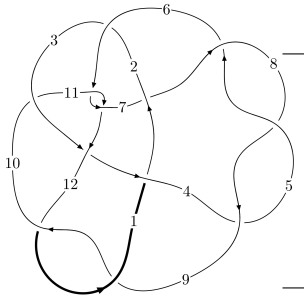
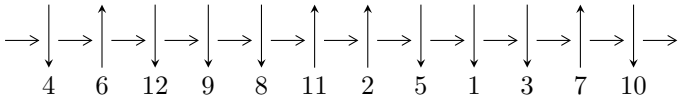
$12a_{1001}$ $(K12a_{1001})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 3.93846 \times 10^{410} u^{123} + 2.26334 \times 10^{411} u^{122} + \cdots + 1.71029 \times 10^{411} b - 2.33575 \times 10^{412}, \\ & - 8.53978 \times 10^{410} u^{123} - 6.18776 \times 10^{411} u^{122} + \cdots + 1.71029 \times 10^{411} a + 3.24698 \times 10^{412}, \\ & u^{124} + 8u^{123} + \cdots + 560u + 32 \rangle \\ I_2^u = \langle & -318371092 u^{29} + 1036982687 u^{28} + \cdots + 1519247218 b + 8755986098, \\ & 84610383 u^{29} + 282766245 u^{28} + \cdots + 3038494436 a + 19372377016,\ u^{30} - u^{29} + \cdots - 32u + 4 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 154 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. $\boldsymbol{I_1^u = \langle 3.94 \times 10^{410} u^{123} + 2.26 \times 10^{411} u^{122} + \cdots + 1.71 \times 10^{411} b - 2.34 \times 10^{412},\ -8.54 \times 10^{410} u^{123} - 6.19 \times 10^{411} u^{122} + \cdots + 1.71 \times 10^{411} a + 3.25 \times 10^{412},\ u^{124} + 8u^{123} + \cdots + 560u + 32 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.499318u^{123} + 3.61796u^{122} + \cdots - 301.498u - 18.9850 \\ -0.230280u^{123} - 1.32337u^{122} + \cdots + 223.187u + 13.6570 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.269037u^{123} + 2.29459u^{122} + \cdots - 78.3102u - 5.32792 \\ -0.230280u^{123} - 1.32337u^{122} + \cdots + 223.187u + 13.6570 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.189282u^{123} - 1.38263u^{122} + \cdots + 102.831u + 2.53366 \\ 0.0856813u^{123} + 0.393010u^{122} + \cdots - 147.048u - 8.35132 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0202511u^{123} - 0.458635u^{122} + \cdots - 40.4152u - 12.0426 \\ 0.281230u^{123} + 2.63215u^{122} + \cdots + 157.158u + 11.1424 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.812210u^{123} - 5.85729u^{122} + \cdots + 433.653u + 22.6467 \\ 0.570616u^{123} + 3.66425u^{122} + \cdots - 379.706u - 22.6495 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.188853u^{123} + 0.923993u^{122} + \cdots - 231.382u - 20.5808 \\ 0.152414u^{123} + 1.85479u^{122} + \cdots + 257.304u + 16.3548 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.289775u^{123} + 1.56030u^{122} + \cdots - 388.413u - 23.1243 \\ -0.113816u^{123} + 0.173382u^{122} + \cdots + 416.531u + 24.6669 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.363981u^{123} - 2.94441u^{122} + \cdots - 106.608u + 3.55885 \\ 0.452720u^{123} + 3.74556u^{122} + \cdots + 87.4958u + 2.58917 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.865722u^{123} - 7.01651u^{122} + \cdots + 103.882u + 11.6286$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{124} + 30u^{122} + \cdots + 85438383u + 36885536$
c_2	$u^{124} - 29u^{122} + \cdots - 23801512u + 5726284$
c_3	$u^{124} + 4u^{122} + \cdots - 31546u + 3791$
c_4, c_5, c_8	$u^{124} - 4u^{123} + \cdots - 975u + 79$
c_6, c_{11}	$u^{124} + 2u^{123} + \cdots + 597u + 931$
c_7	$u^{124} + u^{123} + \cdots + 73728u + 8192$
c_9, c_{12}	$u^{124} - 8u^{123} + \cdots - 560u + 32$
c_{10}	$u^{124} - u^{123} + \cdots - 2248365u + 240002$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{124} + 60y^{123} + \cdots + 72974396355643039y + 1360542766007296$
c_2	$y^{124} - 58y^{123} + \cdots - 1243275573737328y + 32790328448656$
c_3	$y^{124} + 8y^{123} + \cdots + 534025554y + 14371681$
c_4, c_5, c_8	$y^{124} + 136y^{123} + \cdots + 320169y + 6241$
c_6, c_{11}	$y^{124} - 74y^{123} + \cdots - 23962845y + 866761$
c_7	$y^{124} - 21y^{123} + \cdots - 5939134464y + 67108864$
c_9, c_{12}	$y^{124} + 108y^{123} + \cdots + 87808y + 1024$
c_{10}	$y^{124} + 51y^{123} + \cdots + 13203890664139y + 57600960004$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.977490 + 0.167034I$ $a = 0.0866224 - 0.1090600I$ $b = 0.642115 + 0.428045I$	$-1.39698 - 3.25402I$	0
$u = 0.977490 - 0.167034I$ $a = 0.0866224 + 0.1090600I$ $b = 0.642115 - 0.428045I$	$-1.39698 + 3.25402I$	0
$u = -0.999579 + 0.176877I$ $a = -0.257552 - 0.082879I$ $b = -0.644151 + 0.521739I$	$2.06689 + 9.18127I$	0
$u = -0.999579 - 0.176877I$ $a = -0.257552 + 0.082879I$ $b = -0.644151 - 0.521739I$	$2.06689 - 9.18127I$	0
$u = 0.200891 + 1.003040I$ $a = -0.197076 - 0.216563I$ $b = 0.725450 + 0.294927I$	$0.25982 - 1.46997I$	0
$u = 0.200891 - 1.003040I$ $a = -0.197076 + 0.216563I$ $b = 0.725450 - 0.294927I$	$0.25982 + 1.46997I$	0
$u = 0.916837 + 0.254124I$ $a = -0.789735 + 0.659254I$ $b = -0.009522 - 1.403830I$	$3.05662 - 0.90810I$	0
$u = 0.916837 - 0.254124I$ $a = -0.789735 - 0.659254I$ $b = -0.009522 + 1.403830I$	$3.05662 + 0.90810I$	0
$u = 0.973539 + 0.405320I$ $a = 0.069127 - 0.405718I$ $b = -0.07473 + 1.54935I$	$7.18033 + 3.10381I$	0
$u = 0.973539 - 0.405320I$ $a = 0.069127 + 0.405718I$ $b = -0.07473 - 1.54935I$	$7.18033 - 3.10381I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.143915 + 1.049810I$ $a = -0.396190 - 0.069301I$ $b = -0.478605 + 0.336891I$	$1.78669 - 2.54842I$	0
$u = 0.143915 - 1.049810I$ $a = -0.396190 + 0.069301I$ $b = -0.478605 - 0.336891I$	$1.78669 + 2.54842I$	0
$u = -0.909625 + 0.208950I$ $a = -0.016879 + 0.212837I$ $b = -0.388316 + 0.460448I$	$4.01880 - 1.26132I$	0
$u = -0.909625 - 0.208950I$ $a = -0.016879 - 0.212837I$ $b = -0.388316 - 0.460448I$	$4.01880 + 1.26132I$	0
$u = -0.160084 + 1.061590I$ $a = 0.554363 + 1.196770I$ $b = 0.576392 - 0.625754I$	$1.26335 + 2.75150I$	0
$u = -0.160084 - 1.061590I$ $a = 0.554363 - 1.196770I$ $b = 0.576392 + 0.625754I$	$1.26335 - 2.75150I$	0
$u = 0.365844 + 1.097470I$ $a = -0.828005 + 0.838274I$ $b = -0.504793 - 0.584094I$	$2.48999 - 6.00802I$	0
$u = 0.365844 - 1.097470I$ $a = -0.828005 - 0.838274I$ $b = -0.504793 + 0.584094I$	$2.48999 + 6.00802I$	0
$u = 0.027510 + 0.803530I$ $a = 0.17026 + 2.56832I$ $b = 0.155281 - 0.833445I$	$0.13382 + 1.81392I$	0
$u = 0.027510 - 0.803530I$ $a = 0.17026 - 2.56832I$ $b = 0.155281 + 0.833445I$	$0.13382 - 1.81392I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.160837+1.195020I$ $a=\ \ 1.25219-1.44755I$ $b=\ \ 0.023114+0.379611I$	$6.66402+6.03460I$	0
$u=-0.160837-1.195020I$ $a=\ \ 1.25219+1.44755I$ $b=\ \ 0.023114-0.379611I$	$6.66402-6.03460I$	0
$u=-0.646314+0.461377I$ $a=-0.292570-0.290792I$ $b=\ \ 0.10548+1.51278I$	$6.16382-2.02497I$	0
$u=-0.646314-0.461377I$ $a=-0.292570+0.290792I$ $b=\ \ 0.10548-1.51278I$	$6.16382+2.02497I$	0
$u=\ \ 0.193029+1.194150I$ $a=-0.696828+0.567124I$ $b=\ \ 1.279530-0.498272I$	$1.95855-1.64792I$	0
$u=\ \ 0.193029-1.194150I$ $a=-0.696828-0.567124I$ $b=\ \ 1.279530+0.498272I$	$1.95855+1.64792I$	0
$u=\ \ 0.130432+1.208370I$ $a=-0.758707-1.034160I$ $b=-0.127927+0.487182I$	$3.61853-1.99260I$	0
$u=\ \ 0.130432-1.208370I$ $a=-0.758707+1.034160I$ $b=-0.127927-0.487182I$	$3.61853+1.99260I$	0
$u=-0.288185+1.184890I$ $a=\ \ 1.60717+2.15306I$ $b=\ \ 0.17132-1.56831I$	$8.58414+5.49019I$	0
$u=-0.288185-1.184890I$ $a=\ \ 1.60717-2.15306I$ $b=\ \ 0.17132+1.56831I$	$8.58414-5.49019I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.367250+1.172510I$ $a=-0.76172-1.43975I$ $b=-0.11117+1.44641I$	$7.52693-0.73729I$	0
$u=-0.367250-1.172510I$ $a=-0.76172+1.43975I$ $b=-0.11117-1.44641I$	$7.52693+0.73729I$	0
$u=-0.753568+0.155704I$ $a=\ \ 0.965097-0.002053I$ $b=\ \ 0.110011-1.407320I$	$4.56584+4.75148I$	0
$u=-0.753568-0.155704I$ $a=\ \ 0.965097+0.002053I$ $b=\ \ 0.110011+1.407320I$	$4.56584-4.75148I$	0
$u=\ \ 0.694740+0.314920I$ $a=-0.474407+0.592200I$ $b=-0.247848+0.558600I$	$0.06021+1.90390I$	0
$u=\ \ 0.694740-0.314920I$ $a=-0.474407-0.592200I$ $b=-0.247848-0.558600I$	$0.06021-1.90390I$	0
$u=\ \ 0.036773+1.245450I$ $a=\ \ 1.77115-3.09808I$ $b=-0.00284+1.51962I$	$13.2066+6.0152I$	0
$u=\ \ 0.036773-1.245450I$ $a=\ \ 1.77115+3.09808I$ $b=-0.00284-1.51962I$	$13.2066-6.0152I$	0
$u=\ \ 0.184775+1.242530I$ $a=-0.036008-0.793529I$ $b=-0.324842+0.992138I$	$4.71839-0.47439I$	0
$u=\ \ 0.184775-1.242530I$ $a=-0.036008+0.793529I$ $b=-0.324842-0.992138I$	$4.71839+0.47439I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.470512 + 1.165670I$ $a = -1.64550 + 1.63501I$ $b = -0.14985 - 1.55953I$	$9.67965 - 8.39661I$	0
$u = 0.470512 - 1.165670I$ $a = -1.64550 - 1.63501I$ $b = -0.14985 + 1.55953I$	$9.67965 + 8.39661I$	0
$u = -0.073645 + 1.265380I$ $a = 0.62198 + 2.40589I$ $b = 0.26977 - 1.69653I$	$10.13110 + 4.21503I$	0
$u = -0.073645 - 1.265380I$ $a = 0.62198 - 2.40589I$ $b = 0.26977 + 1.69653I$	$10.13110 - 4.21503I$	0
$u = -0.036244 + 1.279190I$ $a = -0.12658 + 2.22447I$ $b = -0.42306 - 1.75991I$	$12.69100 + 2.02618I$	0
$u = -0.036244 - 1.279190I$ $a = -0.12658 - 2.22447I$ $b = -0.42306 + 1.75991I$	$12.69100 - 2.02618I$	0
$u = -0.088749 + 1.279220I$ $a = -1.33433 - 2.56863I$ $b = -0.02006 + 1.52951I$	$10.44810 - 1.55812I$	0
$u = -0.088749 - 1.279220I$ $a = -1.33433 + 2.56863I$ $b = -0.02006 - 1.52951I$	$10.44810 + 1.55812I$	0
$u = -0.066951 + 1.291950I$ $a = 0.162128 + 0.737309I$ $b = -0.987123 - 0.564779I$	$8.16779 - 3.33134I$	0
$u = -0.066951 - 1.291950I$ $a = 0.162128 - 0.737309I$ $b = -0.987123 + 0.564779I$	$8.16779 + 3.33134I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.277301+1.268930I$ $a=\ \ 0.420795+0.332059I$ $b=-1.068690-0.398845I$	$5.85040+8.18125I$	0
$u=-0.277301-1.268930I$ $a=\ \ 0.420795-0.332059I$ $b=-1.068690+0.398845I$	$5.85040-8.18125I$	0
$u=-1.246530+0.372162I$ $a=-0.445949-0.963329I$ $b=-0.19621+1.52807I$	$8.8186+12.2109I$	0
$u=-1.246530-0.372162I$ $a=-0.445949+0.963329I$ $b=-0.19621-1.52807I$	$8.8186-12.2109I$	0
$u=-0.178787+1.299100I$ $a=\ \ 0.28770-1.57266I$ $b=-0.101065+0.613247I$	$6.29143-1.77951I$	0
$u=-0.178787-1.299100I$ $a=\ \ 0.28770+1.57266I$ $b=-0.101065-0.613247I$	$6.29143+1.77951I$	0
$u=\ \ 0.272796+1.288270I$ $a=-0.555345+0.617384I$ $b=-0.453010-0.255102I$	$2.42801-3.42668I$	0
$u=\ \ 0.272796-1.288270I$ $a=-0.555345-0.617384I$ $b=-0.453010+0.255102I$	$2.42801+3.42668I$	0
$u=-0.491360+0.458664I$ $a=\ \ 0.335658+0.598917I$ $b=\ \ 0.429127+0.452615I$	$-0.355180-0.178215I$	0
$u=-0.491360-0.458664I$ $a=\ \ 0.335658-0.598917I$ $b=\ \ 0.429127-0.452615I$	$-0.355180+0.178215I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.659334+0.034725I$ $a=-0.632730-1.091870I$ $b=-0.665926+0.509699I$	$2.00407-4.75958I$	0
$u=-0.659334-0.034725I$ $a=-0.632730+1.091870I$ $b=-0.665926-0.509699I$	$2.00407+4.75958I$	0
$u=0.658890+0.000122I$ $a=-0.980786+0.104039I$ $b=-0.359323+0.068824I$	$-1.61107+0.03058I$	$-8.73202+1.25539I$
$u=0.658890-0.000122I$ $a=-0.980786-0.104039I$ $b=-0.359323-0.068824I$	$-1.61107-0.03058I$	$-8.73202-1.25539I$
$u=-0.074886+1.339040I$ $a=0.092798-0.708787I$ $b=0.525600+0.877359I$	$5.48716+1.00409I$	0
$u=-0.074886-1.339040I$ $a=0.092798+0.708787I$ $b=0.525600-0.877359I$	$5.48716-1.00409I$	0
$u=-0.227412+1.322030I$ $a=0.368705+0.615808I$ $b=0.718257-0.294459I$	$3.72470+5.44921I$	0
$u=-0.227412-1.322030I$ $a=0.368705-0.615808I$ $b=0.718257+0.294459I$	$3.72470-5.44921I$	0
$u=-0.006492+1.363140I$ $a=0.42405-3.20451I$ $b=-0.01319+1.57439I$	$13.79580-1.45010I$	0
$u=-0.006492-1.363140I$ $a=0.42405+3.20451I$ $b=-0.01319-1.57439I$	$13.79580+1.45010I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.320285+1.334770I$ $a=\ 0.029414-0.885302I$ $b=-0.835888+0.747852I$	$8.84768+2.86997I$	0
$u=-0.320285-1.334770I$ $a=\ 0.029414+0.885302I$ $b=-0.835888-0.747852I$	$8.84768-2.86997I$	0
$u=\ 0.552616+0.291298I$ $a=\ 0.094438-1.284130I$ $b=\ 0.612181+0.659409I$	$-0.795461-1.037330I$	$0.-3.25333I$
$u=\ 0.552616-0.291298I$ $a=\ 0.094438+1.284130I$ $b=\ 0.612181-0.659409I$	$-0.795461+1.037330I$	$0.+3.25333I$
$u=\ 0.117767+1.377250I$ $a=-0.72783+1.93923I$ $b=-0.33331-1.60456I$	$15.2902-8.1910I$	0
$u=\ 0.117767-1.377250I$ $a=-0.72783-1.93923I$ $b=-0.33331+1.60456I$	$15.2902+8.1910I$	0
$u=\ 1.273730+0.549174I$ $a=\ 0.360460-1.107360I$ $b=\ 0.18448+1.48729I$	$4.84750-6.17186I$	0
$u=\ 1.273730-0.549174I$ $a=\ 0.360460+1.107360I$ $b=\ 0.18448-1.48729I$	$4.84750+6.17186I$	0
$u=-0.314591+1.360310I$ $a=\ 1.46267+1.80322I$ $b=\ 0.19617-1.45335I$	$9.36252+8.61382I$	0
$u=-0.314591-1.360310I$ $a=\ 1.46267-1.80322I$ $b=\ 0.19617+1.45335I$	$9.36252-8.61382I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.482576+1.325850I$ $a=\ 0.704913+0.368288I$ $b=\ 0.137939-0.618210I$	$7.62703+6.61783I$	0
$u=-0.482576-1.325850I$ $a=\ 0.704913-0.368288I$ $b=\ 0.137939+0.618210I$	$7.62703-6.61783I$	0
$u=\ 0.413298+1.351610I$ $a=\ 0.028109-1.061750I$ $b=\ 0.808610+0.764979I$	$3.30599-8.13524I$	0
$u=\ 0.413298-1.351610I$ $a=\ 0.028109+1.061750I$ $b=\ 0.808610-0.764979I$	$3.30599+8.13524I$	0
$u=\ 0.35334+1.39667I$ $a=-1.38508+2.02053I$ $b=-0.12257-1.47686I$	$8.26376-5.37377I$	0
$u=\ 0.35334-1.39667I$ $a=-1.38508-2.02053I$ $b=-0.12257+1.47686I$	$8.26376+5.37377I$	0
$u=-0.42194+1.38736I$ $a=-0.124620-1.041740I$ $b=-0.808807+0.733071I$	$6.9802+14.1936I$	0
$u=-0.42194-1.38736I$ $a=-0.124620+1.041740I$ $b=-0.808807-0.733071I$	$6.9802-14.1936I$	0
$u=\ 0.34542+1.44012I$ $a=-0.462910+0.531650I$ $b=-0.131431-0.350696I$	$3.08482-3.10748I$	0
$u=\ 0.34542-1.44012I$ $a=-0.462910-0.531650I$ $b=-0.131431+0.350696I$	$3.08482+3.10748I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.489716+0.134471I$ $a=1.56784-0.40078I$ $b=0.477031-0.286217I$	$-0.81248+2.69033I$	$-6.83535-9.16327I$
$u=-0.489716-0.134471I$ $a=1.56784+0.40078I$ $b=0.477031+0.286217I$	$-0.81248-2.69033I$	$-6.83535+9.16327I$
$u=0.12429+1.49588I$ $a=0.37485-2.11828I$ $b=0.05369+1.61765I$	$14.2336-0.6393I$	0
$u=0.12429-1.49588I$ $a=0.37485+2.11828I$ $b=0.05369-1.61765I$	$14.2336+0.6393I$	0
$u=0.55591+1.41043I$ $a=0.42290-1.71044I$ $b=0.23987+1.48080I$	$6.12923-5.14327I$	0
$u=0.55591-1.41043I$ $a=0.42290+1.71044I$ $b=0.23987-1.48080I$	$6.12923+5.14327I$	0
$u=-1.51706+0.24160I$ $a=-0.056650-0.925086I$ $b=-0.09232+1.50618I$	$10.52150+0.34686I$	0
$u=-1.51706-0.24160I$ $a=-0.056650+0.925086I$ $b=-0.09232-1.50618I$	$10.52150-0.34686I$	0
$u=-0.47707+1.51399I$ $a=-0.93347-1.99516I$ $b=-0.26168+1.61637I$	$14.7347+18.2048I$	0
$u=-0.47707-1.51399I$ $a=-0.93347+1.99516I$ $b=-0.26168-1.61637I$	$14.7347-18.2048I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.46153 + 1.52428I$ $a = 0.82340 - 2.04149I$ $b = 0.25761 + 1.61783I$	$11.1482 - 12.1241I$	0
$u = 0.46153 - 1.52428I$ $a = 0.82340 + 2.04149I$ $b = 0.25761 - 1.61783I$	$11.1482 + 12.1241I$	0
$u = -0.45720 + 1.54021I$ $a = -0.70269 - 1.91832I$ $b = -0.24845 + 1.61688I$	$16.6794 + 6.8445I$	0
$u = -0.45720 - 1.54021I$ $a = -0.70269 + 1.91832I$ $b = -0.24845 - 1.61688I$	$16.6794 - 6.8445I$	0
$u = 0.205604 + 0.314492I$ $a = -2.61667 + 3.85274I$ $b = 0.020884 - 1.185480I$	$1.16598 - 1.27267I$	$-6.70454 + 6.29273I$
$u = 0.205604 - 0.314492I$ $a = -2.61667 - 3.85274I$ $b = 0.020884 + 1.185480I$	$1.16598 + 1.27267I$	$-6.70454 - 6.29273I$
$u = -0.65619 + 1.53333I$ $a = 0.84572 + 1.61780I$ $b = 0.04637 - 1.56493I$	$15.0563 + 7.3358I$	0
$u = -0.65619 - 1.53333I$ $a = 0.84572 - 1.61780I$ $b = 0.04637 + 1.56493I$	$15.0563 - 7.3358I$	0
$u = 0.225955 + 0.237697I$ $a = -2.23929 - 2.73201I$ $b = -0.16222 - 1.50083I$	$10.00910 - 6.76342I$	$3.12266 + 4.91996I$
$u = 0.225955 - 0.237697I$ $a = -2.23929 + 2.73201I$ $b = -0.16222 + 1.50083I$	$10.00910 + 6.76342I$	$3.12266 - 4.91996I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.306224+0.041456I$ $a=-1.01222+1.75359I$ $b=\ \ 0.13589+1.51349I$	$6.38638-2.96080I$	$1.30073+1.30840I$
$u=-0.306224-0.041456I$ $a=-1.01222-1.75359I$ $b=\ \ 0.13589-1.51349I$	$6.38638+2.96080I$	$1.30073-1.30840I$
$u=-0.257175+0.169112I$ $a=-2.08366+2.43609I$ $b=-0.510998-0.401943I$	$3.71198-4.32847I$	$-0.71338+6.59741I$
$u=-0.257175-0.169112I$ $a=-2.08366-2.43609I$ $b=-0.510998+0.401943I$	$3.71198+4.32847I$	$-0.71338-6.59741I$
$u=-0.74658+1.52458I$ $a=\ \ 0.316516+0.191252I$ $b=-0.163324-0.355552I$	$5.36520-2.83333I$	0
$u=-0.74658-1.52458I$ $a=\ \ 0.316516-0.191252I$ $b=-0.163324+0.355552I$	$5.36520+2.83333I$	0
$u=\ \ 0.027556+0.235996I$ $a=-1.50680+0.00350I$ $b=\ \ 0.366436+0.394744I$	$-0.124878-1.027850I$	$-2.27892+5.84901I$
$u=\ \ 0.027556-0.235996I$ $a=-1.50680-0.00350I$ $b=\ \ 0.366436-0.394744I$	$-0.124878+1.027850I$	$-2.27892-5.84901I$
$u=\ \ 0.44154+1.75592I$ $a=-0.57850+1.98858I$ $b=-0.02346-1.50470I$	$9.42382-3.56307I$	0
$u=\ \ 0.44154-1.75592I$ $a=-0.57850-1.98858I$ $b=-0.02346+1.50470I$	$9.42382+3.56307I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.0606693+0.1096410I$ $a=\ \ 1.58691-8.12288I$ $b=-0.18125+1.56162I$	$8.92135-1.61801I$	$2.23259+6.15492I$
$u=-0.0606693-0.1096410I$ $a=\ \ 1.58691+8.12288I$ $b=-0.18125-1.56162I$	$8.92135+1.61801I$	$2.23259-6.15492I$
$u=-1.12611+1.90516I$ $a=\ \ 0.34934+1.54429I$ $b=-0.04067-1.50516I$	$11.71800-3.51197I$	0
$u=-1.12611-1.90516I$ $a=\ \ 0.34934-1.54429I$ $b=-0.04067+1.50516I$	$11.71800+3.51197I$	0

II.

$\boldsymbol{I_2^u = \langle -3.18\times 10^8 u^{29} + 1.04\times 10^9 u^{28} + \cdots + 1.52\times 10^9 b + 8.76\times 10^9,\ 8.46\times 10^7 u^{29} + 2.83\times 10^8 u^{28} + \cdots + 3.04\times 10^9 a + 1.94\times 10^{10},\ u^{30} - u^{29} + \cdots - 32u + 4\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0278462u^{29} - 0.0930613u^{28} + \cdots + 25.2320u - 6.37565 \\ 0.209558u^{29} - 0.682563u^{28} + \cdots + 40.4542u - 5.76337 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.181712u^{29} - 0.775625u^{28} + \cdots + 65.6863u - 12.1390 \\ 0.209558u^{29} - 0.682563u^{28} + \cdots + 40.4542u - 5.76337 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.308716u^{29} + 0.767506u^{28} + \cdots + 56.1724u - 10.9562 \\ 0.333226u^{29} - 0.833849u^{28} + \cdots + 38.2257u - 5.00825 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.535378u^{29} + 0.164005u^{28} + \cdots + 6.69898u + 0.407007 \\ 0.716684u^{29} - 1.08284u^{28} + \cdots + 18.5078u - 2.24727 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.36647u^{29} + 0.450596u^{28} + \cdots + 43.6351u - 7.63423 \\ 1.59950u^{29} - 0.998706u^{28} + \cdots + 0.901998u - 0.00811567 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.81717u^{29} + 1.61692u^{28} + \cdots + 21.9363u - 6.54008 \\ 0.487495u^{29} - 0.638009u^{28} + \cdots + 6.67504u - 1.77420 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.181712u^{29} + 0.224375u^{28} + \cdots + 34.6863u - 8.13902 \\ 0.209558u^{29} - 0.682563u^{28} + \cdots + 41.4542u - 5.76337 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.384693u^{29} - 0.718549u^{28} + \cdots - 1.22425u - 1.97284 \\ -0.405132u^{29} + 0.559310u^{28} + \cdots + 10.4988u - 2.53933 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{1210104303}{759623609}u^{29} - \frac{6595597944}{759623609}u^{28} + \cdots + \frac{107628351518}{759623609}u - \frac{20286708558}{759623609}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} - 9u^{29} + \cdots - 5u + 11$
c_2	$u^{30} - u^{29} + \cdots + 18u^2 + 4$
c_3	$u^{30} - 5u^{29} + \cdots - u + 1$
c_4, c_5	$u^{30} - 3u^{29} + \cdots + 5u^2 + 1$
c_6	$u^{30} - u^{29} + \cdots - 10u^2 + 1$
c_7	$u^{30} + 3u^{28} + \cdots - 6u + 1$
c_8	$u^{30} + 3u^{29} + \cdots + 5u^2 + 1$
c_9	$u^{30} - u^{29} + \cdots - 32u + 4$
c_{10}	$u^{30} + 3u^{28} + \cdots + 37u + 13$
c_{11}	$u^{30} + u^{29} + \cdots - 10u^2 + 1$
c_{12}	$u^{30} + u^{29} + \cdots + 32u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 15y^{29} + \cdots - 861y + 121$
c_2	$y^{30} - 11y^{29} + \cdots + 144y + 16$
c_3	$y^{30} - 9y^{29} + \cdots + 11y + 1$
c_4, c_5, c_8	$y^{30} + 35y^{29} + \cdots + 10y + 1$
c_6, c_{11}	$y^{30} - 15y^{29} + \cdots - 20y + 1$
c_7	$y^{30} + 6y^{29} + \cdots - 4y + 1$
c_9, c_{12}	$y^{30} + 31y^{29} + \cdots + 144y + 16$
c_{10}	$y^{30} + 6y^{29} + \cdots + 763y + 169$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.610593+0.818016I$ $a=\ 0.238776+1.096530I$ $b=\ 0.20211-1.45411I$	$9.23177-0.56034I$	$5.69179+0.03153I$
$u=-0.610593-0.818016I$ $a=\ 0.238776-1.096530I$ $b=\ 0.20211+1.45411I$	$9.23177+0.56034I$	$5.69179-0.03153I$
$u=\ 0.207100+1.173590I$ $a=\ 0.510556-0.533319I$ $b=-1.042550+0.382146I$	$1.68828-1.43131I$	$-5.54373-4.14677I$
$u=\ 0.207100-1.173590I$ $a=\ 0.510556+0.533319I$ $b=-1.042550-0.382146I$	$1.68828+1.43131I$	$-5.54373+4.14677I$
$u=-0.244188+1.181420I$ $a=\ 0.530612-0.480291I$ $b=\ 0.523217-0.038747I$	$5.82519+6.12471I$	$-0.55665-6.14446I$
$u=-0.244188-1.181420I$ $a=\ 0.530612+0.480291I$ $b=\ 0.523217+0.038747I$	$5.82519-6.12471I$	$-0.55665+6.14446I$
$u=-0.373233+1.169970I$ $a=\ 1.59882+1.09259I$ $b=\ 0.15388-1.48689I$	$11.32070+8.43779I$	$6.48477-7.58377I$
$u=-0.373233-1.169970I$ $a=\ 1.59882-1.09259I$ $b=\ 0.15388+1.48689I$	$11.32070-8.43779I$	$6.48477+7.58377I$
$u=\ 0.061747+1.248840I$ $a=-0.339244-0.534677I$ $b=-0.203675+0.983144I$	$4.09874-1.39990I$	$-1.56240+4.65366I$
$u=\ 0.061747-1.248840I$ $a=-0.339244+0.534677I$ $b=-0.203675-0.983144I$	$4.09874+1.39990I$	$-1.56240-4.65366I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.071988+1.272520I$ $a=-0.00515-2.65375I$ $b=\ \ 0.15197+1.70641I$	$12.01350+2.72496I$	$3.17665-5.12783I$
$u=-0.071988-1.272520I$ $a=-0.00515+2.65375I$ $b=\ \ 0.15197-1.70641I$	$12.01350-2.72496I$	$3.17665+5.12783I$
$u=\ \ 0.231484+1.259270I$ $a=-0.703294+0.868166I$ $b=-0.478190-0.409139I$	$2.55951-4.05340I$	$0.40455+9.17331I$
$u=\ \ 0.231484-1.259270I$ $a=-0.703294-0.868166I$ $b=-0.478190+0.409139I$	$2.55951+4.05340I$	$0.40455-9.17331I$
$u=\ \ 0.627832+0.323304I$ $a=-0.000054+0.252893I$ $b=-0.07646+1.52558I$	$5.82678+2.62478I$	$-4.06670-5.38939I$
$u=\ \ 0.627832-0.323304I$ $a=-0.000054-0.252893I$ $b=-0.07646-1.52558I$	$5.82678-2.62478I$	$-4.06670+5.38939I$
$u=\ \ 0.320456+1.289670I$ $a=-1.65267+2.07754I$ $b=-0.14781-1.53326I$	$9.16188-6.31284I$	$5.08370+6.35544I$
$u=\ \ 0.320456-1.289670I$ $a=-1.65267-2.07754I$ $b=-0.14781+1.53326I$	$9.16188+6.31284I$	$5.08370-6.35544I$
$u=\ \ 0.058927+0.625283I$ $a=\ \ 0.34921+3.43728I$ $b=-0.051144-1.168570I$	$1.66182+0.94904I$	$6.01411+1.61609I$
$u=\ \ 0.058927-0.625283I$ $a=\ \ 0.34921-3.43728I$ $b=-0.051144+1.168570I$	$1.66182-0.94904I$	$6.01411-1.61609I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.52872+1.31266I$ $a=-0.389708-0.475511I$ $b=\ 0.246586+0.259014I$	$5.09873-2.69688I$	$-4.75500+0.I$
$u=-0.52872-1.31266I$ $a=-0.389708+0.475511I$ $b=\ 0.246586-0.259014I$	$5.09873+2.69688I$	$-4.75500+0.I$
$u=\ 0.528197+0.161608I$ $a=-0.929021+0.793418I$ $b=-0.433617-0.638695I$	$-1.24566-1.60816I$	$-7.91591+5.99283I$
$u=\ 0.528197-0.161608I$ $a=-0.929021-0.793418I$ $b=-0.433617+0.638695I$	$-1.24566+1.60816I$	$-7.91591-5.99283I$
$u=\ 0.69579+1.32881I$ $a=-0.48382+1.50506I$ $b=-0.23148-1.45322I$	$6.16390-5.67858I$	$3.45662+10.96003I$
$u=\ 0.69579-1.32881I$ $a=-0.48382-1.50506I$ $b=-0.23148+1.45322I$	$6.16390+5.67858I$	$3.45662-10.96003I$
$u=\ 0.283930+0.319290I$ $a=-0.75816+2.23407I$ $b=-0.154581+0.400222I$	$-0.83483+1.58177I$	$-9.48463-2.29600I$
$u=\ 0.283930-0.319290I$ $a=-0.75816-2.23407I$ $b=-0.154581-0.400222I$	$-0.83483-1.58177I$	$-9.48463+2.29600I$
$u=-0.68674+1.70913I$ $a=-0.46684-1.83307I$ $b=\ 0.04176+1.50578I$	$11.32130-3.52882I$	0
$u=-0.68674-1.70913I$ $a=-0.46684+1.83307I$ $b=\ 0.04176-1.50578I$	$11.32130+3.52882I$	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{30}-9u^{29}+\cdots-5u+11)$ $\cdot(u^{124}+30u^{122}+\cdots+85438383u+36885536)$
c_2	$(u^{30}-u^{29}+\cdots+18u^2+4)$ $\cdot(u^{124}-29u^{122}+\cdots-23801512u+5726284)$
c_3	$(u^{30}-5u^{29}+\cdots-u+1)(u^{124}+4u^{122}+\cdots-31546u+3791)$
c_4, c_5	$(u^{30}-3u^{29}+\cdots+5u^2+1)(u^{124}-4u^{123}+\cdots-975u+79)$
c_6	$(u^{30}-u^{29}+\cdots-10u^2+1)(u^{124}+2u^{123}+\cdots+597u+931)$
c_7	$(u^{30}+3u^{28}+\cdots-6u+1)(u^{124}+u^{123}+\cdots+73728u+8192)$
c_8	$(u^{30}+3u^{29}+\cdots+5u^2+1)(u^{124}-4u^{123}+\cdots-975u+79)$
c_9	$(u^{30}-u^{29}+\cdots-32u+4)(u^{124}-8u^{123}+\cdots-560u+32)$
c_{10}	$(u^{30}+3u^{28}+\cdots+37u+13)(u^{124}-u^{123}+\cdots-2248365u+240002)$
c_{11}	$(u^{30}+u^{29}+\cdots-10u^2+1)(u^{124}+2u^{123}+\cdots+597u+931)$
c_{12}	$(u^{30}+u^{29}+\cdots+32u+4)(u^{124}-8u^{123}+\cdots-560u+32)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{30}+15y^{29}+\cdots-861y+121)$ $\cdot(y^{124}+60y^{123}+\cdots+72974396355643039y+1360542766007296)$
c_2	$(y^{30}-11y^{29}+\cdots+144y+16)$ $\cdot(y^{124}-58y^{123}+\cdots-1243275573737328y+32790328448656)$
c_3	$(y^{30}-9y^{29}+\cdots+11y+1)$ $\cdot(y^{124}+8y^{123}+\cdots+534025554y+14371681)$
c_4, c_5, c_8	$(y^{30}+35y^{29}+\cdots+10y+1)(y^{124}+136y^{123}+\cdots+320169y+6241)$
c_6, c_{11}	$(y^{30}-15y^{29}+\cdots-20y+1)$ $\cdot(y^{124}-74y^{123}+\cdots-23962845y+866761)$
c_7	$(y^{30}+6y^{29}+\cdots-4y+1)$ $\cdot(y^{124}-21y^{123}+\cdots-5939134464y+67108864)$
c_9, c_{12}	$(y^{30}+31y^{29}+\cdots+144y+16)$ $\cdot(y^{124}+108y^{123}+\cdots+87808y+1024)$
c_{10}	$(y^{30}+6y^{29}+\cdots+763y+169)$ $\cdot(y^{124}+51y^{123}+\cdots+13203890664139y+57600960004)$