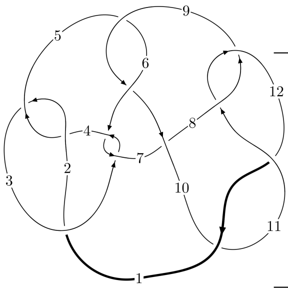
$12a_{0043}$ ($K12a_{0043}$)



A knot diagram[1]

Linearized knot diagam

$\rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow \downarrow \rightarrow$

3 5 7 2 9 4 10 12 6 1 8 11

Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 1.12989 \times 10^{299} u^{117} - 1.16841 \times 10^{300} u^{116} + \cdots + 4.70875 \times 10^{301} b + 1.53055 \times 10^{303}, \\ & 3.83387 \times 10^{299} u^{117} + 8.89420 \times 10^{298} u^{116} + \cdots + 2.35437 \times 10^{301} a - 5.12301 \times 10^{302}, \\ & u^{118} - 2u^{117} + \cdots + 2560u - 512 \rangle \\ I_2^u = \langle & b+1,\ 2u^7 + 3u^6 - 5u^5 - 7u^4 + 4u^3 + 3u^2 + a + 4,\ u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1 \rangle \end{aligned}$$

$$\begin{aligned} I_1^v &= \langle a,\ b - v - 1,\ v^3 + 2v^2 + v + 1 \rangle \\ I_2^v &= \langle a,\ -89v^5 - 27v^4 - 1425v^3 + 1434v^2 + 80b - 1060v + 163,\ v^6 + 16v^4 - 21v^3 + 18v^2 - 7v + 1 \rangle \end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 135 representations.

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

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

I. $I^u_1 = \langle 1.13 \times 10^{299}u^{117} - 1.17 \times 10^{300}u^{116} + \cdots + 4.71 \times 10^{301}b + 1.53 \times 10^{303},\ 3.83 \times 10^{299}u^{117} + 8.89 \times 10^{298}u^{116} + \cdots + 2.35 \times 10^{301}a - 5.12 \times 10^{302},\ u^{118} - 2u^{117} + \cdots + 2560u - 512\rangle$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix}-0.0162840u^{117} - 0.00377773u^{116} + \cdots + 7.00670u + 21.7596\\-0.00239956u^{117} + 0.0248136u^{116} + \cdots + 64.2202u - 32.5045\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}-0.0186836u^{117} + 0.0210359u^{116} + \cdots + 71.2269u - 10.7449\\-0.00239956u^{117} + 0.0248136u^{116} + \cdots + 64.2202u - 32.5045\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.239969u^{117} - 0.352060u^{116} + \cdots - 716.486u + 221.132\\-0.292188u^{117} + 0.424993u^{116} + \cdots + 866.378u - 258.873\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.131955u^{117} + 0.204289u^{116} + \cdots + 413.640u - 128.922\\0.221589u^{117} - 0.335927u^{116} + \cdots - 682.434u + 206.678\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.0733908u^{117} - 0.115200u^{116} + \cdots - 209.169u + 71.7653\\-0.172469u^{117} + 0.223238u^{116} + \cdots + 440.130u - 109.957\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.0522189u^{117} + 0.0729326u^{116} + \cdots + 149.893u - 37.7416\\0.277615u^{117} - 0.398424u^{116} + \cdots - 812.461u + 242.743\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0.265862u^{117} - 0.404606u^{116} + \cdots - 827.746u + 260.201\\-0.364450u^{117} + 0.560905u^{116} + \cdots + 1155.73u - 356.859\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.116915u^{117} + 0.172605u^{116} + \cdots + 354.396u - 103.215\\0.331573u^{117} - 0.477354u^{116} + \cdots - 974.009u + 293.000\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1.80808u^{117} - 2.59255u^{116} + \cdots - 5062.88u + 1486.83$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{118} + 56u^{117} + \cdots + 165u + 1$
c_2, c_4	$u^{118} - 12u^{117} + \cdots + 13u + 1$
c_3, c_6	$u^{118} - 4u^{117} + \cdots + 1664u - 256$
c_5, c_9	$u^{118} + 2u^{117} + \cdots - 2560u - 512$
c_7	$u^{118} - 5u^{117} + \cdots - 42339u + 2017$
c_8, c_{11}	$u^{118} + 5u^{117} + \cdots + 11u + 1$
c_{10}, c_{12}	$u^{118} + 39u^{117} + \cdots - 19u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{118} + 24y^{117} + \cdots - 12937y + 1$
c_2, c_4	$y^{118} - 56y^{117} + \cdots - 165y + 1$
c_3, c_6	$y^{118} + 60y^{117} + \cdots - 1228800y + 65536$
c_5, c_9	$y^{118} - 56y^{117} + \cdots - 9306112y + 262144$
c_7	$y^{118} - 11y^{117} + \cdots + 141591059y + 4068289$
c_8, c_{11}	$y^{118} - 39y^{117} + \cdots + 19y + 1$
c_{10}, c_{12}	$y^{118} + 85y^{117} + \cdots - 157y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.968041 + 0.257958I$ $a = -1.095610 + 0.036404I$ $b = -1.208900 - 0.211455I$	$-3.20568 + 0.98478I$	0
$u = -0.968041 - 0.257958I$ $a = -1.095610 - 0.036404I$ $b = -1.208900 + 0.211455I$	$-3.20568 - 0.98478I$	0
$u = 0.829247 + 0.549290I$ $a = -0.865086 - 0.372811I$ $b = 0.553838 - 0.724684I$	$6.32463 + 3.26581I$	0
$u = 0.829247 - 0.549290I$ $a = -0.865086 + 0.372811I$ $b = 0.553838 + 0.724684I$	$6.32463 - 3.26581I$	0
$u = -0.415238 + 0.916584I$ $a = 1.23962 + 1.28903I$ $b = -0.981130 - 0.446334I$	$0.99666 - 5.77439I$	0
$u = -0.415238 - 0.916584I$ $a = 1.23962 - 1.28903I$ $b = -0.981130 + 0.446334I$	$0.99666 + 5.77439I$	0
$u = 0.482135 + 0.901109I$ $a = 0.214333 - 1.168030I$ $b = 0.447969 + 0.621910I$	$0.099568 + 0.954515I$	0
$u = 0.482135 - 0.901109I$ $a = 0.214333 + 1.168030I$ $b = 0.447969 - 0.621910I$	$0.099568 - 0.954515I$	0
$u = 0.249986 + 0.944644I$ $a = -0.120617 - 0.867968I$ $b = 0.793060 + 0.496364I$	$1.78559 - 4.11675I$	0
$u = 0.249986 - 0.944644I$ $a = -0.120617 + 0.867968I$ $b = 0.793060 - 0.496364I$	$1.78559 + 4.11675I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.799310 + 0.561370I$ $a = -0.196431 + 1.338860I$ $b = 0.715155 - 0.892572I$	$6.93896 + 1.81575I$	0
$u = -0.799310 - 0.561370I$ $a = -0.196431 - 1.338860I$ $b = 0.715155 + 0.892572I$	$6.93896 - 1.81575I$	0
$u = 0.843723 + 0.487342I$ $a = -0.237848 - 1.342180I$ $b = 0.748925 + 0.908083I$	$6.30583 - 7.44643I$	0
$u = 0.843723 - 0.487342I$ $a = -0.237848 + 1.342180I$ $b = 0.748925 - 0.908083I$	$6.30583 + 7.44643I$	0
$u = 0.478089 + 0.846590I$ $a = 1.25380 - 1.23453I$ $b = -0.930674 + 0.453400I$	$1.68529 + 0.26296I$	0
$u = 0.478089 - 0.846590I$ $a = 1.25380 + 1.23453I$ $b = -0.930674 - 0.453400I$	$1.68529 - 0.26296I$	0
$u = -0.853323 + 0.583684I$ $a = -0.906160 + 0.157216I$ $b = 0.528021 + 0.758724I$	$6.75979 + 2.72376I$	0
$u = -0.853323 - 0.583684I$ $a = -0.906160 - 0.157216I$ $b = 0.528021 - 0.758724I$	$6.75979 - 2.72376I$	0
$u = 0.972715 + 0.354059I$ $a = 1.75870 - 1.27137I$ $b = 1.028880 + 0.606831I$	$4.90526 - 1.82621I$	0
$u = 0.972715 - 0.354059I$ $a = 1.75870 + 1.27137I$ $b = 1.028880 - 0.606831I$	$4.90526 + 1.82621I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.985328 + 0.420063I$ $a = 1.57530 + 1.48448I$ $b = 1.049240 - 0.617926I$	$5.20076 + 7.94162I$	0
$u = -0.985328 - 0.420063I$ $a = 1.57530 - 1.48448I$ $b = 1.049240 + 0.617926I$	$5.20076 - 7.94162I$	0
$u = -0.520970 + 0.762195I$ $a = -0.023391 + 1.189300I$ $b = 0.622197 - 0.716300I$	$3.44231 + 1.13448I$	0
$u = -0.520970 - 0.762195I$ $a = -0.023391 - 1.189300I$ $b = 0.622197 + 0.716300I$	$3.44231 - 1.13448I$	0
$u = 1.016500 + 0.411656I$ $a = -0.57750 + 1.92773I$ $b = -1.025370 - 0.473801I$	$-2.56259 - 3.40175I$	0
$u = 1.016500 - 0.411656I$ $a = -0.57750 - 1.92773I$ $b = -1.025370 + 0.473801I$	$-2.56259 + 3.40175I$	0
$u = -1.068630 + 0.250244I$ $a = 0.732536 + 0.841832I$ $b = -0.410454 - 0.655638I$	$-4.72278 + 0.90000I$	0
$u = -1.068630 - 0.250244I$ $a = 0.732536 - 0.841832I$ $b = -0.410454 + 0.655638I$	$-4.72278 - 0.90000I$	0
$u = 0.990053 + 0.499135I$ $a = 0.921702 - 0.978841I$ $b = -0.598504 + 0.641847I$	$0.972070 - 0.862575I$	0
$u = 0.990053 - 0.499135I$ $a = 0.921702 + 0.978841I$ $b = -0.598504 - 0.641847I$	$0.972070 + 0.862575I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.243622+0.854934I$ $a=-0.381125-0.936603I$ $b=\ \ 0.975067+0.617838I$	$2.38535-3.97142I$	0
$u=-0.243622-0.854934I$ $a=-0.381125+0.936603I$ $b=\ \ 0.975067-0.617838I$	$2.38535+3.97142I$	0
$u=-1.114060+0.037982I$ $a=\ \ 0.446073-0.685881I$ $b=-0.171434+0.680603I$	$-1.57653+4.72128I$	0
$u=-1.114060-0.037982I$ $a=\ \ 0.446073+0.685881I$ $b=-0.171434-0.680603I$	$-1.57653-4.72128I$	0
$u=\ \ 1.027390+0.442691I$ $a=-0.166893+0.306639I$ $b=\ \ 0.252493-0.709156I$	$-0.506538-0.358617I$	0
$u=\ \ 1.027390-0.442691I$ $a=-0.166893-0.306639I$ $b=\ \ 0.252493+0.709156I$	$-0.506538+0.358617I$	0
$u=\ \ 0.861028+0.151410I$ $a=\ \ 0.522984+0.294298I$ $b=-0.049918-0.430497I$	$-0.628133-0.111774I$	0
$u=\ \ 0.861028-0.151410I$ $a=\ \ 0.522984-0.294298I$ $b=-0.049918+0.430497I$	$-0.628133+0.111774I$	0
$u=-0.614884+0.943203I$ $a=\ \ 0.117724+1.369210I$ $b=\ \ 0.448785-0.808428I$	$6.24801-0.38665I$	0
$u=-0.614884-0.943203I$ $a=\ \ 0.117724-1.369210I$ $b=\ \ 0.448785+0.808428I$	$6.24801+0.38665I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.031010 + 1.128990I$ $a = -0.316506 + 0.783217I$ $b = 0.963150 - 0.484891I$	$1.155310 - 0.197698I$	0
$u = 0.031010 - 1.128990I$ $a = -0.316506 - 0.783217I$ $b = 0.963150 + 0.484891I$	$1.155310 + 0.197698I$	0
$u = 0.268922 + 0.827360I$ $a = 0.72388 + 1.84885I$ $b = -1.168050 - 0.164940I$	$0.29288 + 3.57986I$	0
$u = 0.268922 - 0.827360I$ $a = 0.72388 - 1.84885I$ $b = -1.168050 + 0.164940I$	$0.29288 - 3.57986I$	0
$u = 0.590336 + 0.982576I$ $a = 0.167145 - 1.387410I$ $b = 0.403326 + 0.803323I$	$5.42643 + 6.09310I$	0
$u = 0.590336 - 0.982576I$ $a = 0.167145 + 1.387410I$ $b = 0.403326 - 0.803323I$	$5.42643 - 6.09310I$	0
$u = 0.777956 + 0.330194I$ $a = -0.458677 + 1.167580I$ $b = 0.981131 - 0.822526I$	$5.61296 - 1.12841I$	0
$u = 0.777956 - 0.330194I$ $a = -0.458677 - 1.167580I$ $b = 0.981131 + 0.822526I$	$5.61296 + 1.12841I$	0
$u = -0.718794 + 0.438941I$ $a = -0.466394 - 1.130240I$ $b = 0.996581 + 0.793604I$	$6.09920 - 4.36602I$	0
$u = -0.718794 - 0.438941I$ $a = -0.466394 + 1.130240I$ $b = 0.996581 - 0.793604I$	$6.09920 + 4.36602I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.139670 + 0.233858I$ $a = -0.64291 - 1.42563I$ $b = -1.125200 + 0.435963I$	$-4.44670 - 0.52239I$	0
$u = -1.139670 - 0.233858I$ $a = -0.64291 + 1.42563I$ $b = -1.125200 - 0.435963I$	$-4.44670 + 0.52239I$	0
$u = 1.165730 + 0.117225I$ $a = -0.711644 - 0.603236I$ $b = -1.233320 + 0.315637I$	$-4.75315 + 3.18722I$	0
$u = 1.165730 - 0.117225I$ $a = -0.711644 + 0.603236I$ $b = -1.233320 - 0.315637I$	$-4.75315 - 3.18722I$	0
$u = -0.377624 + 0.735819I$ $a = 0.37330 - 1.98922I$ $b = -1.174320 + 0.104126I$	$0.77652 + 1.81636I$	$-12.00000 + 0.I$
$u = -0.377624 - 0.735819I$ $a = 0.37330 + 1.98922I$ $b = -1.174320 - 0.104126I$	$0.77652 - 1.81636I$	$-12.00000 + 0.I$
$u = -1.072760 + 0.484709I$ $a = 0.860812 + 1.003010I$ $b = -0.574193 - 0.692752I$	$0.05864 + 6.41739I$	0
$u = -1.072760 - 0.484709I$ $a = 0.860812 - 1.003010I$ $b = -0.574193 + 0.692752I$	$0.05864 - 6.41739I$	0
$u = 0.336930 + 1.138880I$ $a = -0.462918 + 0.832786I$ $b = 1.062340 - 0.556419I$	$-1.69323 + 5.63066I$	0
$u = 0.336930 - 1.138880I$ $a = -0.462918 - 0.832786I$ $b = 1.062340 + 0.556419I$	$-1.69323 - 5.63066I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.537139+1.064810I$ $a=-0.528088-0.903093I$ $b=\ 1.097750+0.625048I$	$4.31525-5.75325I$	0
$u=-0.537139-1.064810I$ $a=-0.528088+0.903093I$ $b=\ 1.097750-0.625048I$	$4.31525+5.75325I$	0
$u=-1.037560+0.589522I$ $a=-0.548931-0.411253I$ $b=\ 0.357729+0.832116I$	$1.88903+3.97132I$	0
$u=-1.037560-0.589522I$ $a=-0.548931+0.411253I$ $b=\ 0.357729-0.832116I$	$1.88903-3.97132I$	0
$u=-0.132287+0.795513I$ $a=\ 1.35850+1.53988I$ $b=-1.023230-0.290062I$	$-3.52217-0.96416I$	$-19.6651+0.I$
$u=-0.132287-0.795513I$ $a=\ 1.35850-1.53988I$ $b=-1.023230+0.290062I$	$-3.52217+0.96416I$	$-19.6651+0.I$
$u=-1.085610+0.543986I$ $a=-0.356479-0.308822I$ $b=-1.327980-0.156554I$	$-1.30186+2.99365I$	0
$u=-1.085610-0.543986I$ $a=-0.356479+0.308822I$ $b=-1.327980+0.156554I$	$-1.30186-2.99365I$	0
$u=\ 1.167610+0.373716I$ $a=-0.483262-0.069876I$ $b=-1.305780+0.232105I$	$-7.40438-2.81707I$	0
$u=\ 1.167610-0.373716I$ $a=-0.483262+0.069876I$ $b=-1.305780-0.232105I$	$-7.40438+2.81707I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.540828 + 1.135790I$ $a = -0.544870 + 0.876987I$ $b = 1.116380 - 0.608106I$	$3.30849 + 11.38200I$	0
$u = 0.540828 - 1.135790I$ $a = -0.544870 - 0.876987I$ $b = 1.116380 + 0.608106I$	$3.30849 - 11.38200I$	0
$u = -1.174780 + 0.476913I$ $a = -0.28290 - 1.74882I$ $b = -1.074940 + 0.543544I$	$-6.67400 + 5.57881I$	0
$u = -1.174780 - 0.476913I$ $a = -0.28290 + 1.74882I$ $b = -1.074940 - 0.543544I$	$-6.67400 - 5.57881I$	0
$u = 1.110890 + 0.615385I$ $a = -0.14456 + 1.95078I$ $b = -1.013080 - 0.587449I$	$-0.28581 - 5.70221I$	0
$u = 1.110890 - 0.615385I$ $a = -0.14456 - 1.95078I$ $b = -1.013080 + 0.587449I$	$-0.28581 + 5.70221I$	0
$u = 1.150860 + 0.554359I$ $a = -0.260357 + 0.219493I$ $b = -1.350640 + 0.171559I$	$-2.33167 - 8.63976I$	0
$u = 1.150860 - 0.554359I$ $a = -0.260357 - 0.219493I$ $b = -1.350640 - 0.171559I$	$-2.33167 + 8.63976I$	0
$u = 0.557305 + 0.449357I$ $a = -0.51930 + 3.80205I$ $b = -0.801649 - 0.340065I$	$2.29990 - 3.21991I$	$-11.6454 + 9.3303I$
$u = 0.557305 - 0.449357I$ $a = -0.51930 - 3.80205I$ $b = -0.801649 + 0.340065I$	$2.29990 + 3.21991I$	$-11.6454 - 9.3303I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.141930 + 0.609772I$ $a = -0.486454 + 0.645626I$ $b = 0.299791 - 0.906005I$	$-2.05151 - 6.52131I$	0
$u = 1.141930 - 0.609772I$ $a = -0.486454 - 0.645626I$ $b = 0.299791 + 0.906005I$	$-2.05151 + 6.52131I$	0
$u = -1.106120 + 0.710751I$ $a = -0.695103 - 0.696708I$ $b = 0.373079 + 0.947396I$	$4.66095 + 6.47958I$	0
$u = -1.106120 - 0.710751I$ $a = -0.695103 + 0.696708I$ $b = 0.373079 - 0.947396I$	$4.66095 - 6.47958I$	0
$u = -1.160330 + 0.627826I$ $a = -0.09864 - 1.89218I$ $b = -1.031920 + 0.604757I$	$-1.32480 + 11.44640I$	0
$u = -1.160330 - 0.627826I$ $a = -0.09864 + 1.89218I$ $b = -1.031920 - 0.604757I$	$-1.32480 - 11.44640I$	0
$u = -1.197040 + 0.583092I$ $a = 0.75573 + 1.45880I$ $b = 1.142950 - 0.603629I$	$-0.44954 + 9.31105I$	0
$u = -1.197040 - 0.583092I$ $a = 0.75573 - 1.45880I$ $b = 1.142950 + 0.603629I$	$-0.44954 - 9.31105I$	0
$u = 1.334630 + 0.023307I$ $a = 0.778731 + 0.175399I$ $b = 1.001030 - 0.399951I$	$-3.08028 + 2.84861I$	0
$u = 1.334630 - 0.023307I$ $a = 0.778731 - 0.175399I$ $b = 1.001030 + 0.399951I$	$-3.08028 - 2.84861I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.138450 + 0.719642I$ $a = -0.667790 + 0.755929I$ $b = 0.358664 - 0.967401I$	$3.65490 - 12.33480I$	0
$u = 1.138450 - 0.719642I$ $a = -0.667790 - 0.755929I$ $b = 0.358664 + 0.967401I$	$3.65490 + 12.33480I$	0
$u = 1.276910 + 0.487951I$ $a = 0.749851 - 1.177460I$ $b = 1.139720 + 0.557439I$	$-3.01548 - 5.22865I$	0
$u = 1.276910 - 0.487951I$ $a = 0.749851 + 1.177460I$ $b = 1.139720 - 0.557439I$	$-3.01548 + 5.22865I$	0
$u = 1.333150 + 0.335645I$ $a = 0.532133 - 0.147238I$ $b = 0.902286 - 0.299866I$	$-2.37987 - 0.21837I$	0
$u = 1.333150 - 0.335645I$ $a = 0.532133 + 0.147238I$ $b = 0.902286 + 0.299866I$	$-2.37987 + 0.21837I$	0
$u = 0.606553 + 0.136516I$ $a = -0.323621 - 1.210050I$ $b = 0.858468 + 0.822607I$	$1.55699 - 3.04585I$	$-22.2897 + 7.2245I$
$u = 0.606553 - 0.136516I$ $a = -0.323621 + 1.210050I$ $b = 0.858468 - 0.822607I$	$1.55699 + 3.04585I$	$-22.2897 - 7.2245I$
$u = -1.194310 + 0.735932I$ $a = 0.49361 + 1.67781I$ $b = 1.179130 - 0.645250I$	$2.20206 + 12.28150I$	0
$u = -1.194310 - 0.735932I$ $a = 0.49361 - 1.67781I$ $b = 1.179130 + 0.645250I$	$2.20206 - 12.28150I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.032258 + 0.593857I$ $a = 1.85959 - 0.38959I$ $b = -0.164637 + 0.077592I$	$2.37401 - 2.69643I$	$-3.59687 + 2.70387I$
$u = 0.032258 - 0.593857I$ $a = 1.85959 + 0.38959I$ $b = -0.164637 - 0.077592I$	$2.37401 + 2.69643I$	$-3.59687 - 2.70387I$
$u = -0.453797 + 0.354290I$ $a = -0.97607 - 5.19517I$ $b = -0.790637 + 0.250799I$	$2.05724 - 2.52902I$	$-14.1044 - 7.2590I$
$u = -0.453797 - 0.354290I$ $a = -0.97607 + 5.19517I$ $b = -0.790637 - 0.250799I$	$2.05724 + 2.52902I$	$-14.1044 + 7.2590I$
$u = 1.27377 + 0.66046I$ $a = 0.51916 - 1.45394I$ $b = 1.182920 + 0.605604I$	$-4.71019 - 12.03970I$	0
$u = 1.27377 - 0.66046I$ $a = 0.51916 + 1.45394I$ $b = 1.182920 - 0.605604I$	$-4.71019 + 12.03970I$	0
$u = 1.22016 + 0.76098I$ $a = 0.42193 - 1.65996I$ $b = 1.192000 + 0.646097I$	$1.1052 - 18.1923I$	0
$u = 1.22016 - 0.76098I$ $a = 0.42193 + 1.65996I$ $b = 1.192000 - 0.646097I$	$1.1052 + 18.1923I$	0
$u = -1.44666 + 0.06158I$ $a = 0.640057 + 0.341446I$ $b = 1.060440 - 0.388230I$	$-4.87122 + 7.86476I$	0
$u = -1.44666 - 0.06158I$ $a = 0.640057 - 0.341446I$ $b = 1.060440 + 0.388230I$	$-4.87122 - 7.86476I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.524803$ $a = 0.867240$ $b = -0.0932121$	-0.780063	-12.4920
$u = -1.42325 + 0.40242I$ $a = 0.440992 + 0.117684I$ $b = 0.917187 + 0.253600I$	$-3.84346 + 5.72004I$	0
$u = -1.42325 - 0.40242I$ $a = 0.440992 - 0.117684I$ $b = 0.917187 - 0.253600I$	$-3.84346 - 5.72004I$	0
$u = -1.47689 + 0.17377I$ $a = 0.528339 - 0.069385I$ $b = 0.995495 + 0.310761I$	$-8.36236 - 1.00432I$	0
$u = -1.47689 - 0.17377I$ $a = 0.528339 + 0.069385I$ $b = 0.995495 - 0.310761I$	$-8.36236 + 1.00432I$	0
$u = 0.408179 + 0.268119I$ $a = 1.59911 - 0.55685I$ $b = -0.676846 + 0.186588I$	$-0.945116 + 0.083072I$	$-9.62237 + 0.87598I$
$u = 0.408179 - 0.268119I$ $a = 1.59911 + 0.55685I$ $b = -0.676846 - 0.186588I$	$-0.945116 - 0.083072I$	$-9.62237 - 0.87598I$
$u = -0.319264$ $a = -11.9462$ $b = -0.971561$	-2.59067	-102.670

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle b+1,\ 2u^7+3u^6-5u^5-7u^4+4u^3+3u^2+a+4,\ u^8+u^7-3u^6-2u^5+3u^4+2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^7 + 8u^6 - 18u^5 - 12u^4 + 7u^3 - 3u^2 + 12u - 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_6	y^8
c_5, c_7, c_9	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_8, c_{11}	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
c_{10}, c_{12}	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = -0.615431 + 0.295452I$ $b = -1.00000$	$-2.68559 - 1.13123I$	$-13.78185 + 1.82144I$
$u = 1.180120 - 0.268597I$ $a = -0.615431 - 0.295452I$ $b = -1.00000$	$-2.68559 + 1.13123I$	$-13.78185 - 1.82144I$
$u = 0.108090 + 0.747508I$ $a = 1.68119 + 0.49658I$ $b = -1.00000$	$0.51448 - 2.57849I$	$-9.42408 + 5.06085I$
$u = 0.108090 - 0.747508I$ $a = 1.68119 - 0.49658I$ $b = -1.00000$	$0.51448 + 2.57849I$	$-9.42408 - 5.06085I$
$u = -1.37100$ $a = -0.532015$ $b = -1.00000$	-8.14766	-18.0480
$u = -1.334530 + 0.318930I$ $a = -0.473764 - 0.240160I$ $b = -1.00000$	$-4.02461 + 6.44354I$	$-15.1664 - 7.9255I$
$u = -1.334530 - 0.318930I$ $a = -0.473764 + 0.240160I$ $b = -1.00000$	$-4.02461 - 6.44354I$	$-15.1664 + 7.9255I$
$u = 0.463640$ $a = -4.65198$ $b = -1.00000$	-2.48997	1.79260

III. $I_1^v = \langle a,\ b - v - 1,\ v^3 + 2v^2 + v + 1 \rangle$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ v + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} v + 1 \\ v + 1 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} v^2 + 3v \\ v^2 + 3v + 2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -v^2 - 2v \\ -v^2 - 2v - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -v - 1 \\ v^2 + v - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -2 \\ v^2 + 2v \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -v - 2 \\ v^2 + v - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2v^2 + 9v - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.122561 + 0.744862I$ $a = 0$ $b = 0.877439 + 0.744862I$	$6.04826 - 5.65624I$	$-9.18265 + 6.33859I$
$v = -0.122561 - 0.744862I$ $a = 0$ $b = 0.877439 - 0.744862I$	$6.04826 + 5.65624I$	$-9.18265 - 6.33859I$
$v = -1.75488$ $a = 0$ $b = -0.754878$	-2.22691	-16.6350

IV.

$\boldsymbol{I_2^v = \langle a,\ -89v^5 - 27v^4 + \cdots + 80b + 163,\ v^6 + 16v^4 - 21v^3 + 18v^2 - 7v + 1\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ 1.11250v^5 + 0.337500v^4 + \cdots + 13.2500v - 2.03750 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.11250v^5 + 0.337500v^4 + \cdots + 13.2500v - 2.03750 \\ 1.11250v^5 + 0.337500v^4 + \cdots + 13.2500v - 2.03750 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.11250v^5 + 0.337500v^4 + \cdots + 13.2500v - 2.03750 \\ -0.837500v^5 - 0.262500v^4 + \cdots - 10v + 3.86250 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{27}{80}v^5 + \frac{1}{80}v^4 + \cdots + \frac{31}{4}v - \frac{89}{80} \\ -0.862500v^5 - 0.0875000v^4 + \cdots - 9.75000v + 2.78750 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.95000v^5 - 0.600000v^4 + \cdots - 23.2500v + 5.90000 \\ -1.95000v^5 - 0.600000v^4 + \cdots - 23.2500v + 4.90000 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.11250v^5 - 0.337500v^4 + \cdots - 13.2500v + 2.03750 \\ 0.837500v^5 + 0.262500v^4 + \cdots + 10v - 3.86250 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1.05000v^5 + 0.650000v^4 + \cdots + 12.5000v - 1.85000 \\ -1.02500v^5 + 0.175000v^4 + \cdots - 17.7500v + 5.92500 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.15000v^5 - 0.200000v^4 + \cdots - 14.2500v + 2.30000 \\ 0.837500v^5 + 0.262500v^4 + \cdots + 10v - 3.86250 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{13}{4}v^5 - \frac{3}{4}v^4 - \frac{209}{4}v^3 + \frac{115}{2}v^2 - 47v + \frac{19}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.354760 + 0.666322I$ $a = 0$ $b = 0.877439 - 0.744862I$	6.04826	$-8.27833 - 0.98317I$
$v = 0.354760 - 0.666322I$ $a = 0$ $b = 0.877439 + 0.744862I$	6.04826	$-8.27833 + 0.98317I$
$v = 0.307599 + 0.104043I$ $a = 0$ $b = 0.877439 + 0.744862I$	$1.91067 - 2.82812I$	$-5.88933 - 2.71361I$
$v = 0.307599 - 0.104043I$ $a = 0$ $b = 0.877439 - 0.744862I$	$1.91067 + 2.82812I$	$-5.88933 + 2.71361I$
$v = -0.66236 + 4.02547I$ $a = 0$ $b = -0.754878$	$1.91067 + 2.82812I$	$-29.3323 - 8.2928I$
$v = -0.66236 - 4.02547I$ $a = 0$ $b = -0.754878$	$1.91067 - 2.82812I$	$-29.3323 + 8.2928I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^3-u^2+2u-1)^3(u^{118}+56u^{117}+\cdots+165u+1)$
c_2	$((u-1)^8)(u^3+u^2-1)^3(u^{118}-12u^{117}+\cdots+13u+1)$
c_3	$u^8(u^3-u^2+2u-1)^3(u^{118}-4u^{117}+\cdots+1664u-256)$
c_4	$((u+1)^8)(u^3-u^2+1)^3(u^{118}-12u^{117}+\cdots+13u+1)$
c_5	$u^9(u^8+u^7+\cdots+2u-1)(u^{118}+2u^{117}+\cdots-2560u-512)$
c_6	$u^8(u^3+u^2+2u+1)^3(u^{118}-4u^{117}+\cdots+1664u-256)$
c_7	$(u^3-u^2+2u-1)^3(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{118}-5u^{117}+\cdots-42339u+2017)$
c_8	$(u^3+u^2-1)^3(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{118}+5u^{117}+\cdots+11u+1)$
c_9	$u^9(u^8-u^7+\cdots-2u-1)(u^{118}+2u^{117}+\cdots-2560u-512)$
c_{10}	$(u^3-u^2+2u-1)^3$ $\cdot(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{118}+39u^{117}+\cdots-19u+1)$
c_{11}	$(u^3-u^2+1)^3(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)$ $\cdot(u^{118}+5u^{117}+\cdots+11u+1)$
c_{12}	$(u^3+u^2+2u+1)^3$ $\cdot(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{118}+39u^{117}+\cdots-19u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^3+3y^2+2y-1)^3(y^{118}+24y^{117}+\cdots-12937y+1)$
c_2, c_4	$((y-1)^8)(y^3-y^2+2y-1)^3(y^{118}-56y^{117}+\cdots-165y+1)$
c_3, c_6	$y^8(y^3+3y^2+2y-1)^3(y^{118}+60y^{117}+\cdots-1228800y+65536)$
c_5, c_9	$y^9(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot\,(y^{118}-56y^{117}+\cdots-9306112y+262144)$
c_7	$(y^3+3y^2+2y-1)^3$ $\cdot\,(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot\,(y^{118}-11y^{117}+\cdots+141591059y+4068289)$
c_8, c_{11}	$(y^3-y^2+2y-1)^3$ $\cdot\,(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot\,(y^{118}-39y^{117}+\cdots+19y+1)$
c_{10}, c_{12}	$(y^3+3y^2+2y-1)^3$ $\cdot\,(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot\,(y^{118}+85y^{117}+\cdots-157y+1)$