} - 6.42234u^{58} + \cdots - 317.329u - 213.684 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2.91317u^{59} + 10.6671u^{58} + \cdots + 851.073u + 429.926 \\ -1.67991u^{59} - 8.66305u^{58} + \cdots - 732.948u - 350.826 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 6.55456u^{59} - 9.36272u^{58} + \cdots - 228.752u - 362.054 \\ -2.65594u^{59} - 3.55605u^{58} + \cdots - 243.762u - 120.461 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 6.16767u^{59} - 3.60517u^{58} + \cdots - 118.311u - 136.710 \\ -3.68209u^{59} + 8.36937u^{58} + \cdots + 444.922u + 286.317 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -23.6979u^{59} + 16.4750u^{58} + \cdots - 628.013u + 7.17849$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{60} - 10u^{59} + \cdots - 27u + 1$
c_2	$20(20u^{60} + 154u^{58} + \cdots - u + 1)$
c_3	$20(20u^{60} + 154u^{58} + \cdots + u + 1)$
c_4, c_7	$u^{60} + 21u^{58} + \cdots - 40u + 20$
c_5	$u^{60} - 7u^{59} + \cdots + 98u + 17$
c_6	$u^{60} + 6u^{58} + \cdots + 60u + 20$
c_8	$u^{60} + 10u^{59} + \cdots + 27u + 1$
c_9	$u^{60} + 6u^{58} + \cdots - 60u + 20$
c_{10}	$u^{60} + 7u^{59} + \cdots - 98u + 17$
c_{11}, c_{12}	$u^{60} + 21u^{58} + \cdots + 40u + 20$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{60} - 34y^{59} + \cdots + 457y + 1$
c_2, c_3	$400(400y^{60} + 6160y^{59} + \cdots + 25y + 1)$
c_4, c_7, c_{11} c_{12}	$y^{60} + 42y^{59} + \cdots + 13360y + 400$
c_5, c_{10}	$y^{60} + 11y^{59} + \cdots - 5898y + 289$
c_6, c_9	$y^{60} + 12y^{59} + \cdots + 1760y + 400$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.131190+1.004020I$ $a=-0.138539+0.050844I$ $b=-1.43489+0.25712I$	$-5.59648+3.65482I$	0
$u=-0.131190-1.004020I$ $a=-0.138539-0.050844I$ $b=-1.43489-0.25712I$	$-5.59648-3.65482I$	0
$u=-0.112128+0.964969I$ $a=\ 0.736674-0.124692I$ $b=\ 1.45382-0.06539I$	$-5.42405-4.63396I$	$0.+10.05646I$
$u=-0.112128-0.964969I$ $a=\ 0.736674+0.124692I$ $b=\ 1.45382+0.06539I$	$-5.42405+4.63396I$	$0.-10.05646I$
$u=-0.368132+0.824846I$ $a=-1.82697+1.92653I$ $b=-0.04379-1.52117I$	$5.63343-1.62076I$	$0.+3.74752I$
$u=-0.368132-0.824846I$ $a=-1.82697-1.92653I$ $b=-0.04379+1.52117I$	$5.63343+1.62076I$	$0.-3.74752I$
$u=-0.292272+0.842468I$ $a=\ 1.48680-1.22320I$ $b=\ 0.13469+1.64288I$	$5.30312-1.36980I$	$23.8552+3.9437I$
$u=-0.292272-0.842468I$ $a=\ 1.48680+1.22320I$ $b=\ 0.13469-1.64288I$	$5.30312+1.36980I$	$23.8552-3.9437I$
$u=\ 0.378592+1.054480I$ $a=-0.421580+0.136481I$ $b=\ 0.615933+0.370912I$	$-2.31061+3.49178I$	0
$u=\ 0.378592-1.054480I$ $a=-0.421580-0.136481I$ $b=\ 0.615933-0.370912I$	$-2.31061-3.49178I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.671642+0.901971I$ $a=\ \ 0.42749-2.09202I$ $b=\ \ 0.324123+1.104910I$	$-0.16334-6.73234I$	0
$u=-0.671642-0.901971I$ $a=\ \ 0.42749+2.09202I$ $b=\ \ 0.324123-1.104910I$	$-0.16334+6.73234I$	0
$u=-0.515101+1.023490I$ $a=\ \ 0.845785-0.645661I$ $b=\ \ 0.649661+1.212210I$	$2.08919-1.71421I$	0
$u=-0.515101-1.023490I$ $a=\ \ 0.845785+0.645661I$ $b=\ \ 0.649661-1.212210I$	$2.08919+1.71421I$	0
$u=\ \ 0.324123+1.104910I$ $a=-1.211690-0.006521I$ $b=-0.671642+0.901971I$	$0.16334+6.73234I$	0
$u=\ \ 0.324123-1.104910I$ $a=-1.211690+0.006521I$ $b=-0.671642-0.901971I$	$0.16334-6.73234I$	0
$u=-1.099140+0.358345I$ $a=-0.312202+1.269850I$ $b=\ \ 0.470992-1.165410I$	$2.77087+6.10267I$	0
$u=-1.099140-0.358345I$ $a=-0.312202-1.269850I$ $b=\ \ 0.470992+1.165410I$	$2.77087-6.10267I$	0
$u=\ \ 0.604618+1.003560I$ $a=-1.06620-1.08699I$ $b=-0.182224+0.633368I$	$-2.35068+3.35821I$	0
$u=\ \ 0.604618-1.003560I$ $a=-1.06620+1.08699I$ $b=-0.182224-0.633368I$	$-2.35068-3.35821I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.220472 + 0.794913I$ $a = 3.81702 + 1.48670I$ $b = 0.220472 - 0.794913I$	$9.36044I$	$0. - 11.85016I$
$u = 0.220472 - 0.794913I$ $a = 3.81702 - 1.48670I$ $b = 0.220472 + 0.794913I$	$-9.36044I$	$0. + 11.85016I$
$u = -0.173571 + 0.763541I$ $a = 0.022820 - 0.893568I$ $b = -0.24840 + 1.69652I$	$3.69736 - 1.21321I$	$-5.3217 + 13.6875I$
$u = -0.173571 - 0.763541I$ $a = 0.022820 + 0.893568I$ $b = -0.24840 - 1.69652I$	$3.69736 + 1.21321I$	$-5.3217 - 13.6875I$
$u = 0.719717 + 0.278031I$ $a = 0.129476 + 1.405720I$ $b = 0.719717 - 0.278031I$	$-1.59818I$	$0. + 6.83850I$
$u = 0.719717 - 0.278031I$ $a = 0.129476 - 1.405720I$ $b = 0.719717 + 0.278031I$	$1.59818I$	$0. - 6.83850I$
$u = 0.470992 + 1.165410I$ $a = 0.020481 - 0.173598I$ $b = -1.099140 - 0.358345I$	$-2.77087 + 6.10267I$	0
$u = 0.470992 - 1.165410I$ $a = 0.020481 + 0.173598I$ $b = -1.099140 + 0.358345I$	$-2.77087 - 6.10267I$	0
$u = 0.296145 + 1.232840I$ $a = 1.36869 + 0.98077I$ $b = 0.296145 - 1.232840I$	$9.41326I$	0
$u = 0.296145 - 1.232840I$ $a = 1.36869 - 0.98077I$ $b = 0.296145 + 1.232840I$	$-9.41326I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.615933 + 0.370912I$ $a = 0.264938 - 0.804155I$ $b = 0.378592 + 1.054480I$	$2.31061 - 3.49178I$	$2.58790 + 4.01633I$
$u = 0.615933 - 0.370912I$ $a = 0.264938 + 0.804155I$ $b = 0.378592 - 1.054480I$	$2.31061 + 3.49178I$	$2.58790 - 4.01633I$
$u = -0.007654 + 0.709640I$ $a = 1.76736 + 1.97597I$ $b = -0.043743 - 1.367470I$	$2.67190 - 8.20442I$	$0.58399 + 9.24559I$
$u = -0.007654 - 0.709640I$ $a = 1.76736 - 1.97597I$ $b = -0.043743 + 1.367470I$	$2.67190 + 8.20442I$	$0.58399 - 9.24559I$
$u = -0.182224 + 0.633368I$ $a = 2.10114 - 1.07750I$ $b = 0.604618 + 1.003560I$	$2.35068 - 3.35821I$	$0.72073 + 1.67334I$
$u = -0.182224 - 0.633368I$ $a = 2.10114 + 1.07750I$ $b = 0.604618 - 1.003560I$	$2.35068 + 3.35821I$	$0.72073 - 1.67334I$
$u = 0.415613 + 1.284520I$ $a = -0.552164 - 0.122726I$ $b = -0.029330 + 0.485040I$	$-2.63975 + 3.91996I$	0
$u = 0.415613 - 1.284520I$ $a = -0.552164 + 0.122726I$ $b = -0.029330 - 0.485040I$	$-2.63975 - 3.91996I$	0
$u = 0.071503 + 1.359220I$ $a = -0.560386 - 0.397252I$ $b = -0.327373 + 0.283384I$	$-5.47005 + 0.45372I$	0
$u = 0.071503 - 1.359220I$ $a = -0.560386 + 0.397252I$ $b = -0.327373 - 0.283384I$	$-5.47005 - 0.45372I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.043743+1.367470I$ $a=\ \ 0.879746-0.353566I$ $b=-0.007654-0.709640I$	$-2.67190-8.20442I$	0
$u=-0.043743-1.367470I$ $a=\ \ 0.879746+0.353566I$ $b=-0.007654+0.709640I$	$-2.67190+8.20442I$	0
$u=\ \ 0.649661+1.212210I$ $a=-0.330143-1.290740I$ $b=-0.515101+1.023490I$	$-2.08919+1.71421I$	0
$u=\ \ 0.649661-1.212210I$ $a=-0.330143+1.290740I$ $b=-0.515101-1.023490I$	$-2.08919-1.71421I$	0
$u=-0.675294+1.242130I$ $a=-0.83231+1.25712I$ $b=-0.675294-1.242130I$	$-12.4379I$	0
$u=-0.675294-1.242130I$ $a=-0.83231-1.25712I$ $b=-0.675294+1.242130I$	$12.4379I$	0
$u=\ \ 1.45382+0.06539I$ $a=\ \ 0.10861+1.46371I$ $b=-0.112128-0.964969I$	$5.42405-4.63396I$	0
$u=\ \ 1.45382-0.06539I$ $a=\ \ 0.10861-1.46371I$ $b=-0.112128+0.964969I$	$5.42405+4.63396I$	0
$u=-1.43489+0.25712I$ $a=\ \ 0.126630-1.106420I$ $b=-0.131190+1.004020I$	$5.59648-3.65482I$	0
$u=-1.43489-0.25712I$ $a=\ \ 0.126630+1.106420I$ $b=-0.131190-1.004020I$	$5.59648+3.65482I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.029330+0.485040I$ $a=\ 1.13719-1.52653I$ $b=\ 0.415613+1.284520I$	$2.63975-3.91996I$	$0.94596+7.77730I$
$u=-0.029330-0.485040I$ $a=\ 1.13719+1.52653I$ $b=\ 0.415613-1.284520I$	$2.63975+3.91996I$	$0.94596-7.77730I$
$u=-0.04379+1.52117I$ $a=-1.104890+0.264741I$ $b=-0.368132-0.824846I$	$-5.63343-1.62076I$	0
$u=-0.04379-1.52117I$ $a=-1.104890-0.264741I$ $b=-0.368132+0.824846I$	$-5.63343+1.62076I$	0
$u=-0.327373+0.283384I$ $a=\ 1.99564-1.98327I$ $b=\ 0.071503+1.359220I$	$5.47005-0.45372I$	$7.45689+1.65001I$
$u=-0.327373-0.283384I$ $a=\ 1.99564+1.98327I$ $b=\ 0.071503-1.359220I$	$5.47005+0.45372I$	$7.45689-1.65001I$
$u=\ 0.13469+1.64288I$ $a=-0.710767-0.561949I$ $b=-0.292272+0.842468I$	$-5.30312+1.36980I$	0
$u=\ 0.13469-1.64288I$ $a=-0.710767+0.561949I$ $b=-0.292272-0.842468I$	$-5.30312-1.36980I$	0
$u=-0.24840+1.69652I$ $a=\ 0.131326-0.357528I$ $b=-0.173571+0.763541I$	$-3.69736+1.21321I$	0
$u=-0.24840-1.69652I$ $a=\ 0.131326+0.357528I$ $b=-0.173571-0.763541I$	$-3.69736-1.21321I$	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{60}-10u^{59}+\cdots-27u+1)$ $\cdot(u^{218}+7u^{217}+\cdots-325966059u+13035439)$
c_2	$120(20u^{60}+154u^{58}+\cdots-u+1)(6u^{218}-6u^{217}+\cdots-603u+1721)$
c_3	$120(20u^{60}+154u^{58}+\cdots+u+1)(6u^{218}+6u^{217}+\cdots+603u+1721)$
c_4	$(u^{60}+21u^{58}+\cdots-40u+20)$ $\cdot(u^{218}+u^{217}+\cdots-1084332u+800958)$
c_5	$(u^{60}-7u^{59}+\cdots+98u+17)$ $\cdot(u^{218}-6u^{217}+\cdots-4497810u+159275)$
c_6	$(u^{60}+6u^{58}+\cdots+60u+20)(u^{218}-7u^{217}+\cdots+5706u+1086)$
c_7	$(u^{60}+21u^{58}+\cdots-40u+20)$ $\cdot(u^{218}-u^{217}+\cdots+1084332u+800958)$
c_8	$(u^{60}+10u^{59}+\cdots+27u+1)$ $\cdot(u^{218}-7u^{217}+\cdots+325966059u+13035439)$
c_9	$(u^{60}+6u^{58}+\cdots-60u+20)(u^{218}+7u^{217}+\cdots-5706u+1086)$
c_{10}	$(u^{60}+7u^{59}+\cdots-98u+17)$ $\cdot(u^{218}+6u^{217}+\cdots+4497810u+159275)$
c_{11}	$(u^{60}+21u^{58}+\cdots+40u+20)$ $\cdot(u^{218}+u^{217}+\cdots-1084332u+800958)$
c_{12}	$(u^{60}+21u^{58}+\cdots+40u+20)$ $\cdot(u^{218}-u^{217}+\cdots+1084332u+800958)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^{60} - 34y^{59} + \cdots + 457y + 1)$ $\cdot (y^{218} - 27y^{217} + \cdots - 75149030070299023y + 169922669922721)$
c_2, c_3	$14400(400y^{60} + 6160y^{59} + \cdots + 25y + 1)$ $\cdot (36y^{218} + 228y^{217} + \cdots - 218634597y + 2961841)$
c_4, c_7, c_{11} c_{12}	$(y^{60} + 42y^{59} + \cdots + 13360y + 400)$ $\cdot (y^{218} + 127y^{217} + \cdots + 37988843650536y + 641533717764)$
c_5, c_{10}	$(y^{60} + 11y^{59} + \cdots - 5898y + 289)$ $\cdot (y^{218} - 26y^{217} + \cdots - 2357094900150y + 25368525625)$
c_6, c_9	$(y^{60} + 12y^{59} + \cdots + 1760y + 400)$ $\cdot (y^{218} - 7y^{217} + \cdots - 16168524y + 1179396)$