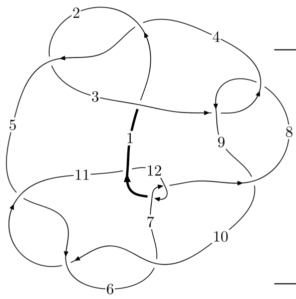
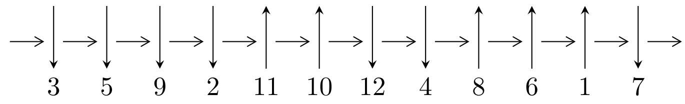
$12a_{0155}$ ($K12a_{0155}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.07210 \times 10^{79} u^{73} - 4.45872 \times 10^{79} u^{72} + \cdots + 1.81105 \times 10^{80} b - 5.45671 \times 10^{80},$$
$$9.44926 \times 10^{78} u^{73} + 1.37256 \times 10^{79} u^{72} + \cdots + 6.03683 \times 10^{79} a + 2.79535 \times 10^{80},\ u^{74} + 2u^{73} + \cdots + 16u +$$
$$I_2^u = \langle 12u^8a^2 - 12u^8 + \cdots - 283a - 196,\ 2u^8a^2 + 5u^8a + \cdots + 9a - 20,$$
$$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1 \rangle$$
$$I_3^u = \langle u^{11} + 2u^9 + 2u^7 - u^3 + b,\ -u^{10} + u^9 - 3u^8 + 2u^7 - 5u^6 + 2u^5 - 4u^4 - 2u^2 + a - u - 1,$$
$$u^{12} + 3u^{10} + 5u^8 + 4u^6 + 2u^4 + u^2 + 1 \rangle$$

$$I_1^v = \langle a,\ -2v^3 + 3v^2 + 4b - 8v + 3,\ 2v^4 - v^3 + 5v^2 + v + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 117 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. $\boldsymbol{I^u_1 = \langle -2.07 \times 10^{79} u^{73} - 4.46 \times 10^{79} u^{72} + \cdots + 1.81 \times 10^{80} b - 5.46 \times 10^{80},\ 9.45 \times 10^{78} u^{73} + 1.37 \times 10^{79} u^{72} + \cdots + 6.04 \times 10^{79} a + 2.80 \times 10^{80},\ u^{74} + 2u^{73} + \cdots + 16u + 64 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.156527u^{73} - 0.227365u^{72} + \cdots - 9.44771u - 4.63049 \\ 0.114414u^{73} + 0.246195u^{72} + \cdots + 18.2624u + 3.01301 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0427323u^{73} - 0.0222590u^{72} + \cdots - 17.0843u - 2.73523 \\ 0.0558199u^{73} + 0.00860331u^{72} + \cdots + 7.08355u - 20.4297 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.247663u^{73} - 0.406614u^{72} + \cdots - 47.8687u - 2.35262 \\ -0.0419160u^{73} - 0.134596u^{72} + \cdots - 19.1036u - 12.4163 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.200457u^{73} - 0.360919u^{72} + \cdots - 39.4697u - 7.35311 \\ 0.00721908u^{73} - 0.0715981u^{72} + \cdots - 12.9464u - 14.2988 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0796114u^{73} - 0.0728386u^{72} + \cdots - 15.9420u + 4.33996 \\ 0.101084u^{73} + 0.0798881u^{72} + \cdots + 11.6620u - 23.1448 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.143338u^{73} - 0.243103u^{72} + \cdots - 20.1363u + 2.92790 \\ -0.144745u^{73} - 0.280896u^{72} + \cdots - 39.7884u + 8.31570 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.150768u^{73} - 0.223403u^{72} + \cdots - 14.3340u + 4.38601 \\ 0.0968957u^{73} + 0.183211u^{72} + \cdots + 33.5347u + 6.73864 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.801859u^{73} - 1.46138u^{72} + \cdots - 97.4961u + 28.5646$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{74} + 40u^{73} + \cdots + 177u + 16$
c_2, c_4	$u^{74} - 4u^{73} + \cdots - 35u + 4$
c_3, c_8	$u^{74} + 2u^{73} + \cdots + 16u + 64$
c_5, c_6, c_{10}	$u^{74} + 2u^{73} + \cdots + 78u + 9$
c_7, c_{12}	$u^{74} + 2u^{73} + \cdots + 54u + 9$
c_9	$u^{74} - 24u^{73} + \cdots - 103168u + 4096$
c_{11}	$u^{74} - 26u^{73} + \cdots - 2880u + 81$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{74} - 8y^{73} + \cdots - 5953y + 256$
c_2, c_4	$y^{74} - 40y^{73} + \cdots - 177y + 16$
c_3, c_8	$y^{74} + 24y^{73} + \cdots + 103168y + 4096$
c_5, c_6, c_{10}	$y^{74} + 82y^{73} + \cdots - 3456y + 81$
c_7, c_{12}	$y^{74} + 26y^{73} + \cdots + 2880y + 81$
c_9	$y^{74} + 44y^{73} + \cdots - 654376960y + 16777216$
c_{11}	$y^{74} + 58y^{73} + \cdots + 591300y + 6561$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.016280+0.056443I$ $a=-0.846246-0.233543I$ $b=-0.641966-0.915109I$	$-4.55260-4.71728I$	$-5.48750+5.97757I$
$u=-1.016280-0.056443I$ $a=-0.846246+0.233543I$ $b=-0.641966+0.915109I$	$-4.55260+4.71728I$	$-5.48750-5.97757I$
$u=\ \ 0.715978+0.749309I$ $a=-1.009060+0.512831I$ $b=-0.819433+1.097530I$	$-10.62080+2.16848I$	$-8.29410+0.I$
$u=\ \ 0.715978-0.749309I$ $a=-1.009060-0.512831I$ $b=-0.819433-1.097530I$	$-10.62080-2.16848I$	$-8.29410+0.I$
$u=\ \ 1.018120+0.241002I$ $a=-0.883835-0.063210I$ $b=-0.634326-0.779842I$	$-4.97717-0.27862I$	$-6.77921+0.I$
$u=\ \ 1.018120-0.241002I$ $a=-0.883835+0.063210I$ $b=-0.634326+0.779842I$	$-4.97717+0.27862I$	$-6.77921+0.I$
$u=\ \ 0.101684+0.941180I$ $a=-0.96039+1.37103I$ $b=\ \ 0.668786-0.848557I$	$-6.34170+2.58749I$	$-5.26885-2.40308I$
$u=\ \ 0.101684-0.941180I$ $a=-0.96039-1.37103I$ $b=\ \ 0.668786+0.848557I$	$-6.34170-2.58749I$	$-5.26885+2.40308I$
$u=\ \ 0.702951+0.605779I$ $a=\ \ 1.083580-0.777415I$ $b=\ \ 0.577935-0.892143I$	$-0.36424+2.16926I$	$-1.33400-2.94106I$
$u=\ \ 0.702951-0.605779I$ $a=\ \ 1.083580+0.777415I$ $b=\ \ 0.577935+0.892143I$	$-0.36424-2.16926I$	$-1.33400+2.94106I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.455877 + 0.982311I$ $a = 0.549167 + 0.442923I$ $b = 0.532038 + 0.022585I$	$-1.99851 - 5.40155I$	0
$u = 0.455877 - 0.982311I$ $a = 0.549167 - 0.442923I$ $b = 0.532038 - 0.022585I$	$-1.99851 + 5.40155I$	0
$u = -0.688565 + 0.844832I$ $a = -2.45152 - 0.54418I$ $b = -0.623313 + 0.954050I$	$-3.63561 + 3.57244I$	0
$u = -0.688565 - 0.844832I$ $a = -2.45152 + 0.54418I$ $b = -0.623313 - 0.954050I$	$-3.63561 - 3.57244I$	0
$u = -0.922080 + 0.581194I$ $a = -0.902921 - 0.473277I$ $b = -0.730349 - 1.085650I$	$-6.70976 - 5.72717I$	0
$u = -0.922080 - 0.581194I$ $a = -0.902921 + 0.473277I$ $b = -0.730349 + 1.085650I$	$-6.70976 + 5.72717I$	0
$u = 0.400961 + 1.025910I$ $a = 0.513025 - 0.645985I$ $b = -0.156641 + 1.061890I$	$3.87862 - 1.01189I$	0
$u = 0.400961 - 1.025910I$ $a = 0.513025 + 0.645985I$ $b = -0.156641 - 1.061890I$	$3.87862 + 1.01189I$	0
$u = -0.039055 + 1.116760I$ $a = -0.491876 - 1.057740I$ $b = -0.338560 + 1.089190I$	$5.21780 + 1.15055I$	0
$u = -0.039055 - 1.116760I$ $a = -0.491876 + 1.057740I$ $b = -0.338560 - 1.089190I$	$5.21780 - 1.15055I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.686707 + 0.883279I$ $a = 1.136820 + 0.777943I$ $b = 0.710003 + 0.868137I$	$-3.51612 + 1.72512I$	0
$u = -0.686707 - 0.883279I$ $a = 1.136820 - 0.777943I$ $b = 0.710003 - 0.868137I$	$-3.51612 - 1.72512I$	0
$u = -0.780808 + 0.406319I$ $a = 1.069120 - 0.412845I$ $b = 0.132045 - 0.962513I$	$-0.190732 - 0.765674I$	$0.883971 + 0.910639I$
$u = -0.780808 - 0.406319I$ $a = 1.069120 + 0.412845I$ $b = 0.132045 + 0.962513I$	$-0.190732 + 0.765674I$	$0.883971 - 0.910639I$
$u = 0.868207 + 0.709119I$ $a = -1.316090 + 0.047838I$ $b = -0.932909 - 0.593077I$	$-8.22620 - 0.36510I$	0
$u = 0.868207 - 0.709119I$ $a = -1.316090 - 0.047838I$ $b = -0.932909 + 0.593077I$	$-8.22620 + 0.36510I$	0
$u = -0.773522 + 0.832238I$ $a = -1.388560 + 0.057416I$ $b = -1.017760 + 0.654828I$	$-11.98240 + 4.46440I$	0
$u = -0.773522 - 0.832238I$ $a = -1.388560 - 0.057416I$ $b = -1.017760 - 0.654828I$	$-11.98240 - 4.46440I$	0
$u = -0.923574 + 0.692893I$ $a = 1.084650 + 0.825348I$ $b = 0.628177 + 0.990952I$	$-3.34148 - 6.33239I$	0
$u = -0.923574 - 0.692893I$ $a = 1.084650 - 0.825348I$ $b = 0.628177 - 0.990952I$	$-3.34148 + 6.33239I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.643430 + 0.541266I$ $a = 0.11958 + 1.53542I$ $b = -0.096809 + 0.216360I$	$-3.46513 + 1.05609I$	$-11.55620 - 0.54689I$
$u = 0.643430 - 0.541266I$ $a = 0.11958 - 1.53542I$ $b = -0.096809 - 0.216360I$	$-3.46513 - 1.05609I$	$-11.55620 + 0.54689I$
$u = 0.251058 + 1.133180I$ $a = -1.05747 + 0.95104I$ $b = -0.431302 - 1.095140I$	$4.59696 - 6.09538I$	0
$u = 0.251058 - 1.133180I$ $a = -1.05747 - 0.95104I$ $b = -0.431302 + 1.095140I$	$4.59696 + 6.09538I$	0
$u = 0.680178 + 0.965059I$ $a = 2.06174 - 1.01173I$ $b = 0.733930 + 1.124350I$	$-9.95050 - 7.53602I$	0
$u = 0.680178 - 0.965059I$ $a = 2.06174 + 1.01173I$ $b = 0.733930 - 1.124350I$	$-9.95050 + 7.53602I$	0
$u = -0.760147 + 0.919939I$ $a = 0.363285 + 1.114770I$ $b = 0.972224 + 0.550351I$	$-11.71740 + 1.32226I$	0
$u = -0.760147 - 0.919939I$ $a = 0.363285 - 1.114770I$ $b = 0.972224 - 0.550351I$	$-11.71740 - 1.32226I$	0
$u = 0.785310 + 0.041797I$ $a = 1.032650 - 0.688989I$ $b = 0.336202 - 0.946046I$	$0.75306 + 2.46584I$	$1.27659 - 6.33944I$
$u = 0.785310 - 0.041797I$ $a = 1.032650 + 0.688989I$ $b = 0.336202 + 0.946046I$	$0.75306 - 2.46584I$	$1.27659 + 6.33944I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.669060 + 1.015260I$ $a = -2.02541 + 0.47750I$ $b = -0.619534 - 1.034680I$	$0.81052 - 7.48437I$	0
$u = 0.669060 - 1.015260I$ $a = -2.02541 - 0.47750I$ $b = -0.619534 + 1.034680I$	$0.81052 + 7.48437I$	0
$u = -0.602047 + 1.071410I$ $a = 0.540817 + 0.305119I$ $b = -0.091548 - 1.090250I$	$1.71998 + 5.88464I$	0
$u = -0.602047 - 1.071410I$ $a = 0.540817 - 0.305119I$ $b = -0.091548 + 1.090250I$	$1.71998 - 5.88464I$	0
$u = -0.962055 + 0.769007I$ $a = -1.407370 - 0.115629I$ $b = -0.982890 + 0.515422I$	$-11.46460 - 4.27058I$	0
$u = -0.962055 - 0.769007I$ $a = -1.407370 + 0.115629I$ $b = -0.982890 - 0.515422I$	$-11.46460 + 4.27058I$	0
$u = 1.018000 + 0.713154I$ $a = -0.877403 + 0.545175I$ $b = -0.723054 + 1.145040I$	$-9.5271 + 10.4754I$	0
$u = 1.018000 - 0.713154I$ $a = -0.877403 - 0.545175I$ $b = -0.723054 - 1.145040I$	$-9.5271 - 10.4754I$	0
$u = -0.322053 + 1.215640I$ $a = -0.289638 - 0.522660I$ $b = 0.510459 + 0.750000I$	$-0.063900 - 0.320410I$	0
$u = -0.322053 - 1.215640I$ $a = -0.289638 + 0.522660I$ $b = 0.510459 - 0.750000I$	$-0.063900 + 0.320410I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.757308 + 1.014150I$ $a = 0.521716 - 0.835498I$ $b = 0.980452 - 0.466162I$	$-7.29295 - 5.66257I$	0
$u = 0.757308 - 1.014150I$ $a = 0.521716 + 0.835498I$ $b = 0.980452 + 0.466162I$	$-7.29295 + 5.66257I$	0
$u = 0.141074 + 1.267450I$ $a = 0.314381 - 1.040930I$ $b = 0.549097 + 0.971551I$	$0.71079 - 3.98529I$	0
$u = 0.141074 - 1.267450I$ $a = 0.314381 + 1.040930I$ $b = 0.549097 - 0.971551I$	$0.71079 + 3.98529I$	0
$u = -0.257906 + 0.673206I$ $a = 0.875017 - 0.842641I$ $b = 0.362715 - 0.412513I$	$-0.25584 + 1.43316I$	$-2.89373 - 4.25664I$
$u = -0.257906 - 0.673206I$ $a = 0.875017 + 0.842641I$ $b = 0.362715 + 0.412513I$	$-0.25584 - 1.43316I$	$-2.89373 + 4.25664I$
$u = 0.512625 + 1.186330I$ $a = -0.180598 + 0.307148I$ $b = 0.462194 - 0.608975I$	$-1.73996 - 5.08791I$	0
$u = 0.512625 - 1.186330I$ $a = -0.180598 - 0.307148I$ $b = 0.462194 + 0.608975I$	$-1.73996 + 5.08791I$	0
$u = -0.766224 + 1.056700I$ $a = -2.02146 - 0.26151I$ $b = -0.666344 + 1.052100I$	$-2.19593 + 12.55800I$	0
$u = -0.766224 - 1.056700I$ $a = -2.02146 + 0.26151I$ $b = -0.666344 - 1.052100I$	$-2.19593 - 12.55800I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.334080 + 1.262000I$ $a = 0.739927 + 1.023500I$ $b = 0.574354 - 1.047070I$	$-0.23035 + 9.53465I$	0
$u = -0.334080 - 1.262000I$ $a = 0.739927 - 1.023500I$ $b = 0.574354 + 1.047070I$	$-0.23035 - 9.53465I$	0
$u = -0.726282 + 1.091930I$ $a = 1.77788 + 0.71191I$ $b = 0.700817 - 1.164010I$	$-5.15120 + 11.77850I$	0
$u = -0.726282 - 1.091930I$ $a = 1.77788 - 0.71191I$ $b = 0.700817 + 1.164010I$	$-5.15120 - 11.77850I$	0
$u = -0.817220 + 1.044540I$ $a = 0.714742 + 0.868490I$ $b = 1.041650 + 0.454586I$	$-10.5690 + 10.7948I$	0
$u = -0.817220 - 1.044540I$ $a = 0.714742 - 0.868490I$ $b = 1.041650 - 0.454586I$	$-10.5690 - 10.7948I$	0
$u = 0.810773 + 1.098430I$ $a = 1.85420 - 0.50706I$ $b = 0.716271 + 1.194250I$	$-8.2766 - 17.1352I$	0
$u = 0.810773 - 1.098430I$ $a = 1.85420 + 0.50706I$ $b = 0.716271 - 1.194250I$	$-8.2766 + 17.1352I$	0
$u = -0.189049 + 0.597095I$ $a = 2.34091 + 2.24975I$ $b = -0.233253 - 0.857584I$	$-0.892082 - 1.083450I$	$4.37786 - 0.74207I$
$u = -0.189049 - 0.597095I$ $a = 2.34091 - 2.24975I$ $b = -0.233253 + 0.857584I$	$-0.892082 + 1.083450I$	$4.37786 + 0.74207I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.022832 + 0.605905I$ $a = 1.015490 - 0.770054I$ $b = 0.451799 - 0.569597I$	$-0.20066 + 1.45515I$	$-0.46303 - 4.13714I$
$u = -0.022832 - 0.605905I$ $a = 1.015490 + 0.770054I$ $b = 0.451799 + 0.569597I$	$-0.20066 - 1.45515I$	$-0.46303 + 4.13714I$
$u = 0.057884 + 0.497232I$ $a = -1.161350 - 0.318274I$ $b = -0.901151 - 0.915137I$	$-8.05648 - 3.30418I$	$5.21911 + 6.27707I$
$u = 0.057884 - 0.497232I$ $a = -1.161350 + 0.318274I$ $b = -0.901151 + 0.915137I$	$-8.05648 + 3.30418I$	$5.21911 - 6.27707I$

II. $\boldsymbol{I_2^u = \langle 12u^8a^2 - 12u^8 + \cdots - 283a - 196,\ 2u^8a^2 + 5u^8a + \cdots + 9a - 20,\ u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -0.0424028a^2u^8 + 0.0424028u^8 + \cdots + a + 0.692580 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.0424028a^2u^8 - 0.0424028u^8 + \cdots - 0.307420a^2 + 1.30742 \\ 0.0424028a^2u^8 - 0.0424028u^8 + \cdots - 0.307420a^2 + 1.30742 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^8 + 2u^6 + 2u^4 + 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0848057a^2u^8 - 0.0848057u^8 + \cdots - 0.614841a^2 + 2.61484 \\ 0.127208a^2u^8 - 0.127208u^8 + \cdots - a + 1.92226 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0424028a^2u^8 - 0.0424028u^8 + \cdots + 2a - 0.692580 \\ 0.0424028a^2u^8 - 0.0424028u^8 + \cdots + 2a + 1.30742 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1)^3$
c_2, c_4	$(u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1)^3$
c_3, c_8	$(u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1)^3$
c_5, c_6, c_7 c_{10}, c_{12}	$u^{27} + 9u^{25} + \cdots + u + 1$
c_9	$(u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1)^3$
c_{11}	$u^{27} - 18u^{26} + \cdots + 13u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^3$
c_2, c_4	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^3$
c_3, c_8	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^3$
c_5, c_6, c_7 c_{10}, c_{12}	$y^{27} + 18y^{26} + \cdots + 13y - 1$
c_9	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^3$
c_{11}	$y^{27} - 18y^{26} + \cdots + 265y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.140343 + 0.966856I$ $a = \ \ 0.824898 - 1.007270I$ $b = \ \ 0.277934 + 1.206900I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = -0.140343 + 0.966856I$ $a = -0.429022 - 0.227708I$ $b = -0.658031 - 0.118772I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = -0.140343 + 0.966856I$ $a = \ \ 1.61297 + 0.63923I$ $b = \ \ 0.380097 - 1.088130I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = -0.140343 - 0.966856I$ $a = \ \ 0.824898 + 1.007270I$ $b = \ \ 0.277934 - 1.206900I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = -0.140343 - 0.966856I$ $a = -0.429022 + 0.227708I$ $b = -0.658031 + 0.118772I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = -0.140343 - 0.966856I$ $a = \ \ 1.61297 - 0.63923I$ $b = \ \ 0.380097 + 1.088130I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = -0.628449 + 0.875112I$ $a = -0.725227 - 0.503645I$ $b = \ \ 0.082565 + 1.353850I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.628449 + 0.875112I$ $a = -0.666708 - 1.013420I$ $b = -0.663930 - 0.542279I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.628449 + 0.875112I$ $a = \ \ 1.94244 - 0.11561I$ $b = \ \ 0.581364 - 0.811567I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.628449 - 0.875112I$ $a = -0.725227 + 0.503645I$ $b = \ \ 0.082565 - 1.353850I$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.628449-0.875112I$ $a=-0.666708+1.013420I$ $b=-0.663930+0.542279I$	$-0.61694-2.45442I$	$-2.32792+2.91298I$
$u=-0.628449-0.875112I$ $a=\ \ 1.94244+0.11561I$ $b=\ \ 0.581364+0.811567I$	$-0.61694-2.45442I$	$-2.32792+2.91298I$
$u=\ \ 0.796005+0.733148I$ $a=-1.263760+0.143919I$ $b=-0.021021-1.362970I$	$-4.37135+1.33617I$	$-7.28409-0.70175I$
$u=\ \ 0.796005+0.733148I$ $a=-0.81256+1.34091I$ $b=-0.617263+0.715712I$	$-4.37135+1.33617I$	$-7.28409-0.70175I$
$u=\ \ 0.796005+0.733148I$ $a=\ \ 1.93616+0.21716I$ $b=\ \ 0.638283+0.647255I$	$-4.37135+1.33617I$	$-7.28409-0.70175I$
$u=\ \ 0.796005-0.733148I$ $a=-1.263760-0.143919I$ $b=-0.021021+1.362970I$	$-4.37135-1.33617I$	$-7.28409+0.70175I$
$u=\ \ 0.796005-0.733148I$ $a=-0.81256-1.34091I$ $b=-0.617263-0.715712I$	$-4.37135-1.33617I$	$-7.28409+0.70175I$
$u=\ \ 0.796005-0.733148I$ $a=\ \ 1.93616-0.21716I$ $b=\ \ 0.638283-0.647255I$	$-4.37135-1.33617I$	$-7.28409+0.70175I$
$u=\ \ 0.728966+0.986295I$ $a=-0.877277+0.977536I$ $b=-0.774180+0.585725I$	$-3.59813-7.08493I$	$-5.57680+5.91335I$
$u=\ \ 0.728966+0.986295I$ $a=-0.598365+0.132184I$ $b=\ \ 0.08677-1.42529I$	$-3.59813-7.08493I$	$-5.57680+5.91335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.728966 + 0.986295I$ $a = 1.86581 + 0.16138I$ $b = 0.687410 + 0.839570I$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = 0.728966 - 0.986295I$ $a = -0.877277 - 0.977536I$ $b = -0.774180 - 0.585725I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = 0.728966 - 0.986295I$ $a = -0.598365 - 0.132184I$ $b = 0.08677 + 1.42529I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = 0.728966 - 0.986295I$ $a = 1.86581 - 0.16138I$ $b = 0.687410 - 0.839570I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.512358$ $a = 1.42282$ $b = 0.247373$	-1.19845	-8.65230
$u = -0.512358$ $a = -4.52078 + 3.95478I$ $b = -0.123686 + 1.022690I$	-1.19845	-8.65230
$u = -0.512358$ $a = -4.52078 - 3.95478I$ $b = -0.123686 - 1.022690I$	-1.19845	-8.65230

III. $I_3^u = \langle u^{11} + 2u^9 + 2u^7 - u^3 + b,\ -u^{10} + u^9 + \cdots + a - 1,\ u^{12} + 3u^{10} + 5u^8 + 4u^6 + 2u^4 + u^2 + 1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{10} - u^9 + 3u^8 - 2u^7 + 5u^6 - 2u^5 + 4u^4 + 2u^2 + u + 1 \\ -u^{11} - 2u^9 - 2u^7 + u^3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{10} - u^9 - 3u^8 - 2u^7 - 5u^6 - 2u^5 - 4u^4 - 2u^2 + u \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{11} + 2u^9 + 2u^7 - u^3 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^7 - 2u^5 - 2u^3 \\ -u^7 - u^5 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^{10} - 3u^8 - 5u^6 + u^5 - 4u^4 + 2u^3 - 2u^2 + 2u \\ u^{11} + 3u^9 + 4u^7 + 3u^5 + u^3 + u + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{11} + u^{10} - 3u^9 + 3u^8 - 4u^7 + 5u^6 - 2u^5 + 4u^4 + u^3 + 2u^2 + u + 1 \\ -u^{11} - 2u^9 - 2u^7 + u^3 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^9 + 2u^7 + 3u^5 + 2u^3 + u \\ u^{11} + 3u^9 + 4u^7 + 3u^5 + u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^{10} + 12u^8 + 16u^6 + 8u^4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.295542 + 1.002190I$ $a = 0.272397 + 1.266420I$ $b = -1.000000I$	$1.89061 - 0.92430I$	$1.71672 + 0.79423I$
$u = 0.295542 - 1.002190I$ $a = 0.272397 - 1.266420I$ $b = 1.000000I$	$1.89061 + 0.92430I$	$1.71672 - 0.79423I$
$u = -0.295542 + 1.002190I$ $a = 1.266420 + 0.272397I$ $b = -1.000000I$	$1.89061 + 0.92430I$	$1.71672 - 0.79423I$
$u = -0.295542 - 1.002190I$ $a = 1.266420 - 0.272397I$ $b = 1.000000I$	$1.89061 - 0.92430I$	$1.71672 + 0.79423I$
$u = 0.664531 + 0.428243I$ $a = 0.79605 + 2.11811I$ $b = 1.000000I$	$-1.89061 + 0.92430I$	$-5.71672 - 0.79423I$
$u = 0.664531 - 0.428243I$ $a = 0.79605 - 2.11811I$ $b = -1.000000I$	$-1.89061 - 0.92430I$	$-5.71672 + 0.79423I$
$u = -0.664531 + 0.428243I$ $a = -2.11811 - 0.79605I$ $b = 1.000000I$	$-1.89061 - 0.92430I$	$-5.71672 + 0.79423I$
$u = -0.664531 - 0.428243I$ $a = -2.11811 + 0.79605I$ $b = -1.000000I$	$-1.89061 + 0.92430I$	$-5.71672 - 0.79423I$
$u = 0.558752 + 1.073950I$ $a = 0.950374 + 0.167130I$ $b = 1.000000I$	$-5.69302I$	$-2.00000 + 5.51057I$
$u = 0.558752 - 1.073950I$ $a = 0.950374 - 0.167130I$ $b = -1.000000I$	$5.69302I$	$-2.00000 - 5.51057I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.558752 + 1.073950I$ $a = -0.167130 - 0.950374I$ $b = 1.000000I$	$5.69302I$	$-2.00000 - 5.51057I$
$u = -0.558752 - 1.073950I$ $a = -0.167130 + 0.950374I$ $b = -1.000000I$	$-5.69302I$	$-2.00000 + 5.51057I$

IV. $\boldsymbol{I_1^v = \langle a,\ -2v^3 + 3v^2 + 4b - 8v + 3,\ 2v^4 - v^3 + 5v^2 + v + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2v^3 - 14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.130534 + 0.427872I$ $a = 0$ $b = -0.851808 + 0.911292I$	$-8.43568 + 3.16396I$	$-14.13894 + 0.11292I$
$v = -0.130534 - 0.427872I$ $a = 0$ $b = -0.851808 - 0.911292I$	$-8.43568 - 3.16396I$	$-14.13894 - 0.11292I$
$v = 0.38053 + 1.53420I$ $a = 0$ $b = 0.351808 + 0.720342I$	$-1.43393 - 1.41510I$	$-8.73606 + 5.88934I$
$v = 0.38053 - 1.53420I$ $a = 0$ $b = 0.351808 - 0.720342I$	$-1.43393 + 1.41510I$	$-8.73606 - 5.88934I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^4(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^3$ $\cdot(u^{74}+40u^{73}+\cdots+177u+16)$
c_2	$(u-1)^4(u^6+u^5-u^4-2u^3+u+1)^2$ $\cdot(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$ $\cdot(u^{74}-4u^{73}+\cdots-35u+4)$
c_3, c_8	$u^4(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^3$ $\cdot(u^{12}+3u^{10}+\cdots+u^2+1)(u^{74}+2u^{73}+\cdots+16u+64)$
c_4	$(u+1)^4(u^6-u^5-u^4+2u^3-u+1)^2$ $\cdot(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$ $\cdot(u^{74}-4u^{73}+\cdots-35u+4)$
c_5, c_6	$((u^2+1)^6)(u^4+u^3+3u^2+2u+1)(u^{27}+9u^{25}+\cdots+u+1)$ $\cdot(u^{74}+2u^{73}+\cdots+78u+9)$
c_7	$((u^2+1)^6)(u^4+u^3+u^2+1)(u^{27}+9u^{25}+\cdots+u+1)$ $\cdot(u^{74}+2u^{73}+\cdots+54u+9)$
c_9	$u^4(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)^3$ $\cdot(u^{74}-24u^{73}+\cdots-103168u+4096)$
c_{10}	$((u^2+1)^6)(u^4-u^3+3u^2-2u+1)(u^{27}+9u^{25}+\cdots+u+1)$ $\cdot(u^{74}+2u^{73}+\cdots+78u+9)$
c_{11}	$((u+1)^{12})(u^4+u^3+3u^2+2u+1)(u^{27}-18u^{26}+\cdots+13u+1)$ $\cdot(u^{74}-26u^{73}+\cdots-2880u+81)$
c_{12}	$((u^2+1)^6)(u^4-u^3+u^2+1)(u^{27}+9u^{25}+\cdots+u+1)$ $\cdot(u^{74}+2u^{73}+\cdots+54u+9)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^4(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^3$ $\cdot(y^{74}-8y^{73}+\cdots-5953y+256)$
c_2, c_4	$(y-1)^4(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$ $\cdot(y^{74}-40y^{73}+\cdots-177y+16)$
c_3, c_8	$y^4(y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^3$ $\cdot(y^{74}+24y^{73}+\cdots+103168y+4096)$
c_5, c_6, c_{10}	$((y+1)^{12})(y^4+5y^3+\cdots+2y+1)(y^{27}+18y^{26}+\cdots+13y-1)$ $\cdot(y^{74}+82y^{73}+\cdots-3456y+81)$
c_7, c_{12}	$((y+1)^{12})(y^4+y^3+3y^2+2y+1)(y^{27}+18y^{26}+\cdots+13y-1)$ $\cdot(y^{74}+26y^{73}+\cdots+2880y+81)$
c_9	$y^4(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^3$ $\cdot(y^{74}+44y^{73}+\cdots-654376960y+16777216)$
c_{11}	$((y-1)^{12})(y^4+5y^3+\cdots+2y+1)(y^{27}-18y^{26}+\cdots+265y-1)$ $\cdot(y^{74}+58y^{73}+\cdots+591300y+6561)$