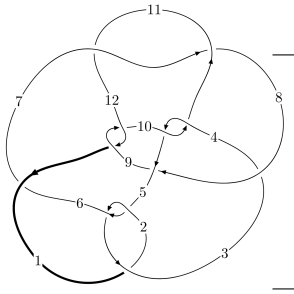
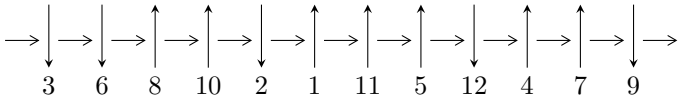
$12a_{0301}$ $(K12a_{0301})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -4.87061 \times 10^{819} u^{143} + 1.43509 \times 10^{820} u^{142} + \cdots + 1.18052 \times 10^{823} b + 1.14666 \times 10^{826},$$
$$4.47547 \times 10^{826} u^{143} - 1.10984 \times 10^{827} u^{142} + \cdots + 5.06813 \times 10^{829} a - 2.27451 \times 10^{832},$$
$$u^{144} - 2u^{143} + \cdots + 43492785u + 4293137 \rangle$$
$$I_2^u = \langle -1449u^{33} - 2044u^{32} + \cdots + b + 83,\ 1549u^{33} + 2128u^{32} + \cdots + a - 545,\ u^{34} + u^{33} + \cdots - 6u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 178 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. $\boldsymbol{I_1^u = \langle -4.87 \times 10^{819} u^{143} + 1.44 \times 10^{820} u^{142} + \cdots + 1.18 \times 10^{823} b + 1.15 \times 10^{826},\ 4.48 \times 10^{826} u^{143} - 1.11 \times 10^{827} u^{142} + \cdots + 5.07 \times 10^{829} a - 2.27 \times 10^{832},\ u^{144} - 2u^{143} + \cdots + 43492785u + 4293137 \rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} -0.000883062u^{143} + 0.00218985u^{142} + \cdots + 746.743u + 448.786 \\ 0.000412583u^{143} - 0.00121564u^{142} + \cdots - 7800.84u - 971.315 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -0.000329909u^{143} + 0.000760842u^{142} + \cdots - 1701.22u - 34.1671 \\ 0.000541090u^{143} - 0.00130988u^{142} + \cdots + 1411.66u - 68.8627 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.000383810u^{143} + 0.000957612u^{142} + \cdots - 872.514u + 74.6215 \\ 0.000312112u^{143} - 0.000848011u^{142} + \cdots - 985.490u - 235.218 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0000132490u^{143} - 0.000187625u^{142} + \cdots - 8836.60u - 904.601 \\ 0.000163305u^{143} - 0.000487278u^{142} + \cdots - 3119.83u - 390.280 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0000716976u^{143} + 0.000109602u^{142} + \cdots - 1858.00u - 160.596 \\ 0.000312112u^{143} - 0.000848011u^{142} + \cdots - 985.490u - 235.218 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.000558490u^{143} + 0.00109744u^{142} + \cdots - 9944.74u - 773.191 \\ 0.000391100u^{143} - 0.00112125u^{142} + \cdots - 4823.37u - 687.423 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.000166748u^{143} + 0.000148454u^{142} + \cdots + 19122.8u + 1882.55 \\ -0.000808895u^{143} + 0.00189709u^{142} + \cdots - 4071.08u - 82.2661 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.000751067u^{143} + 0.00102591u^{142} + \cdots - 29590.0u - 2714.62 \\ 0.000847809u^{143} - 0.00178305u^{142} + \cdots + 12346.0u + 921.364 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00103687u^{143} - 0.00285015u^{142} + \cdots - 12761.8u - 1827.63$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{144} + 73u^{143} + \cdots + 11u + 1$
c_2, c_5	$u^{144} + 3u^{143} + \cdots + 3u + 1$
c_3	$u^{144} + 31u^{142} + \cdots + 1908503741u + 608565121$
c_4, c_{10}	$u^{144} + u^{143} + \cdots + 3922u + 11047$
c_6	$u^{144} + 9u^{143} + \cdots + 5231795u + 492275$
c_7, c_{11}	$u^{144} - 2u^{143} + \cdots + 43492785u + 4293137$
c_8	$u^{144} - 5u^{143} + \cdots + 323456u + 145664$
c_9, c_{12}	$u^{144} - 7u^{143} + \cdots + 448u + 241$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{144}+7y^{143}+\cdots+61y+1$
c_2, c_5	$y^{144}-73y^{143}+\cdots-11y+1$
c_3	$y^{144}+62y^{143}+\cdots+1.71\times10^{19}y+3.70\times10^{17}$
c_4, c_{10}	$y^{144}+99y^{143}+\cdots+2246933046y+122036209$
c_6	$y^{144}+59y^{143}+\cdots+2859927161675y+242334675625$
c_7, c_{11}	$y^{144}+112y^{143}+\cdots+363442723348927y+18431025300769$
c_8	$y^{144}+21y^{143}+\cdots+608957349888y+21218000896$
c_9, c_{12}	$y^{144}+81y^{143}+\cdots+5275298y+58081$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.588974 + 0.806586I$ $a = 0.814707 + 0.212144I$ $b = -0.480786 + 0.038773I$	$1.35258 + 1.78685I$	0
$u = 0.588974 - 0.806586I$ $a = 0.814707 - 0.212144I$ $b = -0.480786 - 0.038773I$	$1.35258 - 1.78685I$	0
$u = 0.552108 + 0.839164I$ $a = -1.279280 - 0.047757I$ $b = 0.553192 - 0.358983I$	$-0.35099 - 2.68683I$	0
$u = 0.552108 - 0.839164I$ $a = -1.279280 + 0.047757I$ $b = 0.553192 + 0.358983I$	$-0.35099 + 2.68683I$	0
$u = 1.005370 + 0.062527I$ $a = 0.104281 - 0.381311I$ $b = 0.61943 - 1.48558I$	$2.68193 - 5.85769I$	0
$u = 1.005370 - 0.062527I$ $a = 0.104281 + 0.381311I$ $b = 0.61943 + 1.48558I$	$2.68193 + 5.85769I$	0
$u = -0.220365 + 0.993377I$ $a = 0.85710 + 2.02083I$ $b = -0.179134 - 0.769240I$	$-3.75668 - 2.02618I$	0
$u = -0.220365 - 0.993377I$ $a = 0.85710 - 2.02083I$ $b = -0.179134 + 0.769240I$	$-3.75668 + 2.02618I$	0
$u = 0.663510 + 0.714334I$ $a = -0.622284 + 0.116258I$ $b = 0.494383 - 0.205448I$	$-0.77640 - 2.27763I$	0
$u = 0.663510 - 0.714334I$ $a = -0.622284 - 0.116258I$ $b = 0.494383 + 0.205448I$	$-0.77640 + 2.27763I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.254448+1.004160I$ $a=\ \ 0.34549+3.18852I$ $b=\ \ 1.12753-2.12776I$	$-2.68755-9.48016I$	0
$u=-0.254448-1.004160I$ $a=\ \ 0.34549-3.18852I$ $b=\ \ 1.12753+2.12776I$	$-2.68755+9.48016I$	0
$u=\ \ 0.116003+1.031380I$ $a=-0.752872+0.148868I$ $b=\ \ 1.43735+0.44324I$	$-0.955085-0.942202I$	0
$u=\ \ 0.116003-1.031380I$ $a=-0.752872-0.148868I$ $b=\ \ 1.43735-0.44324I$	$-0.955085+0.942202I$	0
$u=\ \ 0.615971+0.853128I$ $a=\ \ 0.313127+0.522083I$ $b=-0.469295-0.339372I$	$0.99262+2.96528I$	0
$u=\ \ 0.615971-0.853128I$ $a=\ \ 0.313127-0.522083I$ $b=-0.469295+0.339372I$	$0.99262-2.96528I$	0
$u=\ \ 0.561725+0.758384I$ $a=\ \ 0.598946-0.063054I$ $b=-0.546435-0.015274I$	$1.22604+1.75594I$	0
$u=\ \ 0.561725-0.758384I$ $a=\ \ 0.598946+0.063054I$ $b=-0.546435+0.015274I$	$1.22604-1.75594I$	0
$u=-0.198296+1.043170I$ $a=\ \ 0.01554-3.00067I$ $b=-1.10648+2.07716I$	$-0.59723-4.65435I$	0
$u=-0.198296-1.043170I$ $a=\ \ 0.01554+3.00067I$ $b=-1.10648-2.07716I$	$-0.59723+4.65435I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.408176 + 0.981073I$ $a = -0.130120 + 0.354158I$ $b = 0.264137 - 0.428591I$	$-0.99525 + 2.97182I$	0
$u = 0.408176 - 0.981073I$ $a = -0.130120 - 0.354158I$ $b = 0.264137 + 0.428591I$	$-0.99525 - 2.97182I$	0
$u = 0.312845 + 1.028380I$ $a = -0.706686 + 0.112894I$ $b = 1.286400 + 0.151620I$	$-0.79795 + 6.14591I$	0
$u = 0.312845 - 1.028380I$ $a = -0.706686 - 0.112894I$ $b = 1.286400 - 0.151620I$	$-0.79795 - 6.14591I$	0
$u = -0.020124 + 1.077150I$ $a = 0.85194 - 2.59546I$ $b = -1.00450 + 1.92895I$	$0.15992 - 2.69156I$	0
$u = -0.020124 - 1.077150I$ $a = 0.85194 + 2.59546I$ $b = -1.00450 - 1.92895I$	$0.15992 + 2.69156I$	0
$u = 0.108232 + 1.075700I$ $a = -1.26822 + 2.17941I$ $b = 0.87786 - 1.76992I$	$-1.11315 + 2.01264I$	0
$u = 0.108232 - 1.075700I$ $a = -1.26822 - 2.17941I$ $b = 0.87786 + 1.76992I$	$-1.11315 - 2.01264I$	0
$u = 0.348479 + 0.841255I$ $a = 0.706723 - 0.049308I$ $b = -0.987714 - 0.269842I$	$1.37682 + 2.28432I$	0
$u = 0.348479 - 0.841255I$ $a = 0.706723 + 0.049308I$ $b = -0.987714 + 0.269842I$	$1.37682 - 2.28432I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.663458 + 0.872096I$ $a = -0.179121 - 0.657961I$ $b = 0.528871 + 0.517276I$	$-1.19337 + 7.42439I$	0
$u = 0.663458 - 0.872096I$ $a = -0.179121 + 0.657961I$ $b = 0.528871 - 0.517276I$	$-1.19337 - 7.42439I$	0
$u = -0.838504 + 0.318893I$ $a = -1.042270 - 0.444996I$ $b = -0.682946 - 0.959518I$	$-5.20423 - 7.14103I$	0
$u = -0.838504 - 0.318893I$ $a = -1.042270 + 0.444996I$ $b = -0.682946 + 0.959518I$	$-5.20423 + 7.14103I$	0
$u = -0.846408 + 0.238041I$ $a = 0.235642 + 1.272120I$ $b = 0.026187 + 0.955549I$	$0.62706 + 8.26152I$	0
$u = -0.846408 - 0.238041I$ $a = 0.235642 - 1.272120I$ $b = 0.026187 - 0.955549I$	$0.62706 - 8.26152I$	0
$u = -0.229432 + 1.100660I$ $a = -0.835734 - 0.058002I$ $b = -0.539507 + 0.372564I$	$3.02392 - 4.18388I$	0
$u = -0.229432 - 1.100660I$ $a = -0.835734 + 0.058002I$ $b = -0.539507 - 0.372564I$	$3.02392 + 4.18388I$	0
$u = -0.164064 + 1.120810I$ $a = 0.910405 + 0.394437I$ $b = 0.534511 - 0.463425I$	$2.49148 + 1.82953I$	0
$u = -0.164064 - 1.120810I$ $a = 0.910405 - 0.394437I$ $b = 0.534511 + 0.463425I$	$2.49148 - 1.82953I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.602181 + 0.962757I$ $a = -0.017523 - 0.464247I$ $b = 0.189249 + 0.582642I$	$-2.24076 + 0.35611I$	0
$u = 0.602181 - 0.962757I$ $a = -0.017523 + 0.464247I$ $b = 0.189249 - 0.582642I$	$-2.24076 - 0.35611I$	0
$u = -0.343761 + 0.784853I$ $a = -1.44286 - 1.89551I$ $b = -0.157834 + 0.299506I$	$-5.23945 - 6.83479I$	0
$u = -0.343761 - 0.784853I$ $a = -1.44286 + 1.89551I$ $b = -0.157834 - 0.299506I$	$-5.23945 + 6.83479I$	0
$u = -0.018942 + 1.149860I$ $a = 0.32580 + 1.83647I$ $b = -0.835072 - 0.860030I$	$-5.09191 + 0.88313I$	0
$u = -0.018942 - 1.149860I$ $a = 0.32580 - 1.83647I$ $b = -0.835072 + 0.860030I$	$-5.09191 - 0.88313I$	0
$u = -0.780566 + 0.251437I$ $a = -0.182848 - 1.298480I$ $b = 0.058926 - 0.906421I$	$3.10843 + 3.24691I$	0
$u = -0.780566 - 0.251437I$ $a = -0.182848 + 1.298480I$ $b = 0.058926 + 0.906421I$	$3.10843 - 3.24691I$	0
$u = -0.433416 + 0.692395I$ $a = -0.892030 + 0.420953I$ $b = 1.09657 + 1.30641I$	$-1.87167 + 6.68892I$	0
$u = -0.433416 - 0.692395I$ $a = -0.892030 - 0.420953I$ $b = 1.09657 - 1.30641I$	$-1.87167 - 6.68892I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.039597 + 1.187340I$ $a = -0.23079 - 1.72372I$ $b = 1.029770 + 0.840840I$	$-7.51047 + 6.26493I$	0
$u = 0.039597 - 1.187340I$ $a = -0.23079 + 1.72372I$ $b = 1.029770 - 0.840840I$	$-7.51047 - 6.26493I$	0
$u = 0.028137 + 0.810981I$ $a = 0.857357 - 0.120226I$ $b = -1.185570 - 0.689334I$	$1.16811 + 2.58837I$	0
$u = 0.028137 - 0.810981I$ $a = 0.857357 + 0.120226I$ $b = -1.185570 + 0.689334I$	$1.16811 - 2.58837I$	0
$u = 0.685639 + 0.398945I$ $a = -0.714999 + 0.142005I$ $b = 0.267849 - 0.158035I$	$-0.78982 + 4.43480I$	0
$u = 0.685639 - 0.398945I$ $a = -0.714999 - 0.142005I$ $b = 0.267849 + 0.158035I$	$-0.78982 - 4.43480I$	0
$u = -0.747504 + 0.180586I$ $a = 0.918151 + 0.133298I$ $b = 0.376430 + 1.020790I$	$-2.80400 - 2.61780I$	0
$u = -0.747504 - 0.180586I$ $a = 0.918151 - 0.133298I$ $b = 0.376430 - 1.020790I$	$-2.80400 + 2.61780I$	0
$u = -0.749959 + 0.113090I$ $a = 0.246223 + 1.375070I$ $b = -0.183531 + 1.054220I$	$-1.382460 + 0.261042I$	0
$u = -0.749959 - 0.113090I$ $a = 0.246223 - 1.375070I$ $b = -0.183531 - 1.054220I$	$-1.382460 - 0.261042I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.123292 + 1.235550I$ $a = -0.024057 + 0.397629I$ $b = 0.721977 - 0.549297I$	$-3.24642 + 2.41794I$	0
$u = 0.123292 - 1.235550I$ $a = -0.024057 - 0.397629I$ $b = 0.721977 + 0.549297I$	$-3.24642 - 2.41794I$	0
$u = 0.920219 + 0.847649I$ $a = -0.534998 + 0.453594I$ $b = -0.562416 + 0.175354I$	$-2.38529 + 3.49979I$	0
$u = 0.920219 - 0.847649I$ $a = -0.534998 - 0.453594I$ $b = -0.562416 - 0.175354I$	$-2.38529 - 3.49979I$	0
$u = -0.104504 + 1.246890I$ $a = -0.49877 - 1.67441I$ $b = 0.80656 + 1.23008I$	$-10.16430 - 2.09519I$	0
$u = -0.104504 - 1.246890I$ $a = -0.49877 + 1.67441I$ $b = 0.80656 - 1.23008I$	$-10.16430 + 2.09519I$	0
$u = -0.376709 + 1.207980I$ $a = 0.49740 + 2.08303I$ $b = 1.06246 - 2.02022I$	$-4.73479 - 2.67171I$	0
$u = -0.376709 - 1.207980I$ $a = 0.49740 - 2.08303I$ $b = 1.06246 + 2.02022I$	$-4.73479 + 2.67171I$	0
$u = -0.444938 + 1.190580I$ $a = -0.91678 - 1.72233I$ $b = -0.37710 + 1.79378I$	$-4.79129 - 6.15356I$	0
$u = -0.444938 - 1.190580I$ $a = -0.91678 + 1.72233I$ $b = -0.37710 - 1.79378I$	$-4.79129 + 6.15356I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.400594+1.209200I$ $a=-0.384054+0.146148I$ $b=-0.606258+0.194163I$	$0.04470-7.58979I$	0
$u=-0.400594-1.209200I$ $a=-0.384054-0.146148I$ $b=-0.606258-0.194163I$	$0.04470+7.58979I$	0
$u=0.710136+0.117628I$ $a=-0.343029+0.215010I$ $b=-0.760564+1.115220I$	$2.39029-1.41778I$	0
$u=0.710136-0.117628I$ $a=-0.343029-0.215010I$ $b=-0.760564-1.115220I$	$2.39029+1.41778I$	0
$u=-0.717147+0.015494I$ $a=0.331720-0.326283I$ $b=0.047403-1.201530I$	$-1.38519+1.85665I$	0
$u=-0.717147-0.015494I$ $a=0.331720+0.326283I$ $b=0.047403+1.201530I$	$-1.38519-1.85665I$	0
$u=-0.326609+1.258210I$ $a=0.363087-0.010208I$ $b=0.681362-0.244980I$	$-5.04746-4.10538I$	0
$u=-0.326609-1.258210I$ $a=0.363087+0.010208I$ $b=0.681362+0.244980I$	$-5.04746+4.10538I$	0
$u=0.024138+1.299960I$ $a=-0.052500-0.354159I$ $b=-0.804034+0.514563I$	$-7.22328-1.44072I$	0
$u=0.024138-1.299960I$ $a=-0.052500+0.354159I$ $b=-0.804034-0.514563I$	$-7.22328+1.44072I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.574477+0.398863I$ $a=\ \ 0.121276-1.349280I$ $b=\ \ 0.244153-0.686304I$	$4.98422+1.09428I$	0
$u=-0.574477-0.398863I$ $a=\ \ 0.121276+1.349280I$ $b=\ \ 0.244153+0.686304I$	$4.98422-1.09428I$	0
$u=-0.896813+0.949012I$ $a=-0.835360-1.133600I$ $b=-1.66185+0.17676I$	$-6.05078-0.28308I$	0
$u=-0.896813-0.949012I$ $a=-0.835360+1.133600I$ $b=-1.66185-0.17676I$	$-6.05078+0.28308I$	0
$u=-0.546921+0.424202I$ $a=-0.858030+0.658167I$ $b=\ \ 0.69435+1.35145I$	$-2.43049-0.79621I$	0
$u=-0.546921-0.424202I$ $a=-0.858030-0.658167I$ $b=\ \ 0.69435-1.35145I$	$-2.43049+0.79621I$	0
$u=-0.437988+1.243590I$ $a=\ \ 0.315246-0.162105I$ $b=\ \ 0.621025-0.144861I$	$-2.63906-12.95050I$	0
$u=-0.437988-1.243590I$ $a=\ \ 0.315246+0.162105I$ $b=\ \ 0.621025+0.144861I$	$-2.63906+12.95050I$	0
$u=\ \ 0.169686+1.310780I$ $a=\ \ 0.044715-0.352540I$ $b=-0.750252+0.627963I$	$-6.23195+7.10872I$	0
$u=\ \ 0.169686-1.310780I$ $a=\ \ 0.044715+0.352540I$ $b=-0.750252-0.627963I$	$-6.23195-7.10872I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.405777+0.484780I$ $a=-0.45411+1.38784I$ $b=-0.380910+0.594374I$	$4.28423-3.95321I$	$8.83973+5.08072I$
$u=-0.405777-0.484780I$ $a=-0.45411-1.38784I$ $b=-0.380910-0.594374I$	$4.28423+3.95321I$	$8.83973-5.08072I$
$u=-0.375711+1.318400I$ $a=0.30255+1.85564I$ $b=1.22831-2.05684I$	$-4.72511-2.68988I$	0
$u=-0.375711-1.318400I$ $a=0.30255-1.85564I$ $b=1.22831+2.05684I$	$-4.72511+2.68988I$	0
$u=0.378389+1.327700I$ $a=-0.29232+1.78878I$ $b=-0.70586-1.75721I$	$-1.64399+5.55551I$	0
$u=0.378389-1.327700I$ $a=-0.29232-1.78878I$ $b=-0.70586+1.75721I$	$-1.64399-5.55551I$	0
$u=-0.260086+0.557311I$ $a=1.089100-0.374280I$ $b=-0.95277-1.07001I$	$0.70399+2.55333I$	$2.39179-1.33477I$
$u=-0.260086-0.557311I$ $a=1.089100+0.374280I$ $b=-0.95277+1.07001I$	$0.70399-2.55333I$	$2.39179+1.33477I$
$u=1.392090+0.059866I$ $a=-0.041688+0.516633I$ $b=0.19444+2.15296I$	$0.34432+7.14034I$	0
$u=1.392090-0.059866I$ $a=-0.041688-0.516633I$ $b=0.19444-2.15296I$	$0.34432-7.14034I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.424343+1.331970I$ $a=-0.89922-1.51222I$ $b=\ \ 0.17293+2.13223I$	$-7.32112-7.04455I$	0
$u=-0.424343-1.331970I$ $a=-0.89922+1.51222I$ $b=\ \ 0.17293-2.13223I$	$-7.32112+7.04455I$	0
$u=-0.363811+1.365390I$ $a=\ \ 0.81478+1.48788I$ $b=-0.40176-2.05770I$	$-11.51500-3.54675I$	0
$u=-0.363811-1.365390I$ $a=\ \ 0.81478-1.48788I$ $b=-0.40176+2.05770I$	$-11.51500+3.54675I$	0
$u=\ \ 0.46535+1.35157I$ $a=\ \ 0.41281-1.73538I$ $b=\ \ 0.92905+1.88759I$	$-1.50949+11.08430I$	0
$u=\ \ 0.46535-1.35157I$ $a=\ \ 0.41281+1.73538I$ $b=\ \ 0.92905-1.88759I$	$-1.50949-11.08430I$	0
$u=-0.534256+0.175599I$ $a=-1.41161+0.75020I$ $b=-0.157668-0.785039I$	$-6.59405+0.21495I$	$-8.07961-1.24156I$
$u=-0.534256-0.175599I$ $a=-1.41161-0.75020I$ $b=-0.157668+0.785039I$	$-6.59405-0.21495I$	$-8.07961+1.24156I$
$u=-0.44954+1.36682I$ $a=\ \ 0.91887+1.45811I$ $b=-0.20940-2.27646I$	$-10.0795-11.8977I$	0
$u=-0.44954-1.36682I$ $a=\ \ 0.91887-1.45811I$ $b=-0.20940+2.27646I$	$-10.0795+11.8977I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.08155 + 1.44756I$ $a = 0.03237 + 1.48629I$ $b = 0.28223 - 1.84017I$	$-5.90985 + 2.79566I$	0
$u = 0.08155 - 1.44756I$ $a = 0.03237 - 1.48629I$ $b = 0.28223 + 1.84017I$	$-5.90985 - 2.79566I$	0
$u = 0.515683 + 0.191655I$ $a = 0.868388 - 0.149219I$ $b = -0.257523 + 0.044833I$	$1.145010 + 0.395907I$	$8.43272 - 1.42917I$
$u = 0.515683 - 0.191655I$ $a = 0.868388 + 0.149219I$ $b = -0.257523 - 0.044833I$	$1.145010 - 0.395907I$	$8.43272 + 1.42917I$
$u = -0.321300 + 0.441867I$ $a = -0.359364 + 1.057550I$ $b = 0.646998 + 0.435745I$	$-1.58511 - 1.03071I$	$-2.17657 - 0.53205I$
$u = -0.321300 - 0.441867I$ $a = -0.359364 - 1.057550I$ $b = 0.646998 - 0.435745I$	$-1.58511 + 1.03071I$	$-2.17657 + 0.53205I$
$u = -0.84358 + 1.19517I$ $a = 0.64702 + 1.26996I$ $b = 1.93434 - 0.86046I$	$-4.24592 - 3.74110I$	0
$u = -0.84358 - 1.19517I$ $a = 0.64702 - 1.26996I$ $b = 1.93434 + 0.86046I$	$-4.24592 + 3.74110I$	0
$u = 1.45129 + 0.25325I$ $a = 0.108702 - 0.526750I$ $b = 0.29191 - 2.13272I$	$-3.84358 + 3.69745I$	0
$u = 1.45129 - 0.25325I$ $a = 0.108702 + 0.526750I$ $b = 0.29191 + 2.13272I$	$-3.84358 - 3.69745I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50001 + 0.01786I$ $a = 0.040577 - 0.552505I$ $b = -0.22698 - 2.42703I$	$-2.38759 + 12.01890I$	0
$u = 1.50001 - 0.01786I$ $a = 0.040577 + 0.552505I$ $b = -0.22698 + 2.42703I$	$-2.38759 - 12.01890I$	0
$u = -0.03046 + 1.50876I$ $a = -0.034479 - 1.355440I$ $b = -0.70117 + 1.92659I$	$-9.20997 - 2.44038I$	0
$u = -0.03046 - 1.50876I$ $a = -0.034479 + 1.355440I$ $b = -0.70117 - 1.92659I$	$-9.20997 + 2.44038I$	0
$u = 0.18707 + 1.54549I$ $a = 0.11795 - 1.47791I$ $b = -0.04073 + 2.24256I$	$-10.53950 + 6.99581I$	0
$u = 0.18707 - 1.54549I$ $a = 0.11795 + 1.47791I$ $b = -0.04073 - 2.24256I$	$-10.53950 - 6.99581I$	0
$u = 0.58892 + 1.45525I$ $a = 0.51439 - 1.57007I$ $b = 1.21400 + 2.25209I$	$-4.4747 + 13.8884I$	0
$u = 0.58892 - 1.45525I$ $a = 0.51439 + 1.57007I$ $b = 1.21400 - 2.25209I$	$-4.4747 - 13.8884I$	0
$u = 0.62506 + 1.47368I$ $a = -0.53986 + 1.53714I$ $b = -1.30785 - 2.32259I$	$-7.1676 + 19.1850I$	0
$u = 0.62506 - 1.47368I$ $a = -0.53986 - 1.53714I$ $b = -1.30785 + 2.32259I$	$-7.1676 - 19.1850I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.53960 + 1.50812I$ $a = -0.44875 + 1.53734I$ $b = -1.04384 - 2.37776I$	$-9.42147 + 10.38660I$	0
$u = \ 0.53960 - 1.50812I$ $a = -0.44875 - 1.53734I$ $b = -1.04384 + 2.37776I$	$-9.42147 - 10.38660I$	0
$u = -0.80497 + 1.43067I$ $a = \ 0.448147 + 1.301340I$ $b = \ 2.25308 - 1.49885I$	$-4.82162 - 3.73006I$	0
$u = -0.80497 - 1.43067I$ $a = \ 0.448147 - 1.301340I$ $b = \ 2.25308 + 1.49885I$	$-4.82162 + 3.73006I$	0
$u = -0.75952 + 1.59024I$ $a = -0.325959 - 1.292830I$ $b = -2.40942 + 1.95510I$	$-7.89532 - 0.16266I$	0
$u = -0.75952 - 1.59024I$ $a = -0.325959 + 1.292830I$ $b = -2.40942 - 1.95510I$	$-7.89532 + 0.16266I$	0
$u = -0.90874 + 1.51148I$ $a = -0.408405 - 1.217950I$ $b = -2.64198 + 1.51745I$	$-7.49720 - 7.84328I$	0
$u = -0.90874 - 1.51148I$ $a = -0.408405 + 1.217950I$ $b = -2.64198 - 1.51745I$	$-7.49720 + 7.84328I$	0
$u = \ 0.39392 + 1.75545I$ $a = -0.421747 + 1.209760I$ $b = -0.35466 - 3.04063I$	$-5.47321 + 0.58316I$	0
$u = \ 0.39392 - 1.75545I$ $a = -0.421747 - 1.209760I$ $b = -0.35466 + 3.04063I$	$-5.47321 - 0.58316I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.23900+1.88492I$		
$a=$	$0.318729-1.242060I$	$-9.06744-3.79611I$	0
$b=$	$-0.09185+3.52025I$		
$u=$	$0.23900-1.88492I$		
$a=$	$0.318729+1.242060I$	$-9.06744+3.79611I$	0
$b=$	$-0.09185-3.52025I$		
$u=$	$0.54878+1.88435I$		
$a=$	$0.382473-1.120080I$	$-8.97505+5.09593I$	0
$b=$	$0.97041+3.35655I$		
$u=$	$0.54878-1.88435I$		
$a=$	$0.382473+1.120080I$	$-8.97505-5.09593I$	0
$b=$	$0.97041-3.35655I$		

II. $I_2^u = \langle -1449u^{33} - 2044u^{32} + \cdots + b + 83,\ 1549u^{33} + 2128u^{32} + \cdots + a - 545,\ u^{34} + u^{33} + \cdots - 6u + 1 \rangle$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} -1549u^{33} - 2128u^{32} + \cdots - 5989u + 545 \\ 1449u^{33} + 2044u^{32} + \cdots + 3796u - 83 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -754u^{33} - 679u^{32} + \cdots - 7675u + 1257 \\ 2185u^{33} + 3143u^{32} + \cdots + 5239u - 25 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 5u^{32} + 5u^{31} + \cdots - 238u + 57 \\ u^{33} + u^{32} + \cdots + 32u - 6 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -220u^{33} + 130u^{32} + \cdots - 5587u + 1104 \\ 787u^{33} + 345u^{32} + \cdots + 11042u - 1832 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{33} + 6u^{32} + \cdots - 206u + 51 \\ u^{33} + u^{32} + \cdots + 32u - 6 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 51u^{33} + 50u^{32} + \cdots + 764u - 99 \\ -6u^{33} - 7u^{32} + \cdots - 83u + 4 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 461u^{33} + 623u^{32} + \cdots + 1393u + 113 \\ -99u^{33} - 150u^{32} + \cdots + 185u - 170 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 133u^{33} + 464u^{32} + \cdots - 4298u + 1015 \\ 168u^{33} + 30u^{32} + \cdots + 4930u - 923 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 917u^{33} - 1310u^{32} + \cdots + 34966u - 6672$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{34} - 18u^{33} + \cdots - 10u + 1$
c_2	$u^{34} + 2u^{33} + \cdots + 2u + 1$
c_3	$u^{34} - u^{33} + \cdots + 16u^2 + 1$
c_4	$u^{34} + 11u^{32} + \cdots + 3u + 1$
c_5	$u^{34} - 2u^{33} + \cdots - 2u + 1$
c_6	$u^{34} - 6u^{33} + \cdots - 4u^2 + 1$
c_7	$u^{34} - u^{33} + \cdots + 6u + 1$
c_8	$u^{34} + 2u^{32} + \cdots + 3u + 1$
c_9	$u^{34} - 6u^{33} + \cdots + u + 1$
c_{10}	$u^{34} + 11u^{32} + \cdots - 3u + 1$
c_{11}	$u^{34} + u^{33} + \cdots - 6u + 1$
c_{12}	$u^{34} + 6u^{33} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{34}+6y^{33}+\cdots+6y+1$
c_2, c_5	$y^{34}-18y^{33}+\cdots-10y+1$
c_3	$y^{34}+9y^{33}+\cdots+32y+1$
c_4, c_{10}	$y^{34}+22y^{33}+\cdots+27y+1$
c_6	$y^{34}+6y^{33}+\cdots-8y+1$
c_7, c_{11}	$y^{34}+31y^{33}+\cdots+28y+1$
c_8	$y^{34}+4y^{33}+\cdots-19y+1$
c_9, c_{12}	$y^{34}+28y^{33}+\cdots+31y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.191167 + 1.022040I$ $a = 0.869542 - 0.392560I$ $b = 0.561024 + 0.524196I$	$2.87251 - 2.10121I$	$7.29934 + 0.I$
$u = 0.191167 - 1.022040I$ $a = 0.869542 + 0.392560I$ $b = 0.561024 - 0.524196I$	$2.87251 + 2.10121I$	$7.29934 + 0.I$
$u = 0.174005 + 0.941830I$ $a = -0.782482 - 0.069547I$ $b = -0.596449 - 0.432842I$	$3.18425 + 3.55001I$	$2.36591 + 0.I$
$u = 0.174005 - 0.941830I$ $a = -0.782482 + 0.069547I$ $b = -0.596449 + 0.432842I$	$3.18425 - 3.55001I$	$2.36591 + 0.I$
$u = 0.561343 + 0.931730I$ $a = -0.111886 - 0.393693I$ $b = 0.684926 - 0.211606I$	$-1.47095 + 2.36634I$	0
$u = 0.561343 - 0.931730I$ $a = -0.111886 + 0.393693I$ $b = 0.684926 + 0.211606I$	$-1.47095 - 2.36634I$	0
$u = -0.521603 + 0.957553I$ $a = 0.98747 + 1.93291I$ $b = 1.23742 - 0.81189I$	$-4.95756 - 7.76885I$	0
$u = -0.521603 - 0.957553I$ $a = 0.98747 - 1.93291I$ $b = 1.23742 + 0.81189I$	$-4.95756 + 7.76885I$	0
$u = 0.537317 + 0.632038I$ $a = 1.033360 - 0.110578I$ $b = 0.105202 + 1.258570I$	$-2.88749 + 1.16310I$	$-4.11877 - 2.77849I$
$u = 0.537317 - 0.632038I$ $a = 1.033360 + 0.110578I$ $b = 0.105202 - 1.258570I$	$-2.88749 - 1.16310I$	$-4.11877 + 2.77849I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.472992+1.091720I$ $a=-0.64565-1.85526I$ $b=-1.14403+1.01661I$	$-3.30793-3.11279I$	0
$u=-0.472992-1.091720I$ $a=-0.64565+1.85526I$ $b=-1.14403-1.01661I$	$-3.30793+3.11279I$	0
$u=-0.767531+1.018810I$ $a=0.96772+1.36100I$ $b=1.60609-0.80485I$	$-6.29487-1.24377I$	0
$u=-0.767531-1.018810I$ $a=0.96772-1.36100I$ $b=1.60609+0.80485I$	$-6.29487+1.24377I$	0
$u=0.400691+0.593368I$ $a=-0.833120+1.004930I$ $b=-0.584286-1.206530I$	$0.93308+4.04917I$	$4.14785-6.31643I$
$u=0.400691-0.593368I$ $a=-0.833120-1.004930I$ $b=-0.584286+1.206530I$	$0.93308-4.04917I$	$4.14785+6.31643I$
$u=0.108881+0.699899I$ $a=1.062960-0.679577I$ $b=-1.042570-0.437362I$	$0.98679+1.47341I$	$-0.75167+2.47418I$
$u=0.108881-0.699899I$ $a=1.062960+0.679577I$ $b=-1.042570+0.437362I$	$0.98679-1.47341I$	$-0.75167-2.47418I$
$u=0.430156+0.535349I$ $a=1.44991-1.09036I$ $b=0.56793+1.42993I$	$-1.43696+8.71820I$	$0.52151-8.82845I$
$u=0.430156-0.535349I$ $a=1.44991+1.09036I$ $b=0.56793-1.42993I$	$-1.43696-8.71820I$	$0.52151+8.82845I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.245797 + 0.610656I$ $a = 0.699203 + 1.193170I$ $b = -0.992414 - 0.902442I$	$1.91035 + 2.96084I$	$8.91302 - 7.38262I$
$u = 0.245797 - 0.610656I$ $a = 0.699203 - 1.193170I$ $b = -0.992414 + 0.902442I$	$1.91035 - 2.96084I$	$8.91302 + 7.38262I$
$u = 0.114888 + 0.626503I$ $a = -1.98668 + 0.21523I$ $b = 1.220040 + 0.554147I$	$-0.10391 + 4.93722I$	$1.75205 - 4.82134I$
$u = 0.114888 - 0.626503I$ $a = -1.98668 - 0.21523I$ $b = 1.220040 - 0.554147I$	$-0.10391 - 4.93722I$	$1.75205 + 4.82134I$
$u = 0.188919 + 0.577484I$ $a = -1.71516 - 1.32876I$ $b = 1.20718 + 0.85022I$	$0.359771 - 1.188750I$	$5.16537 + 0.04112I$
$u = 0.188919 - 0.577484I$ $a = -1.71516 + 1.32876I$ $b = 1.20718 - 0.85022I$	$0.359771 + 1.188750I$	$5.16537 - 0.04112I$
$u = -0.80963 + 1.27004I$ $a = -0.62953 - 1.28658I$ $b = -1.89479 + 1.24301I$	$-4.89455 - 3.88983I$	0
$u = -0.80963 - 1.27004I$ $a = -0.62953 + 1.28658I$ $b = -1.89479 - 1.24301I$	$-4.89455 + 3.88983I$	0
$u = -0.29394 + 1.56496I$ $a = -0.134365 - 1.396210I$ $b = -0.60597 + 2.19166I$	$-5.20461 - 1.85850I$	0
$u = -0.29394 - 1.56496I$ $a = -0.134365 + 1.396210I$ $b = -0.60597 - 2.19166I$	$-5.20461 + 1.85850I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.09200+1.71224I$ $a=\ \ 0.040387+1.269270I$ $b=-0.10955-2.60577I$	$-8.48052+2.96135I$	0
$u=-0.09200-1.71224I$ $a=\ \ 0.040387-1.269270I$ $b=-0.10955+2.60577I$	$-8.48052-2.96135I$	0
$u=-0.49547+1.77508I$ $a=\ \ 0.228343+1.257210I$ $b=\ \ 1.28025-2.87303I$	$-9.04089-5.96767I$	0
$u=-0.49547-1.77508I$ $a=\ \ 0.228343-1.257210I$ $b=\ \ 1.28025+2.87303I$	$-9.04089+5.96767I$	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{34}-18u^{33}+\cdots-10u+1)(u^{144}+73u^{143}+\cdots+11u+1)$
c_2	$(u^{34}+2u^{33}+\cdots+2u+1)(u^{144}+3u^{143}+\cdots+3u+1)$
c_3	$(u^{34}-u^{33}+\cdots+16u^2+1)$ $\cdot(u^{144}+31u^{142}+\cdots+1908503741u+608565121)$
c_4	$(u^{34}+11u^{32}+\cdots+3u+1)(u^{144}+u^{143}+\cdots+3922u+11047)$
c_5	$(u^{34}-2u^{33}+\cdots-2u+1)(u^{144}+3u^{143}+\cdots+3u+1)$
c_6	$(u^{34}-6u^{33}+\cdots-4u^2+1)(u^{144}+9u^{143}+\cdots+5231795u+492275)$
c_7	$(u^{34}-u^{33}+\cdots+6u+1)(u^{144}-2u^{143}+\cdots+4.34928\times10^7u+4293137)$
c_8	$(u^{34}+2u^{32}+\cdots+3u+1)(u^{144}-5u^{143}+\cdots+323456u+145664)$
c_9	$(u^{34}-6u^{33}+\cdots+u+1)(u^{144}-7u^{143}+\cdots+448u+241)$
c_{10}	$(u^{34}+11u^{32}+\cdots-3u+1)(u^{144}+u^{143}+\cdots+3922u+11047)$
c_{11}	$(u^{34}+u^{33}+\cdots-6u+1)(u^{144}-2u^{143}+\cdots+4.34928\times10^7u+4293137)$
c_{12}	$(u^{34}+6u^{33}+\cdots-u+1)(u^{144}-7u^{143}+\cdots+448u+241)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{34}+6y^{33}+\cdots+6y+1)(y^{144}+7y^{143}+\cdots+61y+1)$
c_2, c_5	$(y^{34}-18y^{33}+\cdots-10y+1)(y^{144}-73y^{143}+\cdots-11y+1)$
c_3	$(y^{34}+9y^{33}+\cdots+32y+1)$ $\cdot(y^{144}+62y^{143}+\cdots+1.71\times10^{19}y+3.70\times10^{17})$
c_4, c_{10}	$(y^{34}+22y^{33}+\cdots+27y+1)$ $\cdot(y^{144}+99y^{143}+\cdots+2246933046y+122036209)$
c_6	$(y^{34}+6y^{33}+\cdots-8y+1)$ $\cdot(y^{144}+59y^{143}+\cdots+2859927161675y+242334675625)$
c_7, c_{11}	$(y^{34}+31y^{33}+\cdots+28y+1)$ $\cdot(y^{144}+112y^{143}+\cdots+363442723348927y+18431025300769)$
c_8	$(y^{34}+4y^{33}+\cdots-19y+1)$ $\cdot(y^{144}+21y^{143}+\cdots+608957349888y+21218000896)$
c_9, c_{12}	$(y^{34}+28y^{33}+\cdots+31y+1)$ $\cdot(y^{144}+81y^{143}+\cdots+5275298y+58081)$