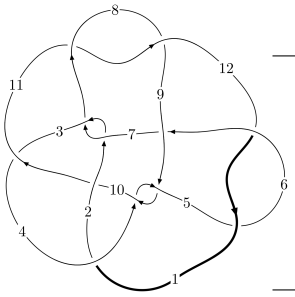
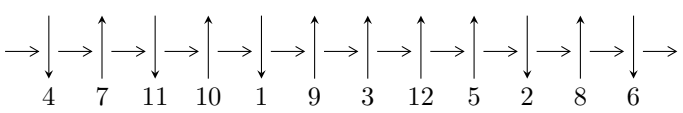
$12a_{1104}$ $(K12a_{1104})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.05525 \times 10^{662} u^{141} + 5.78982 \times 10^{662} u^{140} + \cdots + 3.78187 \times 10^{663} b + 1.21271 \times 10^{664},$$
$$- 7.67090 \times 10^{664} u^{141} - 2.82754 \times 10^{665} u^{140} + \cdots + 3.89533 \times 10^{665} a + 4.28713 \times 10^{667},$$
$$u^{142} + 2u^{141} + \cdots + 4010u - 412 \rangle$$
$$I_2^u = \langle 7.97745 \times 10^{22} u^{34} - 4.52888 \times 10^{22} u^{33} + \cdots + 1.96845 \times 10^{23} b + 5.61550 \times 10^{23},$$
$$- 2.95746 \times 10^{23} u^{34} + 7.02784 \times 10^{23} u^{33} + \cdots + 1.37791 \times 10^{24} a + 1.72399 \times 10^{25},\ u^{35} - u^{34} + \cdots - 35u +$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 177 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. $\boldsymbol{I_1^u = \langle 3.06 \times 10^{662} u^{141} + 5.79 \times 10^{662} u^{140} + \cdots + 3.78 \times 10^{663} b + 1.21 \times 10^{664},\ -7.67 \times 10^{664} u^{141} - 2.83 \times 10^{665} u^{140} + \cdots + 3.90 \times 10^{665} a + 4.29 \times 10^{667},\ u^{142} + 2u^{141} + \cdots + 4010u - 412 \rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} 0.196926u^{141} + 0.725879u^{140} + \cdots + 980.804u - 110.058 \\ -0.0807868u^{141} - 0.153094u^{140} + \cdots + 67.5667u - 3.20663 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.270305u^{141} + 0.437638u^{140} + \cdots - 472.743u + 39.6051 \\ 0.0201043u^{141} + 0.170811u^{140} + \cdots + 490.447u - 49.5599 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.948288u^{141} - 2.06709u^{140} + \cdots - 90.6345u + 42.4985 \\ 0.200573u^{141} + 0.194482u^{140} + \cdots - 637.339u + 59.0464 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.370759u^{141} - 1.19107u^{140} + \cdots - 1276.76u + 142.692 \\ 0.125993u^{141} + 0.216255u^{140} + \cdots - 120.213u + 8.27814 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0807668u^{141} + 1.02275u^{140} + \cdots + 3929.60u - 399.103 \\ -0.385378u^{141} - 0.719289u^{140} + \cdots + 354.159u - 22.9459 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.277712u^{141} + 0.878973u^{140} + \cdots + 913.237u - 106.852 \\ -0.0807868u^{141} - 0.153094u^{140} + \cdots + 67.5667u - 3.20663 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.251669u^{141} + 1.79219u^{140} + \cdots + 4201.27u - 438.189 \\ -0.327363u^{141} - 0.543234u^{140} + \cdots + 549.269u - 46.6727 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0.219032u^{141} + 0.875317u^{140} + \cdots + 1330.79u - 147.900 \\ -0.0612681u^{141} - 0.127746u^{140} + \cdots + 4.98676u + 2.59114 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0831535u^{141} - 1.45840u^{140} + \cdots - 5560.47u + 578.071$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{142} - 16u^{141} + \cdots + 7169u - 211$
c_2, c_7	$u^{142} + u^{141} + \cdots - 341251u + 204397$
c_3	$u^{142} + 32u^{140} + \cdots + 1208588206u - 60612292$
c_4, c_9	$u^{142} - 2u^{141} + \cdots - 8812u - 1699$
c_5, c_{12}	$u^{142} + 2u^{141} + \cdots + 4010u - 412$
c_6	$u^{142} + 16u^{141} + \cdots - 112963913u - 5370727$
c_8, c_{11}	$u^{142} - 4u^{141} + \cdots - 354u + 3629$
c_{10}	$u^{142} + 5u^{141} + \cdots - 3890u - 487$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{142}+10y^{141}+\cdots+948631y+44521$
c_2, c_7	$y^{142}-93y^{141}+\cdots-815359170921y+41778133609$
c_3	$y^{142}+64y^{141}+\cdots-23240511541676972y+3673849941493264$
c_4, c_9	$y^{142}+92y^{141}+\cdots+27075016y+2886601$
c_5, c_{12}	$y^{142}+108y^{141}+\cdots-1067644y+169744$
c_6	$y^{142}-44y^{141}+\cdots-1340943864837187y+28844708508529$
c_8, c_{11}	$y^{142}-124y^{141}+\cdots-681165230y+13169641$
c_{10}	$y^{142}-31y^{141}+\cdots-29207374y+237169$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.984844+0.100509I$ $a=-0.07674+1.48482I$ $b=\ \ 0.235660+1.217130I$	$-2.98013+2.73323I$	0
$u=-0.984844-0.100509I$ $a=-0.07674-1.48482I$ $b=\ \ 0.235660-1.217130I$	$-2.98013-2.73323I$	0
$u=-0.837549+0.516655I$ $a=\ \ 0.304621-0.437831I$ $b=\ \ 0.396604+0.087733I$	$1.99869+3.00411I$	0
$u=-0.837549-0.516655I$ $a=\ \ 0.304621+0.437831I$ $b=\ \ 0.396604-0.087733I$	$1.99869-3.00411I$	0
$u=\ \ 0.159651+0.969202I$ $a=\ \ 0.915581+0.848278I$ $b=-0.87280+1.43805I$	$0.39178-3.45919I$	0
$u=\ \ 0.159651-0.969202I$ $a=\ \ 0.915581-0.848278I$ $b=-0.87280-1.43805I$	$0.39178+3.45919I$	0
$u=\ \ 0.020124+1.038610I$ $a=\ \ 0.80847+1.75248I$ $b=-0.27819+1.45207I$	$1.59131-2.90380I$	0
$u=\ \ 0.020124-1.038610I$ $a=\ \ 0.80847-1.75248I$ $b=-0.27819-1.45207I$	$1.59131+2.90380I$	0
$u=\ \ 0.125882+0.946218I$ $a=-2.49078-0.00646I$ $b=\ \ 0.005305+0.800647I$	$6.81084-7.72246I$	0
$u=\ \ 0.125882-0.946218I$ $a=-2.49078+0.00646I$ $b=\ \ 0.005305-0.800647I$	$6.81084+7.72246I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.402138 + 0.969068I$ $a = -1.52524 - 0.74812I$ $b = 0.041875 - 1.002700I$	$-2.82256 - 0.10966I$	0
$u = 0.402138 - 0.969068I$ $a = -1.52524 + 0.74812I$ $b = 0.041875 + 1.002700I$	$-2.82256 + 0.10966I$	0
$u = 1.027770 + 0.228022I$ $a = -0.50653 - 1.54130I$ $b = -0.285803 - 1.225280I$	$-5.10559 + 3.34538I$	0
$u = 1.027770 - 0.228022I$ $a = -0.50653 + 1.54130I$ $b = -0.285803 + 1.225280I$	$-5.10559 - 3.34538I$	0
$u = -0.353010 + 0.865129I$ $a = -1.007260 + 0.972687I$ $b = 0.97052 + 1.15419I$	$1.40884 + 5.10516I$	0
$u = -0.353010 - 0.865129I$ $a = -1.007260 - 0.972687I$ $b = 0.97052 - 1.15419I$	$1.40884 - 5.10516I$	0
$u = 0.491061 + 0.793014I$ $a = 0.751971 + 0.457743I$ $b = 0.288084 + 1.363560I$	$0.381433 + 1.036770I$	0
$u = 0.491061 - 0.793014I$ $a = 0.751971 - 0.457743I$ $b = 0.288084 - 1.363560I$	$0.381433 - 1.036770I$	0
$u = -1.059720 + 0.172686I$ $a = 0.45796 - 1.39635I$ $b = 0.392651 - 1.259040I$	$-2.54300 - 7.72600I$	0
$u = -1.059720 - 0.172686I$ $a = 0.45796 + 1.39635I$ $b = 0.392651 + 1.259040I$	$-2.54300 + 7.72600I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.736330 + 0.799939I$ $a = 0.61366 + 2.48024I$ $b = -0.101180 + 1.181560I$	$-0.73713 - 2.79109I$	0
$u = 0.736330 - 0.799939I$ $a = 0.61366 - 2.48024I$ $b = -0.101180 - 1.181560I$	$-0.73713 + 2.79109I$	0
$u = 0.500442 + 0.979743I$ $a = 0.885614 + 1.054560I$ $b = -0.721025 + 0.688788I$	$3.36940 - 4.37250I$	0
$u = 0.500442 - 0.979743I$ $a = 0.885614 - 1.054560I$ $b = -0.721025 - 0.688788I$	$3.36940 + 4.37250I$	0
$u = 1.022420 + 0.407245I$ $a = -0.088640 - 0.742762I$ $b = -0.355072 - 0.312958I$	$6.81363 + 3.28356I$	0
$u = 1.022420 - 0.407245I$ $a = -0.088640 + 0.742762I$ $b = -0.355072 + 0.312958I$	$6.81363 - 3.28356I$	0
$u = 0.012099 + 1.100730I$ $a = -2.03119 + 1.18051I$ $b = 0.438524 + 1.095800I$	$7.67363 + 7.16298I$	0
$u = 0.012099 - 1.100730I$ $a = -2.03119 - 1.18051I$ $b = 0.438524 - 1.095800I$	$7.67363 - 7.16298I$	0
$u = -0.030761 + 1.114620I$ $a = -0.102542 + 0.237721I$ $b = 0.528914 + 0.804634I$	$1.43451 + 2.04369I$	0
$u = -0.030761 - 1.114620I$ $a = -0.102542 - 0.237721I$ $b = 0.528914 - 0.804634I$	$1.43451 - 2.04369I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.589533+0.655355I$ $a=-0.720172+0.493276I$ $b=-0.484815+1.284090I$	$0.92179-1.20069I$	0
$u=-0.589533-0.655355I$ $a=-0.720172-0.493276I$ $b=-0.484815-1.284090I$	$0.92179+1.20069I$	0
$u=0.201197+1.100460I$ $a=0.165503+0.117893I$ $b=-1.56098-0.16282I$	$4.68480-6.08536I$	0
$u=0.201197-1.100460I$ $a=0.165503-0.117893I$ $b=-1.56098+0.16282I$	$4.68480+6.08536I$	0
$u=0.051461+1.119110I$ $a=0.662635-0.747892I$ $b=-0.683630-1.158830I$	$4.29429-0.88376I$	0
$u=0.051461-1.119110I$ $a=0.662635+0.747892I$ $b=-0.683630+1.158830I$	$4.29429+0.88376I$	0
$u=-0.351825+1.069190I$ $a=0.159352+0.204363I$ $b=-0.063648+0.484219I$	$1.12198+2.22225I$	0
$u=-0.351825-1.069190I$ $a=0.159352-0.204363I$ $b=-0.063648-0.484219I$	$1.12198-2.22225I$	0
$u=-0.033328+0.869696I$ $a=1.216540-0.619281I$ $b=0.074886+0.926726I$	$1.00387+2.75697I$	0
$u=-0.033328-0.869696I$ $a=1.216540+0.619281I$ $b=0.074886-0.926726I$	$1.00387-2.75697I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.063929+1.128370I$ $a=-0.325405-0.507623I$ $b=\ \ 1.15997-1.64226I$	$7.03090+4.88414I$	0
$u=-0.063929-1.128370I$ $a=-0.325405+0.507623I$ $b=\ \ 1.15997+1.64226I$	$7.03090-4.88414I$	0
$u=-0.132830+1.141590I$ $a=-0.202494+0.193407I$ $b=\ \ 1.212940+0.135295I$	$2.50026+2.59648I$	0
$u=-0.132830-1.141590I$ $a=-0.202494-0.193407I$ $b=\ \ 1.212940-0.135295I$	$2.50026-2.59648I$	0
$u=\ \ 0.012626+1.150960I$ $a=-0.73883-1.68597I$ $b=\ \ 0.246263-1.003090I$	$8.02783-1.44802I$	0
$u=\ \ 0.012626-1.150960I$ $a=-0.73883+1.68597I$ $b=\ \ 0.246263+1.003090I$	$8.02783+1.44802I$	0
$u=\ \ 0.811479+0.101720I$ $a=\ \ 0.19077+1.84647I$ $b=-0.433648+1.295380I$	$-1.85895-4.89496I$	0
$u=\ \ 0.811479-0.101720I$ $a=\ \ 0.19077-1.84647I$ $b=-0.433648-1.295380I$	$-1.85895+4.89496I$	0
$u=-0.333376+1.150990I$ $a=\ \ 1.27863-1.42598I$ $b=-0.468521-1.170770I$	$3.92046+6.46301I$	0
$u=-0.333376-1.150990I$ $a=\ \ 1.27863+1.42598I$ $b=-0.468521+1.170770I$	$3.92046-6.46301I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.147710 + 1.190750I$ $a = 0.473182 - 0.072572I$ $b = -1.260080 - 0.431344I$	$4.50046 - 1.69205I$	0
$u = 0.147710 - 1.190750I$ $a = 0.473182 + 0.072572I$ $b = -1.260080 + 0.431344I$	$4.50046 + 1.69205I$	0
$u = 0.729099 + 0.322322I$ $a = -0.488169 - 0.632094I$ $b = -0.709581 + 0.150857I$	$6.55918 - 8.88010I$	0
$u = 0.729099 - 0.322322I$ $a = -0.488169 + 0.632094I$ $b = -0.709581 - 0.150857I$	$6.55918 + 8.88010I$	0
$u = -0.250296 + 1.177440I$ $a = -0.646113 + 0.370855I$ $b = 1.019400 - 0.326461I$	$5.75375 + 3.24573I$	0
$u = -0.250296 - 1.177440I$ $a = -0.646113 - 0.370855I$ $b = 1.019400 + 0.326461I$	$5.75375 - 3.24573I$	0
$u = 0.547801 + 1.077520I$ $a = 0.256223 + 1.372200I$ $b = -0.234284 + 0.867860I$	$3.24949 + 0.44742I$	0
$u = 0.547801 - 1.077520I$ $a = 0.256223 - 1.372200I$ $b = -0.234284 - 0.867860I$	$3.24949 - 0.44742I$	0
$u = -0.506869 + 1.114920I$ $a = -0.635883 + 1.006870I$ $b = 0.396242 + 1.050570I$	$0.11668 + 2.80990I$	0
$u = -0.506869 - 1.114920I$ $a = -0.635883 - 1.006870I$ $b = 0.396242 - 1.050570I$	$0.11668 - 2.80990I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.094898+1.232560I$ $a=-0.009661-0.919156I$ $b=\ \ 0.12425-1.77302I$	$6.64012-2.25510I$	0
$u=-0.094898-1.232560I$ $a=-0.009661+0.919156I$ $b=\ \ 0.12425+1.77302I$	$6.64012+2.25510I$	0
$u=-0.335351+1.193370I$ $a=\ \ 1.226050-0.219938I$ $b=-0.220502-1.042280I$	$-0.02084+5.39245I$	0
$u=-0.335351-1.193370I$ $a=\ \ 1.226050+0.219938I$ $b=-0.220502+1.042280I$	$-0.02084-5.39245I$	0
$u=-0.747572+0.128671I$ $a=-0.49664+1.50193I$ $b=-0.101558+1.328870I$	$-3.94786+1.80337I$	0
$u=-0.747572-0.128671I$ $a=-0.49664-1.50193I$ $b=-0.101558-1.328870I$	$-3.94786-1.80337I$	0
$u=-0.405635+1.175390I$ $a=-0.752858+0.787150I$ $b=\ \ 0.54417+1.36541I$	$-0.78315+2.47950I$	0
$u=-0.405635-1.175390I$ $a=-0.752858-0.787150I$ $b=\ \ 0.54417-1.36541I$	$-0.78315-2.47950I$	0
$u=\ \ 0.284070+1.218590I$ $a=\ \ 0.832136+0.706336I$ $b=-0.73081+1.40728I$	$-0.75549-6.15893I$	0
$u=\ \ 0.284070-1.218590I$ $a=\ \ 0.832136-0.706336I$ $b=-0.73081-1.40728I$	$-0.75549+6.15893I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.133985 + 1.279170I$ $a = 0.293297 + 0.419844I$ $b = -0.760921 - 0.343237I$	$6.55785 - 1.81776I$	0
$u = 0.133985 - 1.279170I$ $a = 0.293297 - 0.419844I$ $b = -0.760921 + 0.343237I$	$6.55785 + 1.81776I$	0
$u = -0.392859 + 1.232280I$ $a = -1.92821 + 0.60627I$ $b = 0.153617 + 1.076700I$	$5.53811 + 8.66077I$	0
$u = -0.392859 - 1.232280I$ $a = -1.92821 - 0.60627I$ $b = 0.153617 - 1.076700I$	$5.53811 - 8.66077I$	0
$u = -1.289180 + 0.141154I$ $a = -0.11935 - 1.53693I$ $b = -0.399278 - 1.265740I$	$2.41747 + 12.94450I$	0
$u = -1.289180 - 0.141154I$ $a = -0.11935 + 1.53693I$ $b = -0.399278 + 1.265740I$	$2.41747 - 12.94450I$	0
$u = -0.677472 + 0.158627I$ $a = 1.17293 + 2.48956I$ $b = -0.050436 + 1.273870I$	$2.24466 - 4.58437I$	0
$u = -0.677472 - 0.158627I$ $a = 1.17293 - 2.48956I$ $b = -0.050436 - 1.273870I$	$2.24466 + 4.58437I$	0
$u = 0.334793 + 0.602200I$ $a = -0.25524 - 2.60301I$ $b = 0.161516 - 1.330680I$	$-4.17471 - 3.49050I$	0
$u = 0.334793 - 0.602200I$ $a = -0.25524 + 2.60301I$ $b = 0.161516 + 1.330680I$	$-4.17471 + 3.49050I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.514928 + 1.215670I$ $a = -0.81771 - 1.20409I$ $b = 0.56891 - 1.36953I$	$-1.97519 - 8.74758I$	0
$u = 0.514928 - 1.215670I$ $a = -0.81771 + 1.20409I$ $b = 0.56891 + 1.36953I$	$-1.97519 + 8.74758I$	0
$u = -0.641631$ $a = -0.361749$ $b = -0.945080$	2.24523	0
$u = -0.103611 + 0.633089I$ $a = 2.46896 - 1.13103I$ $b = 0.084713 - 0.668236I$	$1.71380 - 3.81572I$	0
$u = -0.103611 - 0.633089I$ $a = 2.46896 + 1.13103I$ $b = 0.084713 + 0.668236I$	$1.71380 + 3.81572I$	0
$u = -0.550434 + 1.249550I$ $a = 0.782017 - 1.116340I$ $b = -0.67922 - 1.37384I$	$0.83467 + 13.38690I$	0
$u = -0.550434 - 1.249550I$ $a = 0.782017 + 1.116340I$ $b = -0.67922 + 1.37384I$	$0.83467 - 13.38690I$	0
$u = -1.304080 + 0.433114I$ $a = -0.28455 + 1.44750I$ $b = -0.265086 + 0.897059I$	$5.56027 + 0.43931I$	0
$u = -1.304080 - 0.433114I$ $a = -0.28455 - 1.44750I$ $b = -0.265086 - 0.897059I$	$5.56027 - 0.43931I$	0
$u = -0.106693 + 1.374270I$ $a = -0.643023 - 0.662664I$ $b = 0.635651 + 0.497658I$	$9.58969 - 2.92096I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.106693-1.374270I$ $a=-0.643023+0.662664I$ $b=\ 0.635651-0.497658I$	$9.58969+2.92096I$	0
$u=\ 0.344834+1.354110I$ $a=-0.151878-0.194817I$ $b=\ 1.277670+0.012876I$	$11.6455-12.7871I$	0
$u=\ 0.344834-1.354110I$ $a=-0.151878+0.194817I$ $b=\ 1.277670-0.012876I$	$11.6455+12.7871I$	0
$u=\ 0.186444+1.387060I$ $a=\ 0.263370-0.425934I$ $b=-0.811606-0.090491I$	$6.65306-1.33256I$	0
$u=\ 0.186444-1.387060I$ $a=\ 0.263370+0.425934I$ $b=-0.811606+0.090491I$	$6.65306+1.33256I$	0
$u=\ 0.517473+0.289663I$ $a=\ 0.328404+0.316082I$ $b=\ 0.613567+0.454916I$	$1.84402+0.39595I$	0
$u=\ 0.517473-0.289663I$ $a=\ 0.328404-0.316082I$ $b=\ 0.613567-0.454916I$	$1.84402-0.39595I$	0
$u=-0.358800+1.361140I$ $a=-0.004523-0.281606I$ $b=\ 0.906616-0.581144I$	$11.43760+4.96030I$	0
$u=-0.358800-1.361140I$ $a=-0.004523+0.281606I$ $b=\ 0.906616+0.581144I$	$11.43760-4.96030I$	0
$u=\ 0.388467+1.356040I$ $a=-1.145520-0.799830I$ $b=\ 0.62638-1.27303I$	$2.72873-9.28905I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.388467 - 1.356040I$ $a = -1.145520 + 0.799830I$ $b = 0.62638 + 1.27303I$	$2.72873 + 9.28905I$	0
$u = 0.68750 + 1.23897I$ $a = 0.89157 + 1.10859I$ $b = -0.130371 + 0.989025I$	$-0.03567 - 3.59247I$	0
$u = 0.68750 - 1.23897I$ $a = 0.89157 - 1.10859I$ $b = -0.130371 - 0.989025I$	$-0.03567 + 3.59247I$	0
$u = -0.33148 + 1.38849I$ $a = 0.158467 - 0.142914I$ $b = -1.087720 - 0.069023I$	$7.75860 + 6.98523I$	0
$u = -0.33148 - 1.38849I$ $a = 0.158467 + 0.142914I$ $b = -1.087720 + 0.069023I$	$7.75860 - 6.98523I$	0
$u = -0.44676 + 1.36923I$ $a = 0.892811 - 0.809524I$ $b = -0.582048 - 1.249040I$	$1.63254 + 7.81762I$	0
$u = -0.44676 - 1.36923I$ $a = 0.892811 + 0.809524I$ $b = -0.582048 + 1.249040I$	$1.63254 - 7.81762I$	0
$u = 0.36967 + 1.42138I$ $a = -0.0855022 - 0.0978237I$ $b = 0.875379 + 0.154922I$	$12.50620 - 1.51785I$	0
$u = 0.36967 - 1.42138I$ $a = -0.0855022 + 0.0978237I$ $b = 0.875379 - 0.154922I$	$12.50620 + 1.51785I$	0
$u = 1.48953 + 0.13554I$ $a = 0.09125 - 1.48968I$ $b = 0.291444 - 1.199000I$	$-1.66969 - 5.80703I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.48953 - 0.13554I$ $a = 0.09125 + 1.48968I$ $b = 0.291444 + 1.199000I$	$-1.66969 + 5.80703I$	0
$u = -0.62797 + 1.37357I$ $a = -0.76187 + 1.36914I$ $b = 0.478511 + 1.229570I$	$9.17359 + 6.42464I$	0
$u = -0.62797 - 1.37357I$ $a = -0.76187 - 1.36914I$ $b = 0.478511 - 1.229570I$	$9.17359 - 6.42464I$	0
$u = -0.443466 + 0.188737I$ $a = -1.192050 + 0.303565I$ $b = -0.330551 - 0.125545I$	$-1.191510 + 0.760536I$	$-5.26336 - 2.38499I$
$u = -0.443466 - 0.188737I$ $a = -1.192050 - 0.303565I$ $b = -0.330551 + 0.125545I$	$-1.191510 - 0.760536I$	$-5.26336 + 2.38499I$
$u = -0.00697 + 1.52277I$ $a = -0.037499 + 0.479149I$ $b = 0.084259 - 0.912025I$	$8.67892 + 0.18226I$	0
$u = -0.00697 - 1.52277I$ $a = -0.037499 - 0.479149I$ $b = 0.084259 + 0.912025I$	$8.67892 - 0.18226I$	0
$u = -0.55866 + 1.44383I$ $a = -0.788195 + 1.154960I$ $b = 0.61168 + 1.39005I$	$7.3614 + 19.3128I$	0
$u = -0.55866 - 1.44383I$ $a = -0.788195 - 1.154960I$ $b = 0.61168 - 1.39005I$	$7.3614 - 19.3128I$	0
$u = -0.200992 + 0.401172I$ $a = -0.35896 + 3.43618I$ $b = -0.156506 - 0.133180I$	$5.66097 + 1.68737I$	$18.2618 - 1.1985I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.200992-0.401172I$ $a=-0.35896-3.43618I$ $b=-0.156506+0.133180I$	$5.66097-1.68737I$	$18.2618+1.1985I$
$u=\ \ 0.66273+1.40807I$ $a=-0.530863-1.084730I$ $b=\ \ 0.580960-1.002670I$	$10.0335-10.3736I$	0
$u=\ \ 0.66273-1.40807I$ $a=-0.530863+1.084730I$ $b=\ \ 0.580960+1.002670I$	$10.0335+10.3736I$	0
$u=\ \ 0.59268+1.45545I$ $a=\ \ 0.719133+1.214650I$ $b=-0.53099+1.37327I$	$3.29050-12.70550I$	0
$u=\ \ 0.59268-1.45545I$ $a=\ \ 0.719133-1.214650I$ $b=-0.53099-1.37327I$	$3.29050+12.70550I$	0
$u=\ \ 0.364717+0.025316I$ $a=\ \ 1.23800+1.94911I$ $b=\ \ 0.27854+1.39096I$	$-4.34812+3.24989I$	$-5.16777+3.87805I$
$u=\ \ 0.364717-0.025316I$ $a=\ \ 1.23800-1.94911I$ $b=\ \ 0.27854-1.39096I$	$-4.34812-3.24989I$	$-5.16777-3.87805I$
$u=\ \ 0.295828$ $a=-0.827747$ $b=\ \ 0.647281$	1.14742	11.6190
$u=\ \ 0.249822+0.146853I$ $a=\ \ 2.48981+2.32953I$ $b=\ \ 0.536771-0.291443I$	$1.68257-4.00533I$	$3.00781+6.18849I$
$u=\ \ 0.249822-0.146853I$ $a=\ \ 2.48981-2.32953I$ $b=\ \ 0.536771+0.291443I$	$1.68257+4.00533I$	$3.00781-6.18849I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.179969+0.217965I$ $a=\ \ 2.51539+0.76918I$ $b=-0.730789-0.967824I$	$4.57359-4.01799I$	$2.28736+5.82459I$
$u=-0.179969-0.217965I$ $a=\ \ 2.51539-0.76918I$ $b=-0.730789+0.967824I$	$4.57359+4.01799I$	$2.28736-5.82459I$
$u=-0.29797+1.70683I$ $a=-0.209240+0.376185I$ $b=-0.120083+0.901410I$	$3.47048-2.14821I$	0
$u=-0.29797-1.70683I$ $a=-0.209240-0.376185I$ $b=-0.120083-0.901410I$	$3.47048+2.14821I$	0
$u=\ \ 0.169934+0.152610I$ $a=-2.20838+2.06064I$ $b=\ \ 0.574287-0.468688I$	$1.65722+0.07579I$	$4.83433-0.29358I$
$u=\ \ 0.169934-0.152610I$ $a=-2.20838-2.06064I$ $b=\ \ 0.574287+0.468688I$	$1.65722-0.07579I$	$4.83433+0.29358I$
$u=-0.72166+1.69225I$ $a=\ \ 0.295503-0.943276I$ $b=-0.346044-1.077040I$	$3.64657+5.25830I$	0
$u=-0.72166-1.69225I$ $a=\ \ 0.295503+0.943276I$ $b=-0.346044+1.077040I$	$3.64657-5.25830I$	0
$u=\ \ 1.41550+1.23128I$ $a=-0.076867-1.117070I$ $b=\ \ 0.137078-0.817760I$	$7.13646+2.82992I$	0
$u=\ \ 1.41550-1.23128I$ $a=-0.076867+1.117070I$ $b=\ \ 0.137078+0.817760I$	$7.13646-2.82992I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.82313+2.18930I$		
$a=\quad 0.156971-0.793753I$	$6.91337-4.46850I$	0
$b=\quad 0.142860-0.918097I$		
$u=-0.82313-2.18930I$		
$a=\quad 0.156971+0.793753I$	$6.91337+4.46850I$	0
$b=\quad 0.142860+0.918097I$		

II.

$\boldsymbol{I_2^u = \langle 7.98\times10^{22}u^{34}-4.53\times10^{22}u^{33}+\cdots+1.97\times10^{23}b+5.62\times10^{23},\ -2.96\times10^{23}u^{34}+7.03\times10^{23}u^{33}+\cdots+1.38\times10^{24}a+1.72\times10^{25},\ u^{35}-u^{34}+\cdots-35u+7\rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix}0.214633u^{34}-0.510034u^{33}+\cdots+54.6069u-12.5116\\-0.405266u^{34}+0.230073u^{33}+\cdots+6.42526u-2.85275\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-1.44409u^{34}+1.08190u^{33}+\cdots-34.2427u+1.90057\\-0.00929943u^{34}-0.0148557u^{33}+\cdots-27.8888u+4.99649\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.890760u^{34}+0.771065u^{33}+\cdots-64.3794u+12.3952\\-1.90899u^{34}+2.16048u^{33}+\cdots-96.3084u+19.4387\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.0428879u^{34}+0.793510u^{33}+\cdots-25.2091u+6.74777\\0.873550u^{34}-0.776579u^{33}+\cdots+41.0051u-6.36055\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-1.28128u^{34}+0.621662u^{33}+\cdots-33.2113u+2.86946\\-2.40609u^{34}+1.85588u^{33}+\cdots-70.4438u+10.7801\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.619899u^{34}-0.740108u^{33}+\cdots+48.1816u-9.65882\\-0.405266u^{34}+0.230073u^{33}+\cdots+6.42526u-2.85275\end{pmatrix}$$

$$a_7 = \begin{pmatrix}0.305470u^{34}-0.0100116u^{33}+\cdots-6.68126u+6.05326\\0.934966u^{34}-0.823149u^{33}+\cdots+26.1011u-2.63025\end{pmatrix}$$

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

$$a_8 = \begin{pmatrix}0.180421u^{34}-0.315828u^{33}+\cdots+39.0230u-8.83947\\-0.393101u^{34}+0.374889u^{33}+\cdots-0.188959u-1.92701\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{1952844554794154459368483}{196844892087677185592869}u^{34}-\frac{606561782982631544839845}{196844892087677185592869}u^{33}+\cdots+\frac{2769021326162672606430148 9}{196844892087677185592869}u+\frac{5564791201430471438862 98}{196844892087677185592869}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{35} - 3u^{34} + \cdots - 5u - 1$
c_2	$u^{35} - 10u^{33} + \cdots + 3u + 1$
c_3	$u^{35} - u^{34} + \cdots - 26u + 11$
c_4	$u^{35} - u^{34} + \cdots - 2u + 1$
c_5	$u^{35} - u^{34} + \cdots - 35u + 7$
c_6	$u^{35} + 3u^{34} + \cdots + 53u + 13$
c_7	$u^{35} - 10u^{33} + \cdots + 3u - 1$
c_8	$u^{35} - u^{34} + \cdots - 60u + 11$
c_9	$u^{35} + u^{34} + \cdots - 2u - 1$
c_{10}	$u^{35} + 2u^{34} + \cdots - 10u - 1$
c_{11}	$u^{35} + u^{34} + \cdots - 60u - 11$
c_{12}	$u^{35} + u^{34} + \cdots - 35u - 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{35}+3y^{34}+\cdots+11y-1$
c_2, c_7	$y^{35}-20y^{34}+\cdots+23y-1$
c_3	$y^{35}+9y^{34}+\cdots-952y-121$
c_4, c_9	$y^{35}+25y^{34}+\cdots-62y-1$
c_5, c_{12}	$y^{35}+33y^{34}+\cdots-357y-49$
c_6	$y^{35}-11y^{34}+\cdots+3173y-169$
c_8, c_{11}	$y^{35}-31y^{34}+\cdots+3864y-121$
c_{10}	$y^{35}-18y^{34}+\cdots+28y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.525564+0.856023I$ $a=\ \ 0.001829+0.494315I$ $b=\ \ 0.148314-0.354432I$	$1.85383+2.12825I$	$9.36385+0.94525I$
$u=-0.525564-0.856023I$ $a=\ \ 0.001829-0.494315I$ $b=\ \ 0.148314+0.354432I$	$1.85383-2.12825I$	$9.36385-0.94525I$
$u=-0.298185+0.919391I$ $a=-1.46683+0.90162I$ $b=\ \ 0.710017+0.844557I$	$2.44449+5.07111I$	$6.65479-8.60689I$
$u=-0.298185-0.919391I$ $a=-1.46683-0.90162I$ $b=\ \ 0.710017-0.844557I$	$2.44449-5.07111I$	$6.65479+8.60689I$
$u=\ \ 0.241793+1.023220I$ $a=\ \ 0.803155+0.733323I$ $b=-0.97677+1.40060I$	$0.52809-4.02175I$	$3.53303+10.25911I$
$u=\ \ 0.241793-1.023220I$ $a=\ \ 0.803155-0.733323I$ $b=-0.97677-1.40060I$	$0.52809+4.02175I$	$3.53303-10.25911I$
$u=\ \ 0.928167+0.139538I$ $a=-0.03800+1.72176I$ $b=-0.318833+1.247760I$	$-3.57891-4.03578I$	$-0.81514+5.36124I$
$u=\ \ 0.928167-0.139538I$ $a=-0.03800-1.72176I$ $b=-0.318833-1.247760I$	$-3.57891+4.03578I$	$-0.81514-5.36124I$
$u=\ \ 0.113866+1.097210I$ $a=\ \ 0.593361-0.035545I$ $b=-1.06761-1.15613I$	$6.47387-5.00694I$	$4.42158+7.38604I$
$u=\ \ 0.113866-1.097210I$ $a=\ \ 0.593361+0.035545I$ $b=-1.06761+1.15613I$	$6.47387+5.00694I$	$4.42158-7.38604I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.634372 + 0.556194I$ $a = 0.03840 - 3.14837I$ $b = 0.137008 - 1.204220I$	$-0.78009 - 3.40967I$	$-1.18196 + 9.14556I$
$u = 0.634372 - 0.556194I$ $a = 0.03840 + 3.14837I$ $b = 0.137008 + 1.204220I$	$-0.78009 + 3.40967I$	$-1.18196 - 9.14556I$
$u = -0.412259 + 1.119720I$ $a = 2.02663 - 1.36095I$ $b = -0.337874 - 1.012900I$	$6.63639 + 9.28402I$	$7.30678 - 10.51721I$
$u = -0.412259 - 1.119720I$ $a = 2.02663 + 1.36095I$ $b = -0.337874 + 1.012900I$	$6.63639 - 9.28402I$	$7.30678 + 10.51721I$
$u = 0.309710 + 0.729547I$ $a = 0.546449 + 0.185863I$ $b = 0.46540 + 1.48328I$	$-0.33909 + 1.60156I$	$-4.37363 - 3.03711I$
$u = 0.309710 - 0.729547I$ $a = 0.546449 - 0.185863I$ $b = 0.46540 - 1.48328I$	$-0.33909 - 1.60156I$	$-4.37363 + 3.03711I$
$u = -0.147290 + 1.202160I$ $a = -0.464148 + 0.154674I$ $b = 1.325960 - 0.328296I$	$4.17836 + 2.09624I$	$2.00000 - 6.55804I$
$u = -0.147290 - 1.202160I$ $a = -0.464148 - 0.154674I$ $b = 1.325960 + 0.328296I$	$4.17836 - 2.09624I$	$2.00000 + 6.55804I$
$u = 0.408729 + 1.179840I$ $a = 0.053958 - 0.854988I$ $b = 0.227713 - 1.241180I$	$5.81989 + 3.12039I$	$5.43754 - 3.13179I$
$u = 0.408729 - 1.179840I$ $a = 0.053958 + 0.854988I$ $b = 0.227713 + 1.241180I$	$5.81989 - 3.12039I$	$5.43754 + 3.13179I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.242137 + 0.559471I$ $a = 0.32497 + 2.35763I$ $b = -0.186916 + 1.382660I$	$-3.93529 - 3.41654I$	$16.4332 + 2.6127I$
$u = 0.242137 - 0.559471I$ $a = 0.32497 - 2.35763I$ $b = -0.186916 - 1.382660I$	$-3.93529 + 3.41654I$	$16.4332 - 2.6127I$
$u = 0.03946 + 1.41541I$ $a = 0.264091 - 0.936568I$ $b = -0.004876 + 0.240045I$	$9.85400 + 0.53294I$	0
$u = 0.03946 - 1.41541I$ $a = 0.264091 + 0.936568I$ $b = -0.004876 - 0.240045I$	$9.85400 - 0.53294I$	0
$u = 0.40422 + 1.35875I$ $a = -0.963330 - 0.839069I$ $b = 0.63470 - 1.29749I$	$1.04545 - 8.69458I$	0
$u = 0.40422 - 1.35875I$ $a = -0.963330 + 0.839069I$ $b = 0.63470 + 1.29749I$	$1.04545 + 8.69458I$	0
$u = 0.508430 + 0.249685I$ $a = -1.13047 + 2.70167I$ $b = -0.058693 + 0.605539I$	$5.19042 - 1.80323I$	$1.46202 + 4.24216I$
$u = 0.508430 - 0.249685I$ $a = -1.13047 - 2.70167I$ $b = -0.058693 - 0.605539I$	$5.19042 + 1.80323I$	$1.46202 - 4.24216I$
$u = -0.53140 + 1.37719I$ $a = -0.552731 + 0.796947I$ $b = 0.341353 + 0.949144I$	$1.14872 + 4.02412I$	0
$u = -0.53140 - 1.37719I$ $a = -0.552731 - 0.796947I$ $b = 0.341353 - 0.949144I$	$1.14872 - 4.02412I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.36231+1.50915I$ $a=-0.368929+0.586955I$ $b=-0.157351+0.748585I$	$4.03075-1.93188I$	0
$u=-0.36231-1.50915I$ $a=-0.368929-0.586955I$ $b=-0.157351-0.748585I$	$4.03075+1.93188I$	0
$u=-0.442832$ $a=-0.319838$ $b=-0.876307$	0.646378	−7.06580
$u=-0.83247+1.77814I$ $a=\ \ 0.491518-0.802689I$ $b=\ \ 0.056609-0.922754I$	$6.80903-3.93509I$	0
$u=-0.83247-1.77814I$ $a=\ \ 0.491518+0.802689I$ $b=\ \ 0.056609+0.922754I$	$6.80903+3.93509I$	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{35}-3u^{34}+\cdots-5u-1)(u^{142}-16u^{141}+\cdots+7169u-211)$
c_2	$(u^{35}-10u^{33}+\cdots+3u+1)(u^{142}+u^{141}+\cdots-341251u+204397)$
c_3	$(u^{35}-u^{34}+\cdots-26u+11)$ $\cdot(u^{142}+32u^{140}+\cdots+1208588206u-60612292)$
c_4	$(u^{35}-u^{34}+\cdots-2u+1)(u^{142}-2u^{141}+\cdots-8812u-1699)$
c_5	$(u^{35}-u^{34}+\cdots-35u+7)(u^{142}+2u^{141}+\cdots+4010u-412)$
c_6	$(u^{35}+3u^{34}+\cdots+53u+13)$ $\cdot(u^{142}+16u^{141}+\cdots-112963913u-5370727)$
c_7	$(u^{35}-10u^{33}+\cdots+3u-1)(u^{142}+u^{141}+\cdots-341251u+204397)$
c_8	$(u^{35}-u^{34}+\cdots-60u+11)(u^{142}-4u^{141}+\cdots-354u+3629)$
c_9	$(u^{35}+u^{34}+\cdots-2u-1)(u^{142}-2u^{141}+\cdots-8812u-1699)$
c_{10}	$(u^{35}+2u^{34}+\cdots-10u-1)(u^{142}+5u^{141}+\cdots-3890u-487)$
c_{11}	$(u^{35}+u^{34}+\cdots-60u-11)(u^{142}-4u^{141}+\cdots-354u+3629)$
c_{12}	$(u^{35}+u^{34}+\cdots-35u-7)(u^{142}+2u^{141}+\cdots+4010u-412)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{35}+3y^{34}+\cdots+11y-1)(y^{142}+10y^{141}+\cdots+948631y+44521)$
c_2, c_7	$(y^{35}-20y^{34}+\cdots+23y-1)$ $\cdot(y^{142}-93y^{141}+\cdots-815359170921y+41778133609)$
c_3	$(y^{35}+9y^{34}+\cdots-952y-121)$ $\cdot(y^{142}+64y^{141}+\cdots-23240511541676972y+3673849941493264)$
c_4, c_9	$(y^{35}+25y^{34}+\cdots-62y-1)$ $\cdot(y^{142}+92y^{141}+\cdots+27075016y+2886601)$
c_5, c_{12}	$(y^{35}+33y^{34}+\cdots-357y-49)$ $\cdot(y^{142}+108y^{141}+\cdots-1067644y+169744)$
c_6	$(y^{35}-11y^{34}+\cdots+3173y-169)$ $\cdot(y^{142}-44y^{141}+\cdots-1340943864837187y+28844708508529)$
c_8, c_{11}	$(y^{35}-31y^{34}+\cdots+3864y-121)$ $\cdot(y^{142}-124y^{141}+\cdots-681165230y+13169641)$
c_{10}	$(y^{35}-18y^{34}+\cdots+28y-1)$ $\cdot(y^{142}-31y^{141}+\cdots-29207374y+237169)$