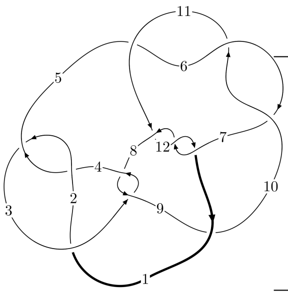
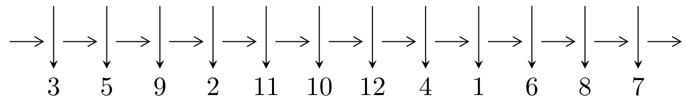
$12a_{0156}$ ($K12a_{0156}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3u^{38} - 51u^{37} + \cdots + 256b - 85,\ -121u^{38} + 133u^{37} + \cdots + 512a - 61,\ u^{39} + 25u^{37} + \cdots + u + 1\rangle$$

$$I_2^u = \langle 2.94986 \times 10^{44}u^{49} + 3.65735 \times 10^{44}u^{48} + \cdots + 2.95826 \times 10^{45}b - 1.68829 \times 10^{45},$$
$$2.14090 \times 10^{45}u^{49} + 1.60923 \times 10^{45}u^{48} + \cdots + 8.87477 \times 10^{45}a - 4.58714 \times 10^{45},\ u^{50} + 2u^{49} + \cdots - 18u +$$

$$I_3^u = \langle -54276a^5u + 156246a^4u + \cdots + 839054a - 188617,$$
$$a^6 + 2a^5u - 4a^4u - a^4 + 4a^3u + 6a^3 + a^2u + 4a^2 + 10au + a + 4u - 1,\ u^2 + 1\rangle$$

$$I_4^u = \langle b + 1,\ u^2 + 2a + u + 3,\ u^3 + 2u - 1\rangle$$

$$I_5^u = \langle b + 1,\ u^3 + u^2 + a + u + 2,\ u^4 + u^3 + 2u^2 + 2u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 108 representations.

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

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

I. $I_1^u = \langle 3u^{38} - 51u^{37} + \cdots + 256b - 85,\ -121u^{38} + 133u^{37} + \cdots + 512a - 61,\ u^{39} + 25u^{37} + \cdots + u + 1\rangle$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.236328u^{38} - 0.259766u^{37} + \cdots - 0.976563u + 0.119141 \\ -0.0117188u^{38} + 0.199219u^{37} + \cdots + 1.71875u + 0.332031 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.224609u^{38} - 0.0605469u^{37} + \cdots + 0.742188u + 0.451172 \\ -0.0117188u^{38} + 0.199219u^{37} + \cdots + 1.71875u + 0.332031 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ \frac{1}{64}u^{38} + \frac{3}{8}u^{36} + \cdots + \frac{1}{64}u^2 + \frac{65}{64}u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0878906u^{38} - 0.0644531u^{37} + \cdots + 1.07031u + 1.04883 \\ -0.199219u^{38} - 0.207031u^{37} + \cdots - 1.50000u - 0.761719 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0156250u^{38} - 0.375000u^{36} + \cdots - 0.0156250u^2 + 0.984375u \\ 0.0312500u^{38} + 0.0312500u^{37} + \cdots + 1.09375u + 0.0312500 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1 \\ \frac{1}{64}u^{37} + \frac{3}{8}u^{35} + \cdots + \frac{1}{64}u + \frac{1}{64} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ \frac{1}{64}u^{38} + \frac{3}{8}u^{36} + \cdots + \frac{1}{64}u^2 + \frac{65}{64}u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{2567}{1024}u^{38} + \frac{507}{1024}u^{37} + \cdots + \frac{2683}{256}u - \frac{8131}{1024}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{39} + 18u^{38} + \cdots + 817u + 16$
c_2, c_4	$u^{39} - 4u^{38} + \cdots + 13u + 4$
c_3, c_8	$u^{39} - 3u^{38} + \cdots - 8u + 32$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{39} + 25u^{37} + \cdots + u + 1$
c_9	$u^{39} + 24u^{38} + \cdots + 132148u + 10276$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{39} + 10y^{38} + \cdots + 507201y - 256$
c_2, c_4	$y^{39} - 18y^{38} + \cdots + 817y - 16$
c_3, c_8	$y^{39} + 21y^{38} + \cdots - 3776y - 1024$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{39} + 50y^{38} + \cdots - 3y - 1$
c_9	$y^{39} + 18y^{38} + \cdots - 277125320y - 105596176$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.606138 + 0.433746I$ $a = 1.10839 - 1.72999I$ $b = 1.096070 + 0.636892I$	$1.24768 - 8.38959I$	$-11.7192 + 9.4891I$
$u = 0.606138 - 0.433746I$ $a = 1.10839 + 1.72999I$ $b = 1.096070 - 0.636892I$	$1.24768 + 8.38959I$	$-11.7192 - 9.4891I$
$u = -0.686742 + 0.093387I$ $a = 1.124820 + 0.357401I$ $b = 0.888553 + 0.474189I$	$-1.46543 - 1.90675I$	$-13.8759 + 2.9903I$
$u = -0.686742 - 0.093387I$ $a = 1.124820 - 0.357401I$ $b = 0.888553 - 0.474189I$	$-1.46543 + 1.90675I$	$-13.8759 - 2.9903I$
$u = 0.512624 + 0.450918I$ $a = -0.817372 + 0.180228I$ $b = 0.464938 - 0.809663I$	$3.12365 - 2.96834I$	$-8.53439 + 5.45411I$
$u = 0.512624 - 0.450918I$ $a = -0.817372 - 0.180228I$ $b = 0.464938 + 0.809663I$	$3.12365 + 2.96834I$	$-8.53439 - 5.45411I$
$u = 0.097297 + 1.396560I$ $a = 0.600483 - 0.695228I$ $b = 1.132180 + 0.452280I$	$5.93701 - 6.97505I$	0
$u = 0.097297 - 1.396560I$ $a = 0.600483 + 0.695228I$ $b = 1.132180 - 0.452280I$	$5.93701 + 6.97505I$	0
$u = -0.485730 + 0.337100I$ $a = -0.58443 - 2.43918I$ $b = -0.928433 + 0.452438I$	$-1.46092 + 2.88558I$	$-14.3616 - 7.5955I$
$u = -0.485730 - 0.337100I$ $a = -0.58443 + 2.43918I$ $b = -0.928433 - 0.452438I$	$-1.46092 - 2.88558I$	$-14.3616 + 7.5955I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.160047 + 0.560104I$ $a = -0.472825 + 0.884195I$ $b = 1.058660 - 0.598292I$	$1.75331 + 5.17154I$	$-10.85539 - 2.38918I$
$u = 0.160047 - 0.560104I$ $a = -0.472825 - 0.884195I$ $b = 1.058660 + 0.598292I$	$1.75331 - 5.17154I$	$-10.85539 + 2.38918I$
$u = 0.255669 + 0.512819I$ $a = 0.095335 - 1.276560I$ $b = 0.500188 + 0.744588I$	$3.42355 + 0.06447I$	$-7.35584 + 3.68014I$
$u = 0.255669 - 0.512819I$ $a = 0.095335 + 1.276560I$ $b = 0.500188 - 0.744588I$	$3.42355 - 0.06447I$	$-7.35584 - 3.68014I$
$u = 0.24730 + 1.43914I$ $a = 0.342403 - 0.242192I$ $b = 0.835724 - 0.187359I$	$8.20195 - 4.67633I$	0
$u = 0.24730 - 1.43914I$ $a = 0.342403 + 0.242192I$ $b = 0.835724 + 0.187359I$	$8.20195 + 4.67633I$	0
$u = -0.01911 + 1.46623I$ $a = -0.513457 - 0.986167I$ $b = -1.218970 + 0.402466I$	$5.58893 + 1.41780I$	0
$u = -0.01911 - 1.46623I$ $a = -0.513457 + 0.986167I$ $b = -1.218970 - 0.402466I$	$5.58893 - 1.41780I$	0
$u = 0.07057 + 1.49185I$ $a = 0.206418 + 0.688633I$ $b = -0.036484 - 0.767123I$	$9.22311 - 2.89697I$	0
$u = 0.07057 - 1.49185I$ $a = 0.206418 - 0.688633I$ $b = -0.036484 + 0.767123I$	$9.22311 + 2.89697I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.435690 + 0.236154I$ $a = -1.49896 + 0.88737I$ $b = -1.166600 + 0.114063I$	$-2.34640 - 0.81341I$	$-13.1026 + 8.4479I$
$u = 0.435690 - 0.236154I$ $a = -1.49896 - 0.88737I$ $b = -1.166600 - 0.114063I$	$-2.34640 + 0.81341I$	$-13.1026 - 8.4479I$
$u = -0.27417 + 1.55715I$ $a = -0.099646 - 0.449882I$ $b = -1.372790 - 0.112918I$	$10.02810 + 6.61870I$	0
$u = -0.27417 - 1.55715I$ $a = -0.099646 + 0.449882I$ $b = -1.372790 + 0.112918I$	$10.02810 - 6.61870I$	0
$u = 0.30186 + 1.56039I$ $a = 0.02339 + 2.01745I$ $b = -0.977777 - 0.644002I$	$11.2737 - 9.4013I$	0
$u = 0.30186 - 1.56039I$ $a = 0.02339 - 2.01745I$ $b = -0.977777 + 0.644002I$	$11.2737 + 9.4013I$	0
$u = -0.35789 + 1.55459I$ $a = 0.37718 + 1.87847I$ $b = 1.184010 - 0.683858I$	$14.1914 + 16.2242I$	0
$u = -0.35789 - 1.55459I$ $a = 0.37718 - 1.87847I$ $b = 1.184010 + 0.683858I$	$14.1914 - 16.2242I$	0
$u = 0.24560 + 1.57817I$ $a = 0.94180 - 1.09265I$ $b = -0.684865 + 0.701681I$	$12.16600 - 4.21253I$	0
$u = 0.24560 - 1.57817I$ $a = 0.94180 + 1.09265I$ $b = -0.684865 - 0.701681I$	$12.16600 + 4.21253I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.198432+0.335342I$ $a=\ \ 1.51348+1.09795I$ $b=-0.837871-0.313169I$	$-0.884650-0.467058I$	$-11.90822-2.02853I$
$u=-0.198432-0.335342I$ $a=\ \ 1.51348-1.09795I$ $b=-0.837871+0.313169I$	$-0.884650+0.467058I$	$-11.90822+2.02853I$
$u=-0.33367+1.57837I$ $a=-0.848602-0.806276I$ $b=\ \ 0.422675+0.993588I$	$16.5334+10.1404I$	0
$u=-0.33367-1.57837I$ $a=-0.848602+0.806276I$ $b=\ \ 0.422675-0.993588I$	$16.5334-10.1404I$	0
$u=-0.22952+1.64191I$ $a=-0.17339+1.41527I$ $b=\ \ 0.671373-0.949740I$	$18.2436+4.6595I$	0
$u=-0.22952-1.64191I$ $a=-0.17339-1.41527I$ $b=\ \ 0.671373+0.949740I$	$18.2436-4.6595I$	0
$u=-0.340813$ $a=\ \ 0.891121$ $b=-0.149888$	-0.576114	-17.1030
$u=-0.17712+1.65299I$ $a=-0.520565-1.116590I$ $b=\ \ 1.044360+0.795151I$	$17.1048-1.6856I$	0
$u=-0.17712-1.65299I$ $a=-0.520565+1.116590I$ $b=\ \ 1.044360-0.795151I$	$17.1048+1.6856I$	0

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 2.95\times10^{44}u^{49}+3.66\times10^{44}u^{48}+\cdots+2.96\times10^{45}b-1.69\times10^{45},\ 2.14\times10^{45}u^{49}+ 1.61\times10^{45}u^{48}+\cdots+8.87\times10^{45}a-4.59\times10^{45},\ u^{50}+2u^{49}+\cdots-18u+9\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.241234u^{49}-0.181326u^{48}+\cdots+0.375683u+0.516874\\-0.0997162u^{49}-0.123632u^{48}+\cdots+0.184639u+0.570706\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.340950u^{49}-0.304958u^{48}+\cdots+0.560322u+1.08758\\-0.0997162u^{49}-0.123632u^{48}+\cdots+0.184639u+0.570706\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.196743u^{49}-0.293319u^{48}+\cdots-13.0617u+2.90182\\-0.0474075u^{49}-0.0235454u^{48}+\cdots-3.48640u+0.424677\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.0231020u^{49}+0.328429u^{48}+\cdots+9.25365u-3.09937\\0.0273358u^{49}+0.145463u^{48}+\cdots+1.17016u-1.26078\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.137409u^{49}-0.303786u^{48}+\cdots-5.99590u+2.47777\\-0.0865588u^{49}-0.101282u^{48}+\cdots-1.77113u+0.685381\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.0471513u^{49}+0.147673u^{48}+\cdots-7.45718u+4.92740\\-0.100202u^{49}-0.286035u^{48}+\cdots+0.536308u+0.519665\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.164482u^{49}-0.228762u^{48}+\cdots-16.5539u+2.42436\\0.0322612u^{49}+0.0645573u^{48}+\cdots-1.49216u-0.477454\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.817749u^{49}-1.70803u^{48}+\cdots-1.83623u-9.61323$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{25} + 11u^{24} + \cdots - 2u + 1)^2$
c_2, c_4	$(u^{25} - 3u^{24} + \cdots - 4u + 1)^2$
c_3, c_8	$(u^{25} + u^{24} + \cdots + 4u - 4)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{50} + 2u^{49} + \cdots - 18u + 9$
c_9	$(u^{25} - 8u^{24} + \cdots + 11u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{25} + 9y^{24} + \cdots - 2y - 1)^2$
c_2, c_4	$(y^{25} - 11y^{24} + \cdots - 2y - 1)^2$
c_3, c_8	$(y^{25} + 15y^{24} + \cdots - 88y - 16)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{50} + 42y^{49} + \cdots + 1584y + 81$
c_9	$(y^{25} + 20y^{24} + \cdots + 251y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.863192 + 0.531967I$ $a = -0.56076 + 1.52524I$ $b = -0.903290 - 0.591334I$	$4.43073 - 5.11531I$	$-8.18255 + 5.48464I$
$u = 0.863192 - 0.531967I$ $a = -0.56076 - 1.52524I$ $b = -0.903290 + 0.591334I$	$4.43073 + 5.11531I$	$-8.18255 - 5.48464I$
$u = 0.790213 + 0.646113I$ $a = 0.322984 - 0.681750I$ $b = -0.781818 + 0.585895I$	$4.81480 - 0.43356I$	$-7.08804 + 0.I$
$u = 0.790213 - 0.646113I$ $a = 0.322984 + 0.681750I$ $b = -0.781818 - 0.585895I$	$4.81480 + 0.43356I$	$-7.08804 + 0.I$
$u = -0.800123 + 0.560428I$ $a = -1.41196 - 0.56327I$ $b = -1.306760 - 0.052319I$	$3.08820 + 2.66172I$	$-6.71477 - 3.57661I$
$u = -0.800123 - 0.560428I$ $a = -1.41196 + 0.56327I$ $b = -1.306760 + 0.052319I$	$3.08820 - 2.66172I$	$-6.71477 + 3.57661I$
$u = -0.125962 + 1.023520I$ $a = 2.16186 - 3.13157I$ $b = -0.819709$	2.09579	$-12.44382 + 0.I$
$u = -0.125962 - 1.023520I$ $a = 2.16186 + 3.13157I$ $b = -0.819709$	2.09579	$-12.44382 + 0.I$
$u = -0.237534 + 1.042900I$ $a = 0.602799 + 1.091330I$ $b = 1.012760 - 0.537221I$	$1.37392 + 5.41987I$	$-11.35697 - 6.54919I$
$u = -0.237534 - 1.042900I$ $a = 0.602799 - 1.091330I$ $b = 1.012760 + 0.537221I$	$1.37392 - 5.41987I$	$-11.35697 + 6.54919I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.963620+0.475288I$ $a=1.14015+1.21785I$ $b=1.139240-0.687767I$	$7.62261+11.39030I$	$-7.28983-7.76664I$
$u=-0.963620-0.475288I$ $a=1.14015-1.21785I$ $b=1.139240+0.687767I$	$7.62261-11.39030I$	$-7.28983+7.76664I$
$u=-0.942522+0.536594I$ $a=-0.427504-0.100379I$ $b=0.479273+0.936834I$	$9.63785+5.44271I$	$-4.49829-3.51350I$
$u=-0.942522-0.536594I$ $a=-0.427504+0.100379I$ $b=0.479273-0.936834I$	$9.63785-5.44271I$	$-4.49829+3.51350I$
$u=0.035416+1.096400I$ $a=-0.51282+1.51762I$ $b=-1.073950-0.294320I$	$-0.175498-1.059220I$	$-15.3940+0.I$
$u=0.035416-1.096400I$ $a=-0.51282-1.51762I$ $b=-1.073950+0.294320I$	$-0.175498+1.059220I$	$-15.3940+0.I$
$u=-0.863688+0.730509I$ $a=0.349454+0.701314I$ $b=0.563663-0.911236I$	$10.21860+0.59688I$	$-3.53242+0.I$
$u=-0.863688-0.730509I$ $a=0.349454-0.701314I$ $b=0.563663+0.911236I$	$10.21860-0.59688I$	$-3.53242+0.I$
$u=-0.828010+0.806350I$ $a=0.246724-0.383981I$ $b=1.089150+0.711472I$	$8.61369-5.36637I$	$-5.53322+0.I$
$u=-0.828010-0.806350I$ $a=0.246724+0.383981I$ $b=1.089150-0.711472I$	$8.61369+5.36637I$	$-5.53322+0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.416306 + 1.118060I$ $a = 0.86554 - 1.47471I$ $b = 0.840318 + 0.621070I$	$5.39169 - 2.44039I$	0
$u = 0.416306 - 1.118060I$ $a = 0.86554 + 1.47471I$ $b = 0.840318 - 0.621070I$	$5.39169 + 2.44039I$	0
$u = -0.080139 + 1.205770I$ $a = 0.372713 - 0.398049I$ $b = 0.144497 + 0.357570I$	$2.95409 + 1.50728I$	0
$u = -0.080139 - 1.205770I$ $a = 0.372713 + 0.398049I$ $b = 0.144497 - 0.357570I$	$2.95409 - 1.50728I$	0
$u = -0.219956 + 1.253270I$ $a = -0.0219369 + 0.1367750I$ $b = 0.706780 + 0.369020I$	$2.66645 + 1.39976I$	0
$u = -0.219956 - 1.253270I$ $a = -0.0219369 - 0.1367750I$ $b = 0.706780 - 0.369020I$	$2.66645 - 1.39976I$	0
$u = 0.307492 + 1.236030I$ $a = -0.815496 + 0.040530I$ $b = 0.840318 - 0.621070I$	$5.39169 + 2.44039I$	0
$u = 0.307492 - 1.236030I$ $a = -0.815496 - 0.040530I$ $b = 0.840318 + 0.621070I$	$5.39169 - 2.44039I$	0
$u = 0.647951 + 0.242324I$ $a = 1.40449 - 0.16649I$ $b = 0.706780 - 0.369020I$	$2.66645 - 1.39976I$	$-7.04278 + 0.06062I$
$u = 0.647951 - 0.242324I$ $a = 1.40449 + 0.16649I$ $b = 0.706780 + 0.369020I$	$2.66645 + 1.39976I$	$-7.04278 - 0.06062I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=0.396390+0.399496I$ $a=0.963949-0.525295I$ $b=0.144497-0.357570I$	$2.95409-1.50728I$	$-6.97928+4.31266I$
$u=0.396390-0.399496I$ $a=0.963949+0.525295I$ $b=0.144497+0.357570I$	$2.95409+1.50728I$	$-6.97928-4.31266I$
$u=0.10841+1.43332I$ $a=0.410688+0.375917I$ $b=-1.306760+0.052319I$	$3.08820-2.66172I$	0
$u=0.10841-1.43332I$ $a=0.410688-0.375917I$ $b=-1.306760-0.052319I$	$3.08820+2.66172I$	0
$u=-0.05540+1.45028I$ $a=1.23305+1.70385I$ $b=-0.781818-0.585895I$	$4.81480+0.43356I$	0
$u=-0.05540-1.45028I$ $a=1.23305-1.70385I$ $b=-0.781818+0.585895I$	$4.81480-0.43356I$	0
$u=-0.14356+1.46162I$ $a=0.59905-2.26807I$ $b=-0.903290+0.591334I$	$4.43073+5.11531I$	0
$u=-0.14356-1.46162I$ $a=0.59905+2.26807I$ $b=-0.903290-0.591334I$	$4.43073-5.11531I$	0
$u=-0.03744+1.51239I$ $a=-0.60761+1.77442I$ $b=1.089150-0.711472I$	$8.61369+5.36637I$	0
$u=-0.03744-1.51239I$ $a=-0.60761-1.77442I$ $b=1.089150+0.711472I$	$8.61369-5.36637I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.21031 + 1.50284I$ $a = -0.05347 - 2.08186I$ $b = 1.139240 + 0.687767I$	$7.62261 - 11.39030I$	0
$u = 0.21031 - 1.50284I$ $a = -0.05347 + 2.08186I$ $b = 1.139240 - 0.687767I$	$7.62261 + 11.39030I$	0
$u = 0.02120 + 1.51758I$ $a = -0.64643 - 1.54897I$ $b = 0.563663 + 0.911236I$	$10.21860 - 0.59688I$	0
$u = 0.02120 - 1.51758I$ $a = -0.64643 + 1.54897I$ $b = 0.563663 - 0.911236I$	$10.21860 + 0.59688I$	0
$u = 0.16595 + 1.51068I$ $a = -0.96384 + 1.16614I$ $b = 0.479273 - 0.936834I$	$9.63785 - 5.44271I$	0
$u = 0.16595 - 1.51068I$ $a = -0.96384 - 1.16614I$ $b = 0.479273 + 0.936834I$	$9.63785 + 5.44271I$	0
$u = 0.441747 + 0.053796I$ $a = 0.48121 - 1.49645I$ $b = 1.012760 - 0.537221I$	$1.37392 + 5.41987I$	$-11.35697 - 6.54919I$
$u = 0.441747 - 0.053796I$ $a = 0.48121 + 1.49645I$ $b = 1.012760 + 0.537221I$	$1.37392 - 5.41987I$	$-11.35697 + 6.54919I$
$u = -0.106624 + 0.220666I$ $a = -5.79950 + 1.80662I$ $b = -1.073950 + 0.294320I$	$-0.175498 + 1.059220I$	$-15.3940 - 0.3706I$
$u = -0.106624 - 0.220666I$ $a = -5.79950 - 1.80662I$ $b = -1.073950 - 0.294320I$	$-0.175498 - 1.059220I$	$-15.3940 + 0.3706I$

III. $\boldsymbol{I^u_3 = \langle -5.43\times 10^4 a^5u + 1.56\times 10^5 a^4 u + \cdots + 8.39\times 10^5 a - 1.89\times 10^5,\ 2a^5u - 4a^4u + \cdots + a - 1,\ u^2+1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}a\\0.0510511a^5u - 0.146963a^4u + \cdots - 0.789201a + 0.177410\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}0.0510511a^5u - 0.146963a^4u + \cdots + 0.210799a + 0.177410\\0.0510511a^5u - 0.146963a^4u + \cdots - 0.789201a + 0.177410\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-u\\0.0269872a^5u - 0.143796a^4u + \cdots + 0.311302a + 1.03365\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-0.115515a^5u + 0.102601a^4u + \cdots + 0.261687a + 1.46186\\-0.0683729a^5u + 0.141112a^4u + \cdots + 1.04666a + 0.569012\end{pmatrix}$$

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

$$a_7 = \begin{pmatrix}0\\-1\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.0269872a^5u + 0.143796a^4u + \cdots - 0.311302a - 1.03365\\0.0989937a^5u - 0.242195a^4u + \cdots + 0.477577a - 0.543207\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-1\\0.0862375a^5u - 0.0931583a^4u + \cdots + 0.214093a - 0.322042\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-u\\0.0269872a^5u - 0.143796a^4u + \cdots + 0.311302a + 1.03365\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{288672}{1063169}a^5u + \frac{504748}{1063169}a^4u + \cdots - \frac{1898092}{1063169}a - \frac{3575656}{1063169}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 - 3u^5 + 5u^4 - 4u^3 + 2u^2 - u + 1)^2$
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_{11}, c_{12}	$(u^2 + 1)^6$
c_9	$u^{12} - u^{10} + 5u^8 + 6u^4 - 3u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6+y^5+5y^4+6y^2+3y+1)^2$
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_{11}, c_{12}	$(y+1)^{12}$
c_9	$(y^6-y^5+5y^4+6y^2-3y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.477727 + 0.831626I$ $b = 1.073950 - 0.558752I$	$3.28987 + 5.69302I$	$-6.00000 - 5.51057I$
$u = 1.000000I$ $a = 0.214242 - 1.226020I$ $b = 0.428243 + 0.664531I$	$5.18047 + 0.92430I$	$-2.28328 - 0.79423I$
$u = 1.000000I$ $a = 1.16005 - 1.04838I$ $b = 1.073950 + 0.558752I$	$3.28987 - 5.69302I$	$-6.00000 + 5.51057I$
$u = 1.000000I$ $a = -0.382665 - 0.093522I$ $b = 0.428243 - 0.664531I$	$5.18047 - 0.92430I$	$-2.28328 + 0.79423I$
$u = 1.000000I$ $a = 1.39869 + 1.49594I$ $b = -1.002190 - 0.295542I$	$1.39926 - 0.92430I$	$-9.71672 + 0.79423I$
$u = 1.000000I$ $a = -1.91259 - 1.95964I$ $b = -1.002190 + 0.295542I$	$1.39926 + 0.92430I$	$-9.71672 - 0.79423I$
$u = -1.000000I$ $a = -0.477727 - 0.831626I$ $b = 1.073950 + 0.558752I$	$3.28987 - 5.69302I$	$-6.00000 + 5.51057I$
$u = -1.000000I$ $a = 0.214242 + 1.226020I$ $b = 0.428243 - 0.664531I$	$5.18047 - 0.92430I$	$-2.28328 + 0.79423I$
$u = -1.000000I$ $a = 1.16005 + 1.04838I$ $b = 1.073950 - 0.558752I$	$3.28987 + 5.69302I$	$-6.00000 - 5.51057I$
$u = -1.000000I$ $a = -0.382665 + 0.093522I$ $b = 0.428243 + 0.664531I$	$5.18047 + 0.92430I$	$-2.28328 - 0.79423I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad - 1.000000I$ $a = \quad 1.39869 - 1.49594I$ $b = -1.002190 + 0.295542I$	$1.39926 + 0.92430I$	$-9.71672 - 0.79423I$
$u = \quad - 1.000000I$ $a = -1.91259 + 1.95964I$ $b = -1.002190 - 0.295542I$	$1.39926 - 0.92430I$	$-9.71672 + 0.79423I$

IV. $I_4^u = \langle b+1,\ u^2+2a+u+3,\ u^3+2u-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{7}{4}u^2 - \frac{21}{4}u - \frac{57}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_8	y^3
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^3 + 4y^2 + 4y - 1$
c_9	$y^3 + y^2 + 13y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.22670 + 1.46771I$ $a = -0.335258 - 0.401127I$ $b = -1.00000$	$7.79580 + 5.13794I$	$-9.37996 - 6.54094I$
$u = -0.22670 - 1.46771I$ $a = -0.335258 + 0.401127I$ $b = -1.00000$	$7.79580 - 5.13794I$	$-9.37996 + 6.54094I$
$u = \quad 0.453398$ $a = -1.82948$ $b = -1.00000$	-2.43213	-16.9900

V. $I_5^u = \langle b+1,\ u^3+u^2+a+u+2,\ u^4+u^3+2u^2+2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^3-4u-15$

(iv) u-Polynomials at the component

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

(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	y^4
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^4 + 3y^3 + 2y^2 + 1$
c_9	$(y^2 + y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.621744 + 0.440597I$ $a = -1.69244 - 0.31815I$ $b = -1.00000$	$1.64493 + 2.02988I$	$-13.00000 - 3.46410I$
$u = -0.621744 - 0.440597I$ $a = -1.69244 + 0.31815I$ $b = -1.00000$	$1.64493 - 2.02988I$	$-13.00000 + 3.46410I$
$u = 0.121744 + 1.306620I$ $a = 0.192440 + 0.547877I$ $b = -1.00000$	$1.64493 - 2.02988I$	$-13.00000 + 3.46410I$
$u = 0.121744 - 1.306620I$ $a = 0.192440 - 0.547877I$ $b = -1.00000$	$1.64493 + 2.02988I$	$-13.00000 - 3.46410I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^7(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot((u^{25}+11u^{24}+\cdots-2u+1)^2)(u^{39}+18u^{38}+\cdots+817u+16)$
c_2	$((u-1)^7)(u^6+u^5+\cdots+u+1)^2(u^{25}-3u^{24}+\cdots-4u+1)^2$ $\cdot(u^{39}-4u^{38}+\cdots+13u+4)$
c_3, c_8	$u^7(u^{12}+3u^{10}+\cdots+u^2+1)(u^{25}+u^{24}+\cdots+4u-4)^2$ $\cdot(u^{39}-3u^{38}+\cdots-8u+32)$
c_4	$((u+1)^7)(u^6-u^5+\cdots-u+1)^2(u^{25}-3u^{24}+\cdots-4u+1)^2$ $\cdot(u^{39}-4u^{38}+\cdots+13u+4)$
c_5, c_6, c_7	$((u^2+1)^6)(u^3+2u-1)(u^4+u^3+\cdots+2u+1)(u^{39}+25u^{37}+\cdots+u+1)$ $\cdot(u^{50}+2u^{49}+\cdots-18u+9)$
c_9	$(u^2+u+1)^2(u^3-3u^2+5u-2)(u^{12}-u^{10}+5u^8+6u^4-3u^2+1)$ $\cdot((u^{25}-8u^{24}+\cdots+11u+1)^2)(u^{39}+24u^{38}+\cdots+132148u+10276)$
c_{10}, c_{11}, c_{12}	$((u^2+1)^6)(u^3+2u+1)(u^4-u^3+\cdots-2u+1)(u^{39}+25u^{37}+\cdots+u+1)$ $\cdot(u^{50}+2u^{49}+\cdots-18u+9)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^7)(y^6+y^5+\cdots+3y+1)^2(y^{25}+9y^{24}+\cdots-2y-1)^2$ $\cdot(y^{39}+10y^{38}+\cdots+507201y-256)$
c_2, c_4	$(y-1)^7(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot((y^{25}-11y^{24}+\cdots-2y-1)^2)(y^{39}-18y^{38}+\cdots+817y-16)$
c_3, c_8	$y^7(y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2$ $\cdot((y^{25}+15y^{24}+\cdots-88y-16)^2)(y^{39}+21y^{38}+\cdots-3776y-1024)$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$(y+1)^{12}(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{39}+50y^{38}+\cdots-3y-1)(y^{50}+42y^{49}+\cdots+1584y+81)$
c_9	$(y^2+y+1)^2(y^3+y^2+13y-4)(y^6-y^5+5y^4+6y^2-3y+1)^2$ $\cdot(y^{25}+20y^{24}+\cdots+251y-1)^2$ $\cdot(y^{39}+18y^{38}+\cdots-277125320y-105596176)$