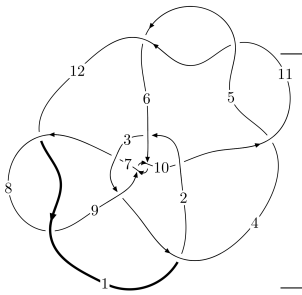
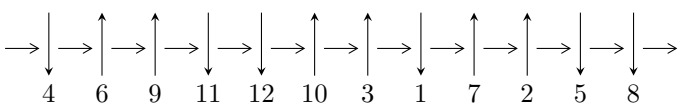
$12a_{0929}$ $(K12a_{0929})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 7.70151 \times 10^{505} u^{138} - 3.75072 \times 10^{506} u^{137} + \cdots + 1.06895 \times 10^{506} b - 8.54489 \times 10^{505},$$
$$- 1.85390 \times 10^{506} u^{138} + 8.48171 \times 10^{506} u^{137} + \cdots + 1.06895 \times 10^{506} a - 1.47936 \times 10^{507},$$
$$u^{139} - 5u^{138} + \cdots - 5u - 1 \rangle$$

$$I_2^u = \langle -74739457095708 u^{37} - 838683780419238 u^{36} + \cdots + 399763050242851 b - 1278150090688057,$$
$$716983712604222 u^{37} + 3614680862920783 u^{36} + \cdots + 399763050242851 a + 442429692628259,$$
$$u^{38} + 6u^{37} + \cdots + 8u + 1 \rangle$$

* 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. $\boldsymbol{I_1^u = \langle 7.70 \times 10^{505} u^{138} - 3.75 \times 10^{506} u^{137} + \cdots + 1.07 \times 10^{506} b - 8.54 \times 10^{505},\ -1.85 \times 10^{506} u^{138} + 8.48 \times 10^{506} u^{137} + \cdots + 1.07 \times 10^{506} a - 1.48 \times 10^{507},\ u^{139} - 5u^{138} + \cdots - 5u - 1 \rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1.73432u^{138} - 7.93462u^{137} + \cdots + 278.883u + 13.8394 \\ -0.720474u^{138} + 3.50880u^{137} + \cdots - 10.8066u + 0.799373 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0.735856u^{138} - 4.21108u^{137} + \cdots + 235.088u - 15.1454 \\ -0.0760587u^{138} - 0.0133702u^{137} + \cdots + 7.60471u + 1.60285 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.45479u^{138} - 11.4434u^{137} + \cdots + 289.689u + 13.0400 \\ -0.720474u^{138} + 3.50880u^{137} + \cdots - 10.8066u + 0.799373 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.23653u^{138} - 6.01119u^{137} + \cdots - 415.957u + 18.7604 \\ 0.0609717u^{138} - 0.629528u^{137} + \cdots + 14.1572u - 0.658718 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 2.46548u^{138} - 11.2941u^{137} + \cdots + 280.398u + 13.8012 \\ -0.485275u^{138} + 2.47123u^{137} + \cdots - 14.5343u + 0.541178 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 2.38158u^{138} - 11.6726u^{137} + \cdots - 27.2525u - 18.2120 \\ -1.21154u^{138} + 6.00159u^{137} + \cdots - 19.9200u - 2.25614 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0581799u^{138} - 0.510923u^{137} + \cdots - 265.552u + 14.6717 \\ -0.782724u^{138} + 3.73557u^{137} + \cdots + 0.462355u - 2.95331 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.801704u^{138} - 2.88019u^{137} + \cdots - 374.674u + 30.2259 \\ -0.0114680u^{138} + 0.203173u^{137} + \cdots + 18.2793u - 0.985923 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.93883u^{138} + 13.5235u^{137} + \cdots - 86.5187u - 10.5376$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{139} + 12u^{138} + \cdots - 96031942u - 12031189$
c_2	$u^{139} + 20u^{137} + \cdots - 139979106u - 14998159$
c_3	$u^{139} - u^{138} + \cdots - 67319757u - 11261219$
c_4, c_5, c_{11}	$u^{139} - u^{138} + \cdots - 45u + 1$
c_6, c_9	$u^{139} + 5u^{138} + \cdots - 5u + 1$
c_7	$u^{139} - u^{138} + \cdots - 1730911u - 412087$
c_8, c_{12}	$u^{139} - u^{138} + \cdots + 1535u + 59$
c_{10}	$u^{139} - 6u^{138} + \cdots - 7021256335u - 1610458073$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{139} - 68y^{138} + \cdots - 3265430574626558y - 144749508753721$
c_2	$y^{139} + 40y^{138} + \cdots - 6420905976964404y - 224944773389281$
c_3	$y^{139} + 51y^{138} + \cdots - 3672999278065189y - 126815053365961$
c_4, c_5, c_{11}	$y^{139} - 139y^{138} + \cdots + 167y - 1$
c_6, c_9	$y^{139} + 101y^{138} + \cdots + 71y - 1$
c_7	$y^{139} + 35y^{138} + \cdots - 4614590704711y - 169815695569$
c_8, c_{12}	$y^{139} - 85y^{138} + \cdots + 3775647y - 3481$
c_{10}	$y^{139} + 58y^{138} + \cdots - 8.30 \times 10^{19}y - 2.59 \times 10^{18}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.632104+0.764385I$ $a=-1.064890-0.857259I$ $b=\ \ 0.930191+0.078128I$	$-3.62053-2.47278I$	0
$u=-0.632104-0.764385I$ $a=-1.064890+0.857259I$ $b=\ \ 0.930191-0.078128I$	$-3.62053+2.47278I$	0
$u=-0.625186+0.814814I$ $a=\ \ 0.805602+0.418623I$ $b=-0.638835+0.193995I$	$0.79095-2.44484I$	0
$u=-0.625186-0.814814I$ $a=\ \ 0.805602-0.418623I$ $b=-0.638835-0.193995I$	$0.79095+2.44484I$	0
$u=-0.578146+0.849733I$ $a=-1.252290+0.061980I$ $b=\ \ 0.442621-0.563800I$	$-4.42501-3.02023I$	0
$u=-0.578146-0.849733I$ $a=-1.252290-0.061980I$ $b=\ \ 0.442621+0.563800I$	$-4.42501+3.02023I$	0
$u=-0.450126+0.939673I$ $a=-0.77915-1.58367I$ $b=\ \ 0.12832-1.64050I$	$-2.51785-5.09124I$	0
$u=-0.450126-0.939673I$ $a=-0.77915+1.58367I$ $b=\ \ 0.12832+1.64050I$	$-2.51785+5.09124I$	0
$u=\ \ 0.040562+0.956173I$ $a=\ \ 0.80061-1.50522I$ $b=\ \ 0.154062-1.006350I$	$-1.93236-1.50203I$	0
$u=\ \ 0.040562-0.956173I$ $a=\ \ 0.80061+1.50522I$ $b=\ \ 0.154062+1.006350I$	$-1.93236+1.50203I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.376090+0.975853I$ $a=\ \ 0.299159+1.227920I$ $b=-0.227847+0.359081I$	$0.20583-2.11439I$	0
$u=-0.376090-0.975853I$ $a=\ \ 0.299159-1.227920I$ $b=-0.227847-0.359081I$	$0.20583+2.11439I$	0
$u=-0.097694+0.948171I$ $a=-0.18979-1.76123I$ $b=-0.538958-0.292799I$	$-3.78394-0.07176I$	0
$u=-0.097694-0.948171I$ $a=-0.18979+1.76123I$ $b=-0.538958+0.292799I$	$-3.78394+0.07176I$	0
$u=\ \ 1.054900+0.033506I$ $a=-0.350782+0.054072I$ $b=\ \ 0.191210-1.182360I$	$-11.98150-0.43899I$	0
$u=\ \ 1.054900-0.033506I$ $a=-0.350782-0.054072I$ $b=\ \ 0.191210+1.182360I$	$-11.98150+0.43899I$	0
$u=\ \ 0.200437+1.044810I$ $a=-0.00787+1.78491I$ $b=\ \ 0.97940+1.44776I$	$-1.89065+2.87565I$	0
$u=\ \ 0.200437-1.044810I$ $a=-0.00787-1.78491I$ $b=\ \ 0.97940-1.44776I$	$-1.89065-2.87565I$	0
$u=\ \ 0.052430+1.085180I$ $a=\ \ 0.083079+0.887851I$ $b=\ \ 1.34567+0.62743I$	$-2.17992+2.23027I$	0
$u=\ \ 0.052430-1.085180I$ $a=\ \ 0.083079-0.887851I$ $b=\ \ 1.34567-0.62743I$	$-2.17992-2.23027I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.133183 + 1.078660I$ $a = 0.269627 + 0.788037I$ $b = -1.041810 + 0.142681I$	$-6.34074 + 5.65719I$	0
$u = 0.133183 - 1.078660I$ $a = 0.269627 - 0.788037I$ $b = -1.041810 - 0.142681I$	$-6.34074 - 5.65719I$	0
$u = -0.884291$ $a = 0.135616$ $b = 0.828989$	1.73740	0
$u = 1.122850 + 0.143683I$ $a = -0.0144874 - 0.0238569I$ $b = 0.913772 + 1.019110I$	$-9.3265 + 13.2419I$	0
$u = 1.122850 - 0.143683I$ $a = -0.0144874 + 0.0238569I$ $b = 0.913772 - 1.019110I$	$-9.3265 - 13.2419I$	0
$u = -0.030369 + 1.141630I$ $a = -1.13180 + 1.56529I$ $b = -0.827680 + 0.856148I$	$-7.14553 - 4.22155I$	0
$u = -0.030369 - 1.141630I$ $a = -1.13180 - 1.56529I$ $b = -0.827680 - 0.856148I$	$-7.14553 + 4.22155I$	0
$u = 0.574161 + 0.999656I$ $a = -1.038430 + 0.387110I$ $b = -0.742550 + 0.859820I$	$-4.00102 + 4.85639I$	0
$u = 0.574161 - 0.999656I$ $a = -1.038430 - 0.387110I$ $b = -0.742550 - 0.859820I$	$-4.00102 - 4.85639I$	0
$u = 0.376627 + 1.096920I$ $a = 0.08063 + 2.21291I$ $b = 0.732094 + 0.195650I$	$-9.83431 + 8.73999I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.376627 - 1.096920I$ $a = 0.08063 - 2.21291I$ $b = 0.732094 - 0.195650I$	$-9.83431 - 8.73999I$	0
$u = 0.131427 + 1.154940I$ $a = -0.47784 + 1.44960I$ $b = -1.14341 + 1.07951I$	$-6.18385 + 5.50700I$	0
$u = 0.131427 - 1.154940I$ $a = -0.47784 - 1.44960I$ $b = -1.14341 - 1.07951I$	$-6.18385 - 5.50700I$	0
$u = -0.033659 + 1.162790I$ $a = -0.154800 - 1.358090I$ $b = -0.892725 - 1.067090I$	$-3.70268 - 1.30296I$	0
$u = -0.033659 - 1.162790I$ $a = -0.154800 + 1.358090I$ $b = -0.892725 + 1.067090I$	$-3.70268 + 1.30296I$	0
$u = 0.293787 + 1.128340I$ $a = -0.17563 - 1.98365I$ $b = -0.285408 - 0.485364I$	$-4.32303 + 6.86710I$	0
$u = 0.293787 - 1.128340I$ $a = -0.17563 + 1.98365I$ $b = -0.285408 + 0.485364I$	$-4.32303 - 6.86710I$	0
$u = -0.327936 + 1.120870I$ $a = -0.27163 + 2.31639I$ $b = -1.41225 + 2.17689I$	$-10.47560 - 9.06708I$	0
$u = -0.327936 - 1.120870I$ $a = -0.27163 - 2.31639I$ $b = -1.41225 - 2.17689I$	$-10.47560 + 9.06708I$	0
$u = 1.164710 + 0.145738I$ $a = -0.0718814 - 0.0205685I$ $b = -0.663783 - 0.821663I$	$-2.70772 + 8.73976I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.164710 - 0.145738I$ $a = -0.0718814 + 0.0205685I$ $b = -0.663783 + 0.821663I$	$-2.70772 - 8.73976I$	0
$u = 0.216339 + 1.157270I$ $a = -0.11963 - 1.76006I$ $b = -1.29983 - 1.46989I$	$-7.96668 + 6.49431I$	0
$u = 0.216339 - 1.157270I$ $a = -0.11963 + 1.76006I$ $b = -1.29983 + 1.46989I$	$-7.96668 - 6.49431I$	0
$u = -0.603808 + 0.512147I$ $a = 1.42525 + 0.13019I$ $b = 0.687606 + 1.058580I$	$-1.35003 + 0.84890I$	0
$u = -0.603808 - 0.512147I$ $a = 1.42525 - 0.13019I$ $b = 0.687606 - 1.058580I$	$-1.35003 - 0.84890I$	0
$u = 1.209830 + 0.053647I$ $a = 0.169389 + 0.030182I$ $b = 0.254752 + 0.774658I$	$-3.55913 + 2.84298I$	0
$u = 1.209830 - 0.053647I$ $a = 0.169389 - 0.030182I$ $b = 0.254752 - 0.774658I$	$-3.55913 - 2.84298I$	0
$u = -0.081245 + 1.213710I$ $a = 1.20424 + 2.16299I$ $b = -0.426972 + 1.087010I$	$-13.7202 - 7.3631I$	0
$u = -0.081245 - 1.213710I$ $a = 1.20424 - 2.16299I$ $b = -0.426972 - 1.087010I$	$-13.7202 + 7.3631I$	0
$u = -0.779454$ $a = 0.0601539$ $b = -1.60160$	-2.60324	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.147100+0.428093I$ $a=\ \ 0.0746036+0.0133176I$ $b=-0.548048+0.264373I$	$1.64726-2.96897I$	0
$u=-1.147100-0.428093I$ $a=\ \ 0.0746036-0.0133176I$ $b=-0.548048-0.264373I$	$1.64726+2.96897I$	0
$u=-1.221970+0.106384I$ $a=-0.130642+0.070039I$ $b=\ \ 0.641240-0.899596I$	$-5.40420-6.34999I$	0
$u=-1.221970-0.106384I$ $a=-0.130642-0.070039I$ $b=\ \ 0.641240+0.899596I$	$-5.40420+6.34999I$	0
$u=\ \ 0.061866+1.229080I$ $a=\ \ 1.10101-2.22020I$ $b=\ \ 1.69509-2.45035I$	$-13.9888+7.0441I$	0
$u=\ \ 0.061866-1.229080I$ $a=\ \ 1.10101+2.22020I$ $b=\ \ 1.69509+2.45035I$	$-13.9888-7.0441I$	0
$u=-0.057965+1.240160I$ $a=-0.68750-1.69985I$ $b=\ \ 0.502615-0.896052I$	$-7.51703-4.43921I$	0
$u=-0.057965-1.240160I$ $a=-0.68750+1.69985I$ $b=\ \ 0.502615+0.896052I$	$-7.51703+4.43921I$	0
$u=\ \ 0.693216+0.294172I$ $a=-1.235230-0.606825I$ $b=\ \ 1.234120-0.277966I$	$-7.46136-4.66764I$	0
$u=\ \ 0.693216-0.294172I$ $a=-1.235230+0.606825I$ $b=\ \ 1.234120+0.277966I$	$-7.46136+4.66764I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.740925+0.039005I$ $a=\ 0.175208+0.012937I$ $b=\ 0.894801+0.094130I$	$1.79165+0.01807I$	0
$u=-0.740925-0.039005I$ $a=\ 0.175208-0.012937I$ $b=\ 0.894801-0.094130I$	$1.79165-0.01807I$	0
$u=\ 0.396515+0.626820I$ $a=\ 1.61618+0.64913I$ $b=\ 1.043350-0.351024I$	$-0.806683-0.430513I$	0
$u=\ 0.396515-0.626820I$ $a=\ 1.61618-0.64913I$ $b=\ 1.043350+0.351024I$	$-0.806683+0.430513I$	0
$u=-0.488716+1.188780I$ $a=\ 0.059634-1.120490I$ $b=\ 0.571156-0.740029I$	$-1.77558-4.94866I$	0
$u=-0.488716-1.188780I$ $a=\ 0.059634+1.120490I$ $b=\ 0.571156+0.740029I$	$-1.77558+4.94866I$	0
$u=-0.321103+1.251180I$ $a=-1.01316+1.56690I$ $b=-1.39219+0.69119I$	$-6.46785-3.98634I$	0
$u=-0.321103-1.251180I$ $a=-1.01316-1.56690I$ $b=-1.39219-0.69119I$	$-6.46785+3.98634I$	0
$u=-0.023033+1.294480I$ $a=\ 0.429469+1.221800I$ $b=\ 1.16918+1.40255I$	$-10.15290-2.95176I$	0
$u=-0.023033-1.294480I$ $a=\ 0.429469-1.221800I$ $b=\ 1.16918-1.40255I$	$-10.15290+2.95176I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.663270 + 0.227218I$ $a = 0.517789 - 0.387904I$ $b = -0.698127 - 0.542906I$	$-2.15270 - 0.29643I$	0
$u = 0.663270 - 0.227218I$ $a = 0.517789 + 0.387904I$ $b = -0.698127 + 0.542906I$	$-2.15270 + 0.29643I$	0
$u = 0.269302 + 1.275940I$ $a = 0.23313 + 2.04139I$ $b = 0.85140 + 1.32317I$	$-3.56123 + 6.01556I$	0
$u = 0.269302 - 1.275940I$ $a = 0.23313 - 2.04139I$ $b = 0.85140 - 1.32317I$	$-3.56123 - 6.01556I$	0
$u = 0.231566 + 1.285870I$ $a = -0.15984 - 2.29698I$ $b = -0.84573 - 1.87240I$	$-8.17289 + 8.32891I$	0
$u = 0.231566 - 1.285870I$ $a = -0.15984 + 2.29698I$ $b = -0.84573 + 1.87240I$	$-8.17289 - 8.32891I$	0
$u = 0.081050 + 1.310830I$ $a = -0.697772 + 0.506852I$ $b = -1.39957 + 0.43759I$	$-6.71126 - 1.59464I$	0
$u = 0.081050 - 1.310830I$ $a = -0.697772 - 0.506852I$ $b = -1.39957 - 0.43759I$	$-6.71126 + 1.59464I$	0
$u = -0.640989 + 0.226911I$ $a = -1.19954 + 0.95018I$ $b = -1.02641 - 1.01692I$	$-7.85912 + 5.38264I$	0
$u = -0.640989 - 0.226911I$ $a = -1.19954 - 0.95018I$ $b = -1.02641 + 1.01692I$	$-7.85912 - 5.38264I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.066545+1.321360I$ $a=\ \ 0.768645+0.747733I$ $b=-0.297793+0.514659I$	$-7.17179-0.71597I$	0
$u=-0.066545-1.321360I$ $a=\ \ 0.768645-0.747733I$ $b=-0.297793-0.514659I$	$-7.17179+0.71597I$	0
$u=-0.315227+1.288070I$ $a=\ \ 0.52410-1.58607I$ $b=\ \ 1.01407-1.14665I$	$-2.20214-3.80235I$	0
$u=-0.315227-1.288070I$ $a=\ \ 0.52410+1.58607I$ $b=\ \ 1.01407+1.14665I$	$-2.20214+3.80235I$	0
$u=-0.151574+1.324020I$ $a=-1.34391-0.47917I$ $b=-0.063819-0.637227I$	$-12.81730+2.75952I$	0
$u=-0.151574-1.324020I$ $a=-1.34391+0.47917I$ $b=-0.063819+0.637227I$	$-12.81730-2.75952I$	0
$u=-0.291169+1.312350I$ $a=-0.28843+1.95616I$ $b=-0.97209+1.82682I$	$-7.62419-4.26111I$	0
$u=-0.291169-1.312350I$ $a=-0.28843-1.95616I$ $b=-0.97209-1.82682I$	$-7.62419+4.26111I$	0
$u=\ \ 0.064319+1.349230I$ $a=-0.132807+0.304254I$ $b=\ \ 0.766753+0.551467I$	$-10.16590-2.53861I$	0
$u=\ \ 0.064319-1.349230I$ $a=-0.132807-0.304254I$ $b=\ \ 0.766753-0.551467I$	$-10.16590+2.53861I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.141759 + 1.348390I$ $a = 1.280460 - 0.496264I$ $b = 2.04695 - 0.81471I$	$-12.83850 - 1.98284I$	0
$u = 0.141759 - 1.348390I$ $a = 1.280460 + 0.496264I$ $b = 2.04695 + 0.81471I$	$-12.83850 + 1.98284I$	0
$u = 0.312822 + 1.329800I$ $a = -0.35508 - 1.68811I$ $b = -1.04846 - 0.95234I$	$-6.85262 + 3.32305I$	0
$u = 0.312822 - 1.329800I$ $a = -0.35508 + 1.68811I$ $b = -1.04846 + 0.95234I$	$-6.85262 - 3.32305I$	0
$u = 0.564982 + 0.246712I$ $a = 0.941868 + 0.988039I$ $b = -0.778969 + 0.273927I$	$-1.74419 - 3.51926I$	$0. + 6.81358I$
$u = 0.564982 - 0.246712I$ $a = 0.941868 - 0.988039I$ $b = -0.778969 - 0.273927I$	$-1.74419 + 3.51926I$	$0. - 6.81358I$
$u = -0.579514 + 0.172524I$ $a = -0.599116 - 0.441227I$ $b = -0.651970 + 0.762314I$	$-3.10725 - 0.93221I$	$-1.69865 + 1.91084I$
$u = -0.579514 - 0.172524I$ $a = -0.599116 + 0.441227I$ $b = -0.651970 - 0.762314I$	$-3.10725 + 0.93221I$	$-1.69865 - 1.91084I$
$u = 0.375731 + 0.430586I$ $a = -1.46280 - 1.70331I$ $b = 0.121273 + 0.381635I$	$-4.73205 - 3.56692I$	$-3.56257 + 0.82297I$
$u = 0.375731 - 0.430586I$ $a = -1.46280 + 1.70331I$ $b = 0.121273 - 0.381635I$	$-4.73205 + 3.56692I$	$-3.56257 - 0.82297I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.551351 + 0.041466I$ $a = -0.348797 + 0.159864I$ $b = 0.909573 + 0.742731I$	$0.49466 + 2.87994I$	$3.76408 - 7.17730I$
$u = 0.551351 - 0.041466I$ $a = -0.348797 - 0.159864I$ $b = 0.909573 - 0.742731I$	$0.49466 - 2.87994I$	$3.76408 + 7.17730I$
$u = 0.50487 + 1.35872I$ $a = 0.57340 - 1.32710I$ $b = -0.19555 - 1.69780I$	$-16.3446 + 5.0785I$	0
$u = 0.50487 - 1.35872I$ $a = 0.57340 + 1.32710I$ $b = -0.19555 + 1.69780I$	$-16.3446 - 5.0785I$	0
$u = 0.53916 + 1.35125I$ $a = -0.592181 + 1.256510I$ $b = 0.77271 + 1.21631I$	$-16.0866 + 6.1383I$	0
$u = 0.53916 - 1.35125I$ $a = -0.592181 - 1.256510I$ $b = 0.77271 - 1.21631I$	$-16.0866 - 6.1383I$	0
$u = 0.494920 + 0.064945I$ $a = -0.201421 + 0.138589I$ $b = -0.846145 - 1.054990I$	$-4.00307 + 5.55437I$	$-0.20630 - 9.80295I$
$u = 0.494920 - 0.064945I$ $a = -0.201421 - 0.138589I$ $b = -0.846145 + 1.054990I$	$-4.00307 - 5.55437I$	$-0.20630 + 9.80295I$
$u = 0.49609 + 1.41761I$ $a = 0.06162 + 1.67711I$ $b = 1.25880 + 1.44695I$	$-14.2338 + 18.9321I$	0
$u = 0.49609 - 1.41761I$ $a = 0.06162 - 1.67711I$ $b = 1.25880 - 1.44695I$	$-14.2338 - 18.9321I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.52629 + 1.40859I$ $a = -0.175667 + 1.314370I$ $b = 0.64333 + 1.33059I$	$-8.23137 + 8.85985I$	0
$u = 0.52629 - 1.40859I$ $a = -0.175667 - 1.314370I$ $b = 0.64333 - 1.33059I$	$-8.23137 - 8.85985I$	0
$u = 0.50533 + 1.42053I$ $a = -0.00810 - 1.49369I$ $b = -1.00508 - 1.32890I$	$-7.6298 + 14.5593I$	0
$u = 0.50533 - 1.42053I$ $a = -0.00810 + 1.49369I$ $b = -1.00508 + 1.32890I$	$-7.6298 - 14.5593I$	0
$u = -0.49851 + 1.42956I$ $a = -0.042542 + 1.227700I$ $b = -0.97671 + 1.06557I$	$-3.66903 - 8.81792I$	0
$u = -0.49851 - 1.42956I$ $a = -0.042542 - 1.227700I$ $b = -0.97671 - 1.06557I$	$-3.66903 + 8.81792I$	0
$u = -0.52229 + 1.42436I$ $a = -0.067096 - 1.388590I$ $b = 1.14001 - 1.26236I$	$-10.2609 - 12.3841I$	0
$u = -0.52229 - 1.42436I$ $a = -0.067096 + 1.388590I$ $b = 1.14001 + 1.26236I$	$-10.2609 + 12.3841I$	0
$u = 0.425096 + 0.199889I$ $a = -0.59446 - 1.85856I$ $b = -0.496624 + 0.741934I$	$-5.16865 - 3.96189I$	$-8.75976 - 1.52352I$
$u = 0.425096 - 0.199889I$ $a = -0.59446 + 1.85856I$ $b = -0.496624 - 0.741934I$	$-5.16865 + 3.96189I$	$-8.75976 + 1.52352I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.49284 + 1.45025I$ $a = 0.210900 - 0.948046I$ $b = -0.611507 - 0.865321I$	$-8.34973 + 3.47434I$	0
$u = 0.49284 - 1.45025I$ $a = 0.210900 + 0.948046I$ $b = -0.611507 + 0.865321I$	$-8.34973 - 3.47434I$	0
$u = -0.45669 + 1.46870I$ $a = 0.092018 - 0.950393I$ $b = 0.698719 - 0.926621I$	$-3.66154 - 4.15808I$	0
$u = -0.45669 - 1.46870I$ $a = 0.092018 + 0.950393I$ $b = 0.698719 + 0.926621I$	$-3.66154 + 4.15808I$	0
$u = -1.48715 + 0.40226I$ $a = 0.0364771 + 0.0056350I$ $b = -0.297858 + 0.327164I$	$1.67745 - 2.92146I$	0
$u = -1.48715 - 0.40226I$ $a = 0.0364771 - 0.0056350I$ $b = -0.297858 - 0.327164I$	$1.67745 + 2.92146I$	0
$u = 0.72226 + 1.43161I$ $a = 0.612530 - 0.252302I$ $b = 0.201225 - 0.860882I$	$-13.0035 - 6.6242I$	0
$u = 0.72226 - 1.43161I$ $a = 0.612530 + 0.252302I$ $b = 0.201225 + 0.860882I$	$-13.0035 + 6.6242I$	0
$u = 0.380334$ $a = 1.17264$ $b = -0.856573$	-1.99604	-5.13480
$u = -0.53570 + 1.53668I$ $a = 0.229727 + 0.669856I$ $b = -0.258142 + 1.049130I$	$-10.04130 - 0.47682I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.53570-1.53668I$ $a=\ \ 0.229727-0.669856I$ $b=-0.258142-1.049130I$	$-10.04130+0.47682I$	0
$u=\ \ 0.63571+1.55221I$ $a=-0.308326+0.460022I$ $b=\ \ 0.189370+0.699236I$	$-6.80659-1.81072I$	0
$u=\ \ 0.63571-1.55221I$ $a=-0.308326-0.460022I$ $b=\ \ 0.189370-0.699236I$	$-6.80659+1.81072I$	0
$u=\ \ 0.119274+0.183998I$ $a=\ \ 1.81211+2.71445I$ $b=\ \ 0.185674-0.485977I$	$-0.176249-1.225910I$	$-2.45890+4.39822I$
$u=\ \ 0.119274-0.183998I$ $a=\ \ 1.81211-2.71445I$ $b=\ \ 0.185674+0.485977I$	$-0.176249+1.225910I$	$-2.45890-4.39822I$
$u=\ \ 0.120753+0.163102I$ $a=-1.87698-5.26519I$ $b=-0.315069-0.882908I$	$-3.39632-4.21321I$	$-4.57945+5.41901I$
$u=\ \ 0.120753-0.163102I$ $a=-1.87698+5.26519I$ $b=-0.315069+0.882908I$	$-3.39632+4.21321I$	$-4.57945-5.41901I$
$u=-0.0373479+0.0332190I$ $a=\ \ 1.9496+27.7674I$ $b=\ \ 0.371405-1.350120I$	$-10.26830+6.64519I$	$-5.05409-4.80906I$
$u=-0.0373479-0.0332190I$ $a=\ \ 1.9496-27.7674I$ $b=\ \ 0.371405+1.350120I$	$-10.26830-6.64519I$	$-5.05409+4.80906I$

II.

$\boldsymbol{I_2^u = \langle -7.47\times 10^{13}u^{37} - 8.39\times 10^{14}u^{36} + \cdots + 4.00\times 10^{14}b - 1.28\times 10^{15},\ 7.17\times 10^{14}u^{37} + 3.61\times 10^{15}u^{36} + \cdots + 4.00\times 10^{14}a + 4.42\times 10^{14},\ u^{38} + 6u^{37} + \cdots + 8u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -1.79352u^{37} - 9.04206u^{36} + \cdots - 27.3493u - 1.10673 \\ 0.186959u^{37} + 2.09795u^{36} + \cdots + 27.2435u + 3.19727 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -2.13819u^{37} - 12.5698u^{36} + \cdots - 71.6291u - 7.23204 \\ -0.859661u^{37} - 5.07197u^{36} + \cdots + 4.32335u + 0.610719 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.98048u^{37} - 11.1400u^{36} + \cdots - 54.5928u - 4.30400 \\ 0.186959u^{37} + 2.09795u^{36} + \cdots + 27.2435u + 3.19727 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.637937u^{37} + 4.03082u^{36} + \cdots + 45.7157u + 10.1968 \\ 1.53539u^{37} + 9.36935u^{36} + \cdots + 4.66972u - 0.918296 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2.68123u^{37} - 14.5831u^{36} + \cdots - 40.6733u - 2.96042 \\ 1.28610u^{37} + 8.71660u^{36} + \cdots + 37.9613u + 4.83615 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00960525u^{37} - 0.344384u^{36} + \cdots - 59.4198u - 8.33827 \\ 0.967652u^{37} + 5.40422u^{36} + \cdots + 9.54046u + 1.52625 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.361027u^{37} + 2.96735u^{36} + \cdots - 4.73975u - 5.55696 \\ 0.446226u^{37} + 2.14513u^{36} + \cdots - 2.50477u + 0.586564 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -3.86645u^{37} - 23.8815u^{36} + \cdots + 16.9190u + 10.0054 \\ -0.590981u^{37} - 2.28624u^{36} + \cdots + 13.5247u + 0.178064 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= -\frac{2087587311673639}{399763050242851}u^{37} - \frac{10535819392888632}{399763050242851}u^{36} + \cdots + \frac{46475107563651410}{399763050242851}u + \frac{6960004255554219}{399763050242851}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} - 19u^{37} + \cdots - 3u + 1$
c_2	$u^{38} - 5u^{37} + \cdots - 5u - 1$
c_3	$u^{38} + 2u^{36} + \cdots - 16u^2 - 1$
c_4, c_5	$u^{38} - 19u^{36} + \cdots + 2u + 1$
c_6	$u^{38} + 6u^{37} + \cdots + 8u + 1$
c_7	$u^{38} + 4u^{36} + \cdots - 21u^2 - 1$
c_8	$u^{38} - 8u^{36} + \cdots + 14u^2 - 1$
c_9	$u^{38} - 6u^{37} + \cdots - 8u + 1$
c_{10}	$u^{38} - u^{37} + \cdots - 6u^2 - 1$
c_{11}	$u^{38} - 19u^{36} + \cdots - 2u + 1$
c_{12}	$u^{38} - 8u^{36} + \cdots + 14u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{38} - 7y^{37} + \cdots - 55y + 1$
c_2	$y^{38} + 9y^{37} + \cdots - y + 1$
c_3	$y^{38} + 4y^{37} + \cdots + 32y + 1$
c_4, c_5, c_{11}	$y^{38} - 38y^{37} + \cdots - 24y + 1$
c_6, c_9	$y^{38} + 26y^{37} + \cdots + 28y + 1$
c_7	$y^{38} + 8y^{37} + \cdots + 42y + 1$
c_8, c_{12}	$y^{38} - 16y^{37} + \cdots - 28y + 1$
c_{10}	$y^{38} + 3y^{37} + \cdots + 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.459651+0.896543I$ $a=\ \ 0.91267+1.16971I$ $b=-0.858713+0.081110I$	$-2.96891-1.85785I$	$0.864936+0.567591I$
$u=-0.459651-0.896543I$ $a=\ \ 0.91267-1.16971I$ $b=-0.858713-0.081110I$	$-2.96891+1.85785I$	$0.864936-0.567591I$
$u=-0.632533+0.725599I$ $a=-0.913058-0.292407I$ $b=\ \ 0.627268-0.246666I$	$0.77100-2.62635I$	$-3.0604+23.7064I$
$u=-0.632533-0.725599I$ $a=-0.913058+0.292407I$ $b=\ \ 0.627268+0.246666I$	$0.77100+2.62635I$	$-3.0604-23.7064I$
$u=\ \ 0.466442+0.804428I$ $a=-1.36907+0.54290I$ $b=-0.733406+0.580277I$	$-3.83815+5.87506I$	$-5.26988-10.39206I$
$u=\ \ 0.466442-0.804428I$ $a=-1.36907-0.54290I$ $b=-0.733406-0.580277I$	$-3.83815-5.87506I$	$-5.26988+10.39206I$
$u=\ \ 0.202685+1.069630I$ $a=\ \ 1.10022-2.52808I$ $b=-0.07535-1.66813I$	$-11.9350+7.6159I$	$-9.19089-5.90154I$
$u=\ \ 0.202685-1.069630I$ $a=\ \ 1.10022+2.52808I$ $b=-0.07535+1.66813I$	$-11.9350-7.6159I$	$-9.19089+5.90154I$
$u=\ \ 0.308247+1.109000I$ $a=-0.145816+0.022420I$ $b=\ \ 0.525710+0.914835I$	$-11.83070-5.48250I$	$-8.28878+2.87322I$
$u=\ \ 0.308247-1.109000I$ $a=-0.145816-0.022420I$ $b=\ \ 0.525710-0.914835I$	$-11.83070+5.48250I$	$-8.28878-2.87322I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.801220 + 0.228686I$ $a = -0.171628 - 0.606151I$ $b = 0.394548 - 0.274575I$	$-2.16704 - 2.43972I$	$-1.88032 + 1.22897I$
$u = 0.801220 - 0.228686I$ $a = -0.171628 + 0.606151I$ $b = 0.394548 + 0.274575I$	$-2.16704 + 2.43972I$	$-1.88032 - 1.22897I$
$u = -0.831117$ $a = 0.282751$ $b = 0.902818$	1.22349	-7.63880
$u = -0.430916 + 1.106430I$ $a = -0.27713 - 1.39247I$ $b = 0.215734 - 1.330590I$	$-2.25440 - 4.23880I$	$-3.57235 + 1.86206I$
$u = -0.430916 - 1.106430I$ $a = -0.27713 + 1.39247I$ $b = 0.215734 + 1.330590I$	$-2.25440 + 4.23880I$	$-3.57235 - 1.86206I$
$u = 0.274184 + 1.169180I$ $a = -0.21888 + 1.93093I$ $b = 0.142080 + 1.124990I$	$-4.95085 + 6.15707I$	$-7.00105 - 6.50495I$
$u = 0.274184 - 1.169180I$ $a = -0.21888 - 1.93093I$ $b = 0.142080 - 1.124990I$	$-4.95085 - 6.15707I$	$-7.00105 + 6.50495I$
$u = 0.191564 + 1.239710I$ $a = -0.62345 - 2.07606I$ $b = -0.466192 - 1.048500I$	$-7.98336 + 6.24650I$	$-9.64109 - 6.45289I$
$u = 0.191564 - 1.239710I$ $a = -0.62345 + 2.07606I$ $b = -0.466192 + 1.048500I$	$-7.98336 - 6.24650I$	$-9.64109 + 6.45289I$
$u = -0.202641 + 1.238490I$ $a = -0.35710 + 2.01469I$ $b = -1.31104 + 1.70507I$	$-8.72534 - 6.89692I$	$-11.49987 + 5.96011I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.202641-1.238490I$ $a=-0.35710-2.01469I$ $b=-1.31104-1.70507I$	$-8.72534+6.89692I$	$-11.49987-5.96011I$
$u=-0.314837+1.239870I$ $a=\ \ 0.36314-1.67057I$ $b=\ \ 0.93387-1.30771I$	$-2.48868-4.17409I$	$-7.80230+8.84350I$
$u=-0.314837-1.239870I$ $a=\ \ 0.36314+1.67057I$ $b=\ \ 0.93387+1.30771I$	$-2.48868+4.17409I$	$-7.80230-8.84350I$
$u=-0.266339+0.602795I$ $a=\ \ 2.07732+0.33293I$ $b=\ \ 1.19326+0.90742I$	$-0.340337+1.189810I$	$5.39842-4.79860I$
$u=-0.266339-0.602795I$ $a=\ \ 2.07732-0.33293I$ $b=\ \ 1.19326-0.90742I$	$-0.340337-1.189810I$	$5.39842+4.79860I$
$u=-0.278342+1.315920I$ $a=-0.89752+1.62148I$ $b=-1.32845+0.93588I$	$-5.30023-3.34568I$	0
$u=-0.278342-1.315920I$ $a=-0.89752-1.62148I$ $b=-1.32845-0.93588I$	$-5.30023+3.34568I$	0
$u=-0.645942$ $a=\ \ 0.171628$ $b=-1.35267$	-1.09862	5.21690
$u=\ \ 0.221722+1.391550I$ $a=-0.206253+0.129190I$ $b=-0.767445-0.122611I$	$-5.82323-2.29747I$	0
$u=\ \ 0.221722-1.391550I$ $a=-0.206253-0.129190I$ $b=-0.767445+0.122611I$	$-5.82323+2.29747I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.516691+0.228337I$ $a=\ \ 1.00942-1.18723I$ $b=-0.636599+0.726134I$	$-4.79778-4.61884I$	$-3.10049+6.91308I$
$u=-0.516691-0.228337I$ $a=\ \ 1.00942+1.18723I$ $b=-0.636599-0.726134I$	$-4.79778+4.61884I$	$-3.10049-6.91308I$
$u=-0.09314+1.49655I$ $a=-0.128522-0.443989I$ $b=\ \ 0.502075-0.621452I$	$-9.56752+0.97256I$	0
$u=-0.09314-1.49655I$ $a=-0.128522+0.443989I$ $b=\ \ 0.502075+0.621452I$	$-9.56752-0.97256I$	0
$u=-1.49962+0.55486I$ $a=-0.134365+0.079921I$ $b=\ \ 0.143495-0.176407I$	$1.66689-2.79605I$	0
$u=-1.49962-0.55486I$ $a=-0.134365-0.079921I$ $b=\ \ 0.143495+0.176407I$	$1.66689+2.79605I$	0
$u=-0.032820+0.296580I$ $a=\ \ 3.75282-0.47498I$ $b=-0.775923+0.592113I$	$-4.71032-4.71986I$	$-3.12342+5.77728I$
$u=-0.032820-0.296580I$ $a=\ \ 3.75282+0.47498I$ $b=-0.775923-0.592113I$	$-4.71032+4.71986I$	$-3.12342-5.77728I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{38}-19u^{37}+\cdots-3u+1)$ $\cdot(u^{139}+12u^{138}+\cdots-96031942u-12031189)$
c_2	$(u^{38}-5u^{37}+\cdots-5u-1)$ $\cdot(u^{139}+20u^{137}+\cdots-139979106u-14998159)$
c_3	$(u^{38}+2u^{36}+\cdots-16u^2-1)$ $\cdot(u^{139}-u^{138}+\cdots-67319757u-11261219)$
c_4, c_5	$(u^{38}-19u^{36}+\cdots+2u+1)(u^{139}-u^{138}+\cdots-45u+1)$
c_6	$(u^{38}+6u^{37}+\cdots+8u+1)(u^{139}+5u^{138}+\cdots-5u+1)$
c_7	$(u^{38}+4u^{36}+\cdots-21u^2-1)(u^{139}-u^{138}+\cdots-1730911u-412087)$
c_8	$(u^{38}-8u^{36}+\cdots+14u^2-1)(u^{139}-u^{138}+\cdots+1535u+59)$
c_9	$(u^{38}-6u^{37}+\cdots-8u+1)(u^{139}+5u^{138}+\cdots-5u+1)$
c_{10}	$(u^{38}-u^{37}+\cdots-6u^2-1)$ $\cdot(u^{139}-6u^{138}+\cdots-7021256335u-1610458073)$
c_{11}	$(u^{38}-19u^{36}+\cdots-2u+1)(u^{139}-u^{138}+\cdots-45u+1)$
c_{12}	$(u^{38}-8u^{36}+\cdots+14u^2-1)(u^{139}-u^{138}+\cdots+1535u+59)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{38} - 7y^{37} + \cdots - 55y + 1)$ $\cdot (y^{139} - 68y^{138} + \cdots - 3265430574626558y - 144749508753721)$
c_2	$(y^{38} + 9y^{37} + \cdots - y + 1)$ $\cdot (y^{139} + 40y^{138} + \cdots - 6420905976964404y - 224944773389281)$
c_3	$(y^{38} + 4y^{37} + \cdots + 32y + 1)$ $\cdot (y^{139} + 51y^{138} + \cdots - 3672999278065189y - 126815053365961)$
c_4, c_5, c_{11}	$(y^{38} - 38y^{37} + \cdots - 24y + 1)(y^{139} - 139y^{138} + \cdots + 167y - 1)$
c_6, c_9	$(y^{38} + 26y^{37} + \cdots + 28y + 1)(y^{139} + 101y^{138} + \cdots + 71y - 1)$
c_7	$(y^{38} + 8y^{37} + \cdots + 42y + 1)$ $\cdot (y^{139} + 35y^{138} + \cdots - 4614590704711y - 169815695569)$
c_8, c_{12}	$(y^{38} - 16y^{37} + \cdots - 28y + 1)(y^{139} - 85y^{138} + \cdots + 3775647y - 3481)$
c_{10}	$(y^{38} + 3y^{37} + \cdots + 12y + 1)$ $\cdot (y^{139} + 58y^{138} + \cdots - 8.30 \times 10^{19}y - 2.59 \times 10^{18})$