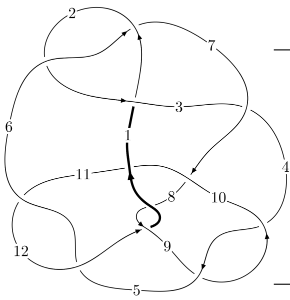
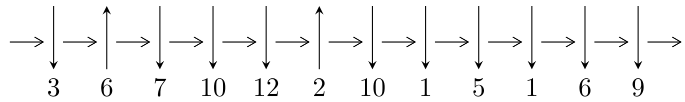
$12n_{0299}$ ($K12n_{0299}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -5u^{28} - 22u^{27} + \cdots + 2b + 4,\ -u^{28} - u^{27} + \cdots + 2a - 5,\ u^{29} + 6u^{28} + \cdots - 10u - 4 \rangle \\
I_2^u &= \langle -123u^7a^3 + 644u^7a^2 + \cdots - 2637a - 1781,\ -u^7a^3 - u^7a^2 + \cdots + 4a - 1, \\
&\quad u^8 - u^7 + 3u^6 - 2u^5 + 3u^4 - 2u^3 - 1 \rangle \\
I_3^u &= \langle u^{18} - u^{17} + \cdots + b + 1, \\
&\quad u^{18} + 5u^{16} + u^{15} + 12u^{14} + 3u^{13} + 15u^{12} + 4u^{11} + 8u^{10} - 3u^8 - 4u^7 - 5u^6 - 4u^5 - u^4 + u^2 + a - u - 1, \\
&\quad u^{19} - u^{18} + \cdots + u - 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 80 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. $I^u_1 = \langle -5u^{28}-22u^{27}+\cdots+2b+4,\ -u^{28}-u^{27}+\cdots+2a-5,\ u^{29}+6u^{28}+\cdots-10u-4\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^4+u^2+1\\u^6+2u^4+u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}\frac{1}{2}u^{28}+\frac{1}{2}u^{27}+\cdots+2u+\frac{5}{2}\\\frac{5}{2}u^{28}+11u^{27}+\cdots-\frac{15}{2}u-2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-\frac{3}{4}u^{28}-5u^{27}+\cdots+\frac{71}{4}u+18\\\frac{1}{2}u^{28}+6u^{27}+\cdots-\frac{19}{2}u+3\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^{28}-\frac{9}{2}u^{27}+\cdots+\frac{21}{2}u+\frac{21}{2}\\\frac{5}{2}u^{28}+15u^{27}+\cdots-\frac{27}{2}u-2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u^{28}-\frac{9}{2}u^{27}+\cdots+\frac{21}{2}u+\frac{21}{2}\\-\frac{5}{2}u^{28}-8u^{27}+\cdots-\frac{5}{2}u+4\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-\frac{3}{4}u^{28}-4u^{27}+\cdots+\frac{19}{4}u+3\\-\frac{1}{2}u^{28}-3u^{27}+\cdots+\frac{11}{2}u+3\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{1}{4}u^{28}-u^{27}+\cdots+\frac{5}{4}u+1\\-\frac{5}{2}u^{28}-11u^{27}+\cdots+\frac{9}{2}u+3\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= u^{28}+6u^{27}+26u^{26}+78u^{25}+195u^{24}+404u^{23}+742u^{22}+1212u^{21}+1814u^{20}+2496u^{19}+3192u^{18}+3810u^{17}+4264u^{16}+4505u^{15}+4511u^{14}+4302u^{13}+3916u^{12}+3391u^{11}+2793u^{10}+2164u^{9}+1573u^{8}+1049u^{7}+629u^{6}+320u^{5}+122u^{4}+16u^{3}-19u^{2}-14u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{29} + 16u^{28} + \cdots + 108u - 16$
c_2, c_6	$u^{29} - 6u^{28} + \cdots - 10u + 4$
c_3	$u^{29} + 6u^{28} + \cdots + 102u + 52$
c_4, c_5, c_9 c_{11}	$u^{29} + 7u^{27} + \cdots + 2u + 1$
c_7, c_{10}	$u^{29} - 3u^{28} + \cdots - 21u + 1$
c_8, c_{12}	$u^{29} + 19u^{28} + \cdots + 2304u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{29} - 4y^{28} + \cdots + 28400y - 256$
c_2, c_6	$y^{29} + 16y^{28} + \cdots + 108y - 16$
c_3	$y^{29} - 24y^{28} + \cdots + 12588y - 2704$
c_4, c_5, c_9 c_{11}	$y^{29} + 14y^{28} + \cdots - 10y - 1$
c_7, c_{10}	$y^{29} - 49y^{28} + \cdots + 83y - 1$
c_8, c_{12}	$y^{29} + 9y^{28} + \cdots + 131072y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.529936 + 0.817458I$ $a = 0.234233 + 0.574816I$ $b = 0.345760 - 0.496091I$	$-1.24507 + 2.13242I$	$-1.54126 - 5.97211I$
$u = 0.529936 - 0.817458I$ $a = 0.234233 - 0.574816I$ $b = 0.345760 + 0.496091I$	$-1.24507 - 2.13242I$	$-1.54126 + 5.97211I$
$u = -0.333397 + 0.883512I$ $a = -0.369414 + 0.421127I$ $b = 0.248910 + 0.466784I$	$-0.53686 - 1.47819I$	$-4.90590 + 3.46156I$
$u = -0.333397 - 0.883512I$ $a = -0.369414 - 0.421127I$ $b = 0.248910 - 0.466784I$	$-0.53686 + 1.47819I$	$-4.90590 - 3.46156I$
$u = 0.230674 + 1.031600I$ $a = 0.622836 - 0.242190I$ $b = -0.393514 - 0.586648I$	$-3.27588 + 2.17781I$	$-14.9005 - 2.5155I$
$u = 0.230674 - 1.031600I$ $a = 0.622836 + 0.242190I$ $b = -0.393514 + 0.586648I$	$-3.27588 - 2.17781I$	$-14.9005 + 2.5155I$
$u = 0.752784 + 0.560145I$ $a = 0.141867 - 0.328248I$ $b = -0.290661 + 0.167634I$	$4.48557 - 3.54679I$	$-5.06701 + 3.83669I$
$u = 0.752784 - 0.560145I$ $a = 0.141867 + 0.328248I$ $b = -0.290661 - 0.167634I$	$4.48557 + 3.54679I$	$-5.06701 - 3.83669I$
$u = -0.929027 + 0.116767I$ $a = -2.22411 + 0.15082I$ $b = -2.04864 + 0.39982I$	$-2.62991 + 9.91881I$	$-5.74423 - 5.24249I$
$u = -0.929027 - 0.116767I$ $a = -2.22411 - 0.15082I$ $b = -2.04864 - 0.39982I$	$-2.62991 - 9.91881I$	$-5.74423 + 5.24249I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.755090+0.452937I$ $a=-0.606953-0.612743I$ $b=-0.735838-0.187764I$	$4.01496-0.67489I$	$-6.09853+2.29351I$
$u=-0.755090-0.452937I$ $a=-0.606953+0.612743I$ $b=-0.735838+0.187764I$	$4.01496+0.67489I$	$-6.09853-2.29351I$
$u=-0.864712+0.123739I$ $a=\ \ 2.27119+0.52125I$ $b=\ \ 2.02843+0.16969I$	$-4.98255+2.50011I$	$-6.07998-2.74065I$
$u=-0.864712-0.123739I$ $a=\ \ 2.27119-0.52125I$ $b=\ \ 2.02843-0.16969I$	$-4.98255-2.50011I$	$-6.07998+2.74065I$
$u=\ \ 0.018688+1.158270I$ $a=-0.390605+0.430620I$ $b=\ \ 0.506072+0.444376I$	$-1.41808-2.24811I$	$-11.36469+3.43943I$
$u=\ \ 0.018688-1.158270I$ $a=-0.390605-0.430620I$ $b=\ \ 0.506072-0.444376I$	$-1.41808+2.24811I$	$-11.36469-3.43943I$
$u=\ \ 0.643120+0.992128I$ $a=-0.240554-0.246860I$ $b=-0.090211+0.397421I$	$3.21603+8.80773I$	$-6.26763-8.83895I$
$u=\ \ 0.643120-0.992128I$ $a=-0.240554+0.246860I$ $b=-0.090211-0.397421I$	$3.21603-8.80773I$	$-6.26763+8.83895I$
$u=-0.593156+1.076560I$ $a=\ \ 0.559837+0.468168I$ $b=\ \ 0.836083-0.325004I$	$2.16507-4.43085I$	$-9.17518+3.77414I$
$u=-0.593156-1.076560I$ $a=\ \ 0.559837-0.468168I$ $b=\ \ 0.836083+0.325004I$	$2.16507+4.43085I$	$-9.17518-3.77414I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.396847+1.258520I$ $a=\ 0.13510-1.71384I$ $b=-2.10328-0.85015I$	$-9.21490-1.83630I$	$-10.54114+0.46853I$
$u=-0.396847-1.258520I$ $a=\ 0.13510+1.71384I$ $b=-2.10328+0.85015I$	$-9.21490+1.83630I$	$-10.54114-0.46853I$
$u=-0.525425+1.223980I$ $a=-0.68573-1.73877I$ $b=-2.48851-0.07427I$	$-8.26868-7.55554I$	$-8.73863+5.55556I$
$u=-0.525425-1.223980I$ $a=-0.68573+1.73877I$ $b=-2.48851+0.07427I$	$-8.26868+7.55554I$	$-8.73863-5.55556I$
$u=-0.398180+1.298960I$ $a=\ 0.28856+1.51336I$ $b=\ 2.08069+0.22776I$	$-7.09003+5.31029I$	$-9.76890-2.61442I$
$u=-0.398180-1.298960I$ $a=\ 0.28856-1.51336I$ $b=\ 2.08069-0.22776I$	$-7.09003-5.31029I$	$-9.76890+2.61442I$
$u=-0.533945+1.252430I$ $a=\ 0.25821+1.84759I$ $b=\ 2.45185+0.66312I$	$-6.0854-15.1894I$	$-8.50713+8.09278I$
$u=-0.533945-1.252430I$ $a=\ 0.25821-1.84759I$ $b=\ 2.45185-0.66312I$	$-6.0854+15.1894I$	$-8.50713-8.09278I$
$u=\ 0.309156$ $a=-0.988933$ $b=\ 0.305734$	-0.776150	-12.5990

II. $\boldsymbol{I^u_2 = \langle -123u^7a^3 + 644u^7a^2 + \cdots - 2637a - 1781,\ -u^7a^3 - u^7a^2 + \cdots + 4a - 1,\ u^8 - u^7 + 3u^6 - 2u^5 + 3u^4 - 2u^3 - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ 0.0617160a^3u^7 - 0.323131a^2u^7 + \cdots + 1.32313a + 0.893628 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.205218a^3u^7 + 0.497240a^2u^7 + \cdots + 0.502760a - 2.00401 \\ 0.0145509a^3u^7 + 0.517311a^2u^7 + \cdots - 1.51731a - 1.06573 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.202208a^3u^7 - 0.0180632a^2u^7 + \cdots + 0.0180632a - 0.844456 \\ 0.255896a^3u^7 - 0.730055a^2u^7 + \cdots + 1.73006a + 0.119920 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.202208a^3u^7 - 0.0180632a^2u^7 + \cdots + 0.0180632a - 0.844456 \\ 0.0842950a^3u^7 - 0.416959a^2u^7 + \cdots + 1.41696a - 1.24285 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0496739a^3u^7 + 0.406422a^2u^7 + \cdots - 0.406422a - 0.499749 \\ 0.308580a^3u^7 + 1.38435a^2u^7 + \cdots + 0.615655a - 4.53186 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.186653a^3u^7 + 0.708981a^2u^7 + \cdots + 1.29102a - 2.60512 \\ 0.238334a^3u^7 + 0.231811a^2u^7 + \cdots - 1.23181a - 1.66282 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1636}{1993}u^7a^3 + \frac{3964}{1993}u^7a^2 + \cdots + \frac{4008}{1993}a - \frac{11990}{1993}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^8+5u^7+11u^6+10u^5-u^4-10u^3-6u^2+1)^4$
c_2, c_6	$(u^8+u^7+3u^6+2u^5+3u^4+2u^3-1)^4$
c_3	$(u^8-u^7-5u^6+4u^5+7u^4-4u^3-2u^2+2u-1)^4$
c_4, c_5, c_9 c_{11}	$u^{32}-u^{31}+\cdots+830u+361$
c_7, c_{10}	$u^{32}-5u^{31}+\cdots-27238u+3169$
c_8, c_{12}	$(u^2-u+1)^{16}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^8 - 3y^7 + 19y^6 - 34y^5 + 71y^4 - 66y^3 + 34y^2 - 12y + 1)^4$
c_2, c_6	$(y^8 + 5y^7 + 11y^6 + 10y^5 - y^4 - 10y^3 - 6y^2 + 1)^4$
c_3	$(y^8 - 11y^7 + 47y^6 - 98y^5 + 103y^4 - 50y^3 + 6y^2 + 1)^4$
c_4, c_5, c_9 c_{11}	$y^{32} + 15y^{31} + \cdots + 1378908y + 130321$
c_7, c_{10}	$y^{32} - 21y^{31} + \cdots + 68151136y + 10042561$
c_8, c_{12}	$(y^2 + y + 1)^{16}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.914675$ $a = 1.89629 + 0.39729I$ $b = 1.88389 + 0.10461I$	$-5.24109 - 2.02988I$	$-5.82210 + 3.46410I$
$u = 0.914675$ $a = 1.89629 - 0.39729I$ $b = 1.88389 - 0.10461I$	$-5.24109 + 2.02988I$	$-5.82210 - 3.46410I$
$u = 0.914675$ $a = -2.05963 + 0.11437I$ $b = -1.73449 + 0.36339I$	$-5.24109 + 2.02988I$	$-5.82210 - 3.46410I$
$u = 0.914675$ $a = -2.05963 - 0.11437I$ $b = -1.73449 - 0.36339I$	$-5.24109 - 2.02988I$	$-5.82210 + 3.46410I$
$u = 0.252896 + 0.819281I$ $a = 0.839815 + 0.637967I$ $b = 0.38233 + 2.21666I$	$4.44352 - 0.75456I$	$-3.18053 - 1.62107I$
$u = 0.252896 + 0.819281I$ $a = 1.61466 + 0.45267I$ $b = -1.49292 + 1.35353I$	$4.44352 + 3.30520I$	$-3.18053 - 8.54928I$
$u = 0.252896 + 0.819281I$ $a = -0.99481 - 2.12932I$ $b = -0.03748 - 1.43734I$	$4.44352 + 3.30520I$	$-3.18053 - 8.54928I$
$u = 0.252896 + 0.819281I$ $a = -2.60176 - 0.33644I$ $b = 0.310288 - 0.849384I$	$4.44352 - 0.75456I$	$-3.18053 - 1.62107I$
$u = 0.252896 - 0.819281I$ $a = 0.839815 - 0.637967I$ $b = 0.38233 - 2.21666I$	$4.44352 + 0.75456I$	$-3.18053 + 1.62107I$
$u = 0.252896 - 0.819281I$ $a = 1.61466 - 0.45267I$ $b = -1.49292 - 1.35353I$	$4.44352 - 3.30520I$	$-3.18053 + 8.54928I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.252896 - 0.819281I$ $a = -0.99481 + 2.12932I$ $b = -0.03748 + 1.43734I$	$4.44352 - 3.30520I$	$-3.18053 + 8.54928I$
$u = 0.252896 - 0.819281I$ $a = -2.60176 + 0.33644I$ $b = 0.310288 + 0.849384I$	$4.44352 + 0.75456I$	$-3.18053 + 1.62107I$
$u = -0.394459 + 1.112500I$ $a = -0.559029 + 1.096920I$ $b = 0.095737 + 0.849097I$	$0.58960 - 1.60295I$	$-8.42240 + 1.05392I$
$u = -0.394459 + 1.112500I$ $a = -0.650891 + 0.316842I$ $b = 0.99981 + 1.05461I$	$0.58960 - 1.60295I$	$-8.42240 + 1.05392I$
$u = -0.394459 + 1.112500I$ $a = 1.265140 + 0.509213I$ $b = 0.035342 - 0.694019I$	$0.58960 - 5.66272I$	$-8.42240 + 7.98213I$
$u = -0.394459 + 1.112500I$ $a = 0.564174 - 0.168272I$ $b = 1.06554 - 1.20660I$	$0.58960 - 5.66272I$	$-8.42240 + 7.98213I$
$u = -0.394459 - 1.112500I$ $a = -0.559029 - 1.096920I$ $b = 0.095737 - 0.849097I$	$0.58960 + 1.60295I$	$-8.42240 - 1.05392I$
$u = -0.394459 - 1.112500I$ $a = -0.650891 - 0.316842I$ $b = 0.99981 - 1.05461I$	$0.58960 + 1.60295I$	$-8.42240 - 1.05392I$
$u = -0.394459 - 1.112500I$ $a = 1.265140 - 0.509213I$ $b = 0.035342 + 0.694019I$	$0.58960 + 5.66272I$	$-8.42240 - 7.98213I$
$u = -0.394459 - 1.112500I$ $a = 0.564174 + 0.168272I$ $b = 1.06554 + 1.20660I$	$0.58960 + 5.66272I$	$-8.42240 - 7.98213I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.473514 + 1.273020I$ $a = -0.278598 + 1.324080I$ $b = -2.19588 + 0.14617I$	$-9.13765 + 2.90536I$	$-8.98443 + 0.46988I$
$u = 0.473514 + 1.273020I$ $a = 0.15293 - 1.46513I$ $b = 2.23599 - 0.76370I$	$-9.13765 + 6.96513I$	$-8.98443 - 6.45832I$
$u = 0.473514 + 1.273020I$ $a = 0.46276 - 1.55281I$ $b = 1.81750 - 0.27231I$	$-9.13765 + 2.90536I$	$-8.98443 + 0.46988I$
$u = 0.473514 + 1.273020I$ $a = -0.04692 + 1.73899I$ $b = -1.93756 + 0.49908I$	$-9.13765 + 6.96513I$	$-8.98443 - 6.45832I$
$u = 0.473514 - 1.273020I$ $a = -0.278598 - 1.324080I$ $b = -2.19588 - 0.14617I$	$-9.13765 - 2.90536I$	$-8.98443 - 0.46988I$
$u = 0.473514 - 1.273020I$ $a = 0.15293 + 1.46513I$ $b = 2.23599 + 0.76370I$	$-9.13765 - 6.96513I$	$-8.98443 + 6.45832I$
$u = 0.473514 - 1.273020I$ $a = 0.46276 + 1.55281I$ $b = 1.81750 + 0.27231I$	$-9.13765 - 2.90536I$	$-8.98443 - 0.46988I$
$u = 0.473514 - 1.273020I$ $a = -0.04692 - 1.73899I$ $b = -1.93756 - 0.49908I$	$-9.13765 - 6.96513I$	$-8.98443 + 6.45832I$
$u = -0.578577$ $a = -1.046970 + 0.657077I$ $b = -0.322351 + 1.227360I$	$3.58052 - 2.02988I$	$-5.00319 + 3.46410I$
$u = -0.578577$ $a = -1.046970 - 0.657077I$ $b = -0.322351 - 1.227360I$	$3.58052 + 2.02988I$	$-5.00319 - 3.46410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.578577$ $a = -0.55714 + 2.12134I$ $b = -0.605755 + 0.380170I$	$3.58052 - 2.02988I$	$-5.00319 + 3.46410I$
$u = -0.578577$ $a = -0.55714 - 2.12134I$ $b = -0.605755 - 0.380170I$	$3.58052 + 2.02988I$	$-5.00319 - 3.46410I$

III.

$\boldsymbol{I_3^u = \langle u^{18} - u^{17} + \cdots + b + 1,\ u^{18} + 5u^{16} + \cdots + a - 1,\ u^{19} - u^{18} + \cdots + u - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{18} - 5u^{16} + \cdots + u + 1 \\ -u^{18} + u^{17} + \cdots + 2u - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2u^{18} - 3u^{17} + \cdots - 4u + 2 \\ -u^{18} - 4u^{16} + \cdots + u + 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{18} - 5u^{16} + \cdots + u + 1 \\ -2u^{18} + 2u^{17} + \cdots + 3u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^{18} - 5u^{16} + \cdots + u + 1 \\ -2u^{18} + 2u^{17} + \cdots + 3u - 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{18} + 2u^{17} + \cdots + 4u - 2 \\ u^{18} - u^{17} + \cdots - 2u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2u^{18} - 2u^{17} + \cdots - 4u + 1 \\ -u^{17} + u^{16} + \cdots - u + 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^{17} + 3u^{16} - 11u^{15} + 15u^{14} - 28u^{13} + 35u^{12} - 39u^{11} + 41u^{10} - 30u^9 + 20u^8 - 10u^7 - 4u^6 - 3u^5 - 5u^3 + 8u^2 - 3u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} - 11u^{18} + \cdots - 5u + 1$
c_2	$u^{19} - u^{18} + \cdots + u - 1$
c_3	$u^{19} + u^{18} + \cdots - u - 1$
c_4, c_{11}	$u^{19} + 8u^{17} + \cdots + 3u - 1$
c_5, c_9	$u^{19} + 8u^{17} + \cdots + 3u + 1$
c_6	$u^{19} + u^{18} + \cdots + u + 1$
c_7, c_{10}	$u^{19} - 3u^{18} + \cdots - 2u - 1$
c_8	$u^{19} + 2u^{18} + \cdots + 3u - 1$
c_{12}	$u^{19} - 2u^{18} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} - y^{18} + \cdots - y - 1$
c_2, c_6	$y^{19} + 11y^{18} + \cdots - 5y - 1$
c_3	$y^{19} - 13y^{18} + \cdots - 11y - 1$
c_4, c_5, c_9 c_{11}	$y^{19} + 16y^{18} + \cdots - 21y - 1$
c_7, c_{10}	$y^{19} - 3y^{18} + \cdots - 8y - 1$
c_8, c_{12}	$y^{19} + 8y^{18} + \cdots + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.432409 + 0.844316I$ $a = -0.329441 + 0.448815I$ $b = -0.236489 - 0.472224I$	$-1.79244 - 1.81593I$	$-13.41650 + 0.65086I$
$u = -0.432409 - 0.844316I$ $a = -0.329441 - 0.448815I$ $b = -0.236489 + 0.472224I$	$-1.79244 + 1.81593I$	$-13.41650 - 0.65086I$
$u = 0.355611 + 1.040830I$ $a = 1.62344 + 0.58218I$ $b = -0.02864 + 1.89676I$	$2.78146 - 0.05347I$	$-7.84525 - 1.09777I$
$u = 0.355611 - 1.040830I$ $a = 1.62344 - 0.58218I$ $b = -0.02864 - 1.89676I$	$2.78146 + 0.05347I$	$-7.84525 + 1.09777I$
$u = 0.890704$ $a = -2.06630$ $b = -1.84047$	-5.60220	-6.95090
$u = -0.326702 + 1.147210I$ $a = -0.125098 - 0.538940I$ $b = 0.659149 + 0.032559I$	$1.46823 - 3.78813I$	$-6.32142 + 3.96435I$
$u = -0.326702 - 1.147210I$ $a = -0.125098 + 0.538940I$ $b = 0.659149 - 0.032559I$	$1.46823 + 3.78813I$	$-6.32142 - 3.96435I$
$u = 0.536152 + 1.067450I$ $a = -1.382960 - 0.137280I$ $b = -0.59494 - 1.54985I$	$4.08792 + 6.74742I$	$-5.06014 - 6.00387I$
$u = 0.536152 - 1.067450I$ $a = -1.382960 + 0.137280I$ $b = -0.59494 + 1.54985I$	$4.08792 - 6.74742I$	$-5.06014 + 6.00387I$
$u = 0.101153 + 0.760282I$ $a = 1.81914 + 1.18798I$ $b = -0.71919 + 1.50323I$	$4.29021 + 2.32381I$	$-5.29787 - 0.37944I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.101153 - 0.760282I$ $a = 1.81914 - 1.18798I$ $b = -0.71919 - 1.50323I$	$4.29021 - 2.32381I$	$-5.29787 + 0.37944I$
$u = -0.682478 + 0.327459I$ $a = -0.427115 + 0.321033I$ $b = 0.186371 - 0.358960I$	$5.43330 - 0.84474I$	$0.382477 + 1.325719I$
$u = -0.682478 - 0.327459I$ $a = -0.427115 - 0.321033I$ $b = 0.186371 + 0.358960I$	$5.43330 + 0.84474I$	$0.382477 - 1.325719I$
$u = -0.557218 + 1.113290I$ $a = 0.172420 + 0.230688I$ $b = -0.352897 + 0.063409I$	$3.17508 - 3.96127I$	$-2.77988 + 1.70184I$
$u = -0.557218 - 1.113290I$ $a = 0.172420 - 0.230688I$ $b = -0.352897 - 0.063409I$	$3.17508 + 3.96127I$	$-2.77988 - 1.70184I$
$u = 0.587141 + 0.436351I$ $a = -0.56266 - 1.67318I$ $b = 0.399733 - 1.227910I$	$5.94319 - 2.22864I$	$-0.25827 + 1.68244I$
$u = 0.587141 - 0.436351I$ $a = -0.56266 + 1.67318I$ $b = 0.399733 + 1.227910I$	$5.94319 + 2.22864I$	$-0.25827 - 1.68244I$
$u = 0.473398 + 1.262070I$ $a = 0.24543 - 1.57752I$ $b = 2.10713 - 0.43705I$	$-9.42638 + 4.85839I$	$-9.92768 - 3.28951I$
$u = 0.473398 - 1.262070I$ $a = 0.24543 + 1.57752I$ $b = 2.10713 + 0.43705I$	$-9.42638 - 4.85839I$	$-9.92768 + 3.28951I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^8+5u^7+11u^6+10u^5-u^4-10u^3-6u^2+1)^4$ $\cdot(u^{19}-11u^{18}+\cdots-5u+1)(u^{29}+16u^{28}+\cdots+108u-16)$
c_2	$((u^8+u^7+\cdots+2u^3-1)^4)(u^{19}-u^{18}+\cdots+u-1)$ $\cdot(u^{29}-6u^{28}+\cdots-10u+4)$
c_3	$(u^8-u^7-5u^6+4u^5+7u^4-4u^3-2u^2+2u-1)^4$ $\cdot(u^{19}+u^{18}+\cdots-u-1)(u^{29}+6u^{28}+\cdots+102u+52)$
c_4, c_{11}	$(u^{19}+8u^{17}+\cdots+3u-1)(u^{29}+7u^{27}+\cdots+2u+1)$ $\cdot(u^{32}-u^{31}+\cdots+830u+361)$
c_5, c_9	$(u^{19}+8u^{17}+\cdots+3u+1)(u^{29}+7u^{27}+\cdots+2u+1)$ $\cdot(u^{32}-u^{31}+\cdots+830u+361)$
c_6	$((u^8+u^7+\cdots+2u^3-1)^4)(u^{19}+u^{18}+\cdots+u+1)$ $\cdot(u^{29}-6u^{28}+\cdots-10u+4)$
c_7, c_{10}	$(u^{19}-3u^{18}+\cdots-2u-1)(u^{29}-3u^{28}+\cdots-21u+1)$ $\cdot(u^{32}-5u^{31}+\cdots-27238u+3169)$
c_8	$((u^2-u+1)^{16})(u^{19}+2u^{18}+\cdots+3u-1)$ $\cdot(u^{29}+19u^{28}+\cdots+2304u+256)$
c_{12}	$((u^2-u+1)^{16})(u^{19}-2u^{18}+\cdots+3u+1)$ $\cdot(u^{29}+19u^{28}+\cdots+2304u+256)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^8 - 3y^7 + 19y^6 - 34y^5 + 71y^4 - 66y^3 + 34y^2 - 12y + 1)^4$ $\cdot (y^{19} - y^{18} + \cdots - y - 1)(y^{29} - 4y^{28} + \cdots + 28400y - 256)$
c_2, c_6	$(y^8 + 5y^7 + 11y^6 + 10y^5 - y^4 - 10y^3 - 6y^2 + 1)^4$ $\cdot (y^{19} + 11y^{18} + \cdots - 5y - 1)(y^{29} + 16y^{28} + \cdots + 108y - 16)$
c_3	$(y^8 - 11y^7 + 47y^6 - 98y^5 + 103y^4 - 50y^3 + 6y^2 + 1)^4$ $\cdot (y^{19} - 13y^{18} + \cdots - 11y - 1)(y^{29} - 24y^{28} + \cdots + 12588y - 2704)$
c_4, c_5, c_9 c_{11}	$(y^{19} + 16y^{18} + \cdots - 21y - 1)(y^{29} + 14y^{28} + \cdots - 10y - 1)$ $\cdot (y^{32} + 15y^{31} + \cdots + 1378908y + 130321)$
c_7, c_{10}	$(y^{19} - 3y^{18} + \cdots - 8y - 1)(y^{29} - 49y^{28} + \cdots + 83y - 1)$ $\cdot (y^{32} - 21y^{31} + \cdots + 68151136y + 10042561)$
c_8, c_{12}	$((y^2 + y + 1)^{16})(y^{19} + 8y^{18} + \cdots + 3y - 1)$ $\cdot (y^{29} + 9y^{28} + \cdots + 131072y - 65536)$