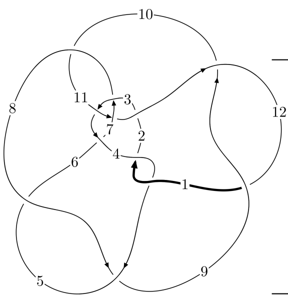
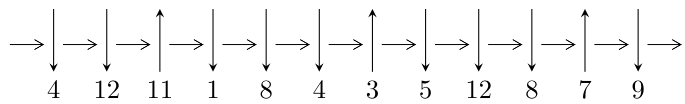
$12n_{0843}$ ($K12n_{0843}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle b-u,\ a-1,\ u^6+3u^5+5u^4+4u^3+3u^2+2u+1\rangle \\
I_2^u &= \langle 6910924u^{19}+111764718u^{18}+\cdots+184670140b+50164092, \\
&\quad -12541023u^{19}-199375543u^{18}+\cdots+36934028a-54583614,\ u^{20}+17u^{19}+\cdots-58u^2+8\rangle \\
I_3^u &= \langle b-u,\ 201231u^{19}-801753u^{18}+\cdots+26914a-196045,\ u^{20}-4u^{19}+\cdots-4u+1\rangle \\
I_4^u &= \langle 3171u^{19}-102100u^{18}+\cdots+26914b-201231,\ a-1,\ u^{20}-4u^{19}+\cdots-4u+1\rangle \\
I_5^u &= \langle b+u,\ a+1,\ u^8+3u^7+4u^6+u^5-2u^4-2u^3+1\rangle \\
I_6^u &= \langle -47u^{11}-28u^{10}+\cdots+592b-663,\ 663u^{11}a+949u^{11}+\cdots-913a-2279, \\
&\quad u^{12}-3u^{11}+4u^{10}+3u^9-9u^8+5u^7+15u^6-23u^5+20u^4-9u^3+4u^2-u+1\rangle \\
I_7^u &= \langle b+u,\ 2u^7-6u^6+7u^5-2u^4-4u^2+a+5u-3,\ u^8-3u^7+4u^6-2u^5+u^4-2u^3+3u^2-2u+1\rangle \\
I_8^u &= \langle -u^6+2u^5-2u^4-u^2+b+u-2,\ a+1,\ u^8-3u^7+4u^6-2u^5+u^4-2u^3+3u^2-2u+1\rangle \\
I_9^u &= \langle -u^7-4u^6-7u^5-5u^4+u^2+b-u,\ -u^6-4u^5-7u^4-5u^3+a+u-1, \\
&\quad u^8+5u^7+12u^6+16u^5+13u^4+7u^3+4u^2+2u+1\rangle \\
I_{10}^u &= \langle -u^4+2u^3-2u^2+b+2u-2,\ u^4-2u^3+u^2+a+1,\ u^6-3u^5+4u^4-4u^3+4u^2-2u+1\rangle
\end{aligned}$$

[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`).

$I^u_{11} = \langle u^5 - 2u^4 + u^3 + b + u,\ 2u^5 - 6u^4 + 7u^3 - 6u^2 + a + 6u - 2,\ u^6 - 3u^5 + 4u^4 - 4u^3 + 4u^2 - 2u + 1\rangle$
$I^u_{12} = \langle b - u,\ a - 1,\ u^3 + u^2 + u - 1\rangle$

* 12 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 137 representations.

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

I. $I_1^u = \langle b - u,\ a - 1,\ u^6 + 3u^5 + 5u^4 + 4u^3 + 3u^2 + 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^5 + 9u^4 + 12u^3 + 3u^2 + 3u + 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$u^6 - 2u^5 + 5u^4 - 4u^3 + 5u^2 - u + 1$
c_2, c_6, c_{10}	$u^6 - 4u^5 + 9u^4 - 11u^3 + 10u^2 - 5u + 1$
c_3, c_7, c_{11}	$u^6 - 3u^5 + 5u^4 - 4u^3 + 3u^2 - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$y^6 + 6y^5 + 19y^4 + 32y^3 + 27y^2 + 9y + 1$
c_2, c_6, c_{10}	$y^6 + 2y^5 + 13y^4 + 21y^3 + 8y^2 - 5y + 1$
c_3, c_7, c_{11}	$y^6 + y^5 + 7y^4 + 4y^3 + 3y^2 + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.662897 + 0.491150I$ $a = 1.00000$ $b = -0.662897 + 0.491150I$	$0.95398 - 1.33057I$	$1.54996 + 3.49130I$
$u = -0.662897 - 0.491150I$ $a = 1.00000$ $b = -0.662897 - 0.491150I$	$0.95398 + 1.33057I$	$1.54996 - 3.49130I$
$u = 0.233407 + 0.727795I$ $a = 1.00000$ $b = 0.233407 + 0.727795I$	$5.70894 + 1.27621I$	$-0.24770 - 2.88719I$
$u = 0.233407 - 0.727795I$ $a = 1.00000$ $b = 0.233407 - 0.727795I$	$5.70894 - 1.27621I$	$-0.24770 + 2.88719I$
$u = -1.07051 + 1.17004I$ $a = 1.00000$ $b = -1.07051 + 1.17004I$	$1.5618 - 18.5814I$	$-2.80226 + 9.65875I$
$u = -1.07051 - 1.17004I$ $a = 1.00000$ $b = -1.07051 - 1.17004I$	$1.5618 + 18.5814I$	$-2.80226 - 9.65875I$

II.

$\boldsymbol{I_2^u = \langle 6.91 \times 10^6 u^{19} + 1.12 \times 10^8 u^{18} + \cdots + 1.85 \times 10^7 b + 5.02 \times 10^7,\ -1.25 \times 10^7 u^{19} - 1.99 \times 10^8 u^{18} + \cdots + 3.69 \times 10^7 a - 5.46 \times 10^7,\ u^{20} + 17u^{19} + \cdots - 58u^2 + 8 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.339552u^{19} + 5.39815u^{18} + \cdots + 7.20308u + 1.47787 \\ -0.374231u^{19} - 6.05213u^{18} + \cdots + 1.47787u - 2.71642 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0346787u^{19} - 0.653974u^{18} + \cdots + 8.68095u - 1.23855 \\ -0.374231u^{19} - 6.05213u^{18} + \cdots + 1.47787u - 2.71642 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.692665u^{19} + 11.3252u^{18} + \cdots - 16.9750u + 4.33805 \\ -0.450082u^{19} - 7.21967u^{18} + \cdots + 5.33805u - 5.54132 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0222967u^{19} - 0.221327u^{18} + \cdots - 4.64076u - 3.18001 \\ -0.274012u^{19} - 4.37474u^{18} + \cdots + 1.36131u - 3.42229 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.601980u^{19} - 9.66925u^{18} + \cdots - 3.10107u - 7.86403 \\ -0.161223u^{19} - 2.34621u^{18} + \cdots - 3.27616u - 0.168684 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.275116u^{19} + 4.43129u^{18} + \cdots + 5.96453u + 1.75530 \\ -0.359034u^{19} - 5.59838u^{18} + \cdots + 0.962383u - 1.68803 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.721282u^{19} + 11.6179u^{18} + \cdots + 1.13408u + 1.99349 \\ -1.07481u^{19} - 17.4491u^{18} + \cdots + 10.4961u - 10.9836 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.224229u^{19} + 3.63613u^{18} + \cdots - 13.8402u - 3.14393 \\ -0.0183541u^{19} - 0.469426u^{18} + \cdots - 0.203268u - 1.94066 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.19321u^{19} + 19.7559u^{18} + \cdots - 15.6737u + 8.67976 \\ 0.0354594u^{19} + 0.212840u^{18} + \cdots + 6.93641u - 5.05504 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{26183957}{18467014}u^{19} - \frac{212046660}{9233507}u^{18} + \cdots + \frac{52565092}{9233507}u - \frac{114548582}{9233507}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_9 c_{12}	$u^{20} + 4u^{19} + \cdots + 6u + 1$
c_2	$u^{20} - 21u^{19} + \cdots - 5888u + 512$
c_3	$u^{20} - 17u^{19} + \cdots - 58u^2 + 8$
c_5, c_8	$u^{20} - 10u^{19} + \cdots - 432u + 64$
c_6, c_{10}	$u^{20} + 4u^{19} + \cdots + 9u + 1$
c_7, c_{11}	$u^{20} + 4u^{19} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_9 c_{12}	$y^{20} + 14y^{19} + \cdots + 18y + 1$
c_2	$y^{20} - y^{19} + \cdots + 8454144y + 262144$
c_3	$y^{20} - 3y^{19} + \cdots - 928y + 64$
c_5, c_8	$y^{20} + 6y^{19} + \cdots - 256y + 4096$
c_6, c_{10}	$y^{20} - 8y^{19} + \cdots - 29y + 1$
c_7, c_{11}	$y^{20} + 4y^{19} + \cdots + 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.591919 + 0.779585I$ $a = 1.47738 + 0.32947I$ $b = -1.13134 + 0.95673I$	$5.94853 - 3.83843I$	$-3.28174 + 4.00815I$
$u = -0.591919 - 0.779585I$ $a = 1.47738 - 0.32947I$ $b = -1.13134 - 0.95673I$	$5.94853 + 3.83843I$	$-3.28174 - 4.00815I$
$u = -0.824428 + 0.175693I$ $a = -1.38094 + 0.73565I$ $b = 1.009240 - 0.849113I$	$7.45841 - 1.00347I$	$0.36457 - 2.52329I$
$u = -0.824428 - 0.175693I$ $a = -1.38094 - 0.73565I$ $b = 1.009240 + 0.849113I$	$7.45841 + 1.00347I$	$0.36457 + 2.52329I$
$u = 0.193762 + 0.533092I$ $a = -0.90006 - 1.24975I$ $b = 0.491834 - 0.721967I$	$-1.94038 + 0.72654I$	$-7.43882 + 4.55749I$
$u = 0.193762 - 0.533092I$ $a = -0.90006 + 1.24975I$ $b = 0.491834 + 0.721967I$	$-1.94038 - 0.72654I$	$-7.43882 - 4.55749I$
$u = -0.86298 + 1.15143I$ $a = -1.069020 - 0.121423I$ $b = 1.06235 - 1.12612I$	$-2.00404 - 10.90100I$	$-3.44699 + 8.30760I$
$u = -0.86298 - 1.15143I$ $a = -1.069020 + 0.121423I$ $b = 1.06235 + 1.12612I$	$-2.00404 + 10.90100I$	$-3.44699 - 8.30760I$
$u = -1.01532 + 1.20528I$ $a = -0.852629 + 0.003707I$ $b = 0.861225 - 1.031420I$	$-3.04305 - 6.67086I$	$-5.21791 + 2.63870I$
$u = -1.01532 - 1.20528I$ $a = -0.852629 - 0.003707I$ $b = 0.861225 + 1.031420I$	$-3.04305 + 6.67086I$	$-5.21791 - 2.63870I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.51357 + 0.59051I$ $a = 0.228246 + 0.440024I$ $b = -0.605304 - 0.531225I$	$-0.09983 + 3.38858I$	$-2.41701 - 8.48871I$
$u = -1.51357 - 0.59051I$ $a = 0.228246 - 0.440024I$ $b = -0.605304 + 0.531225I$	$-0.09983 - 3.38858I$	$-2.41701 + 8.48871I$
$u = 0.198279 + 0.120648I$ $a = 1.30829 + 4.75906I$ $b = -0.314766 + 1.101470I$	$3.52200 - 3.40437I$	$-3.46913 + 3.36431I$
$u = 0.198279 - 0.120648I$ $a = 1.30829 - 4.75906I$ $b = -0.314766 - 1.101470I$	$3.52200 + 3.40437I$	$-3.46913 - 3.36431I$
$u = -1.53446 + 1.05621I$ $a = 0.254710 - 0.346615I$ $b = -0.024746 + 0.800894I$	$0.49272 - 7.72234I$	$-10.36662 + 6.86541I$
$u = -1.53446 - 1.05621I$ $a = 0.254710 + 0.346615I$ $b = -0.024746 - 0.800894I$	$0.49272 + 7.72234I$	$-10.36662 - 6.86541I$
$u = -1.01845 + 1.57478I$ $a = -0.288306 + 0.080384I$ $b = 0.167038 - 0.535886I$	$-2.57404 - 2.62147I$	$-15.2857 + 10.0855I$
$u = -1.01845 - 1.57478I$ $a = -0.288306 - 0.080384I$ $b = 0.167038 + 0.535886I$	$-2.57404 + 2.62147I$	$-15.2857 - 10.0855I$
$u = -1.53091 + 1.32244I$ $a = -0.027667 - 0.334313I$ $b = 0.484465 + 0.475215I$	$2.10928 + 9.64745I$	$-6.0000 - 14.3164I$
$u = -1.53091 - 1.32244I$ $a = -0.027667 + 0.334313I$ $b = 0.484465 - 0.475215I$	$2.10928 - 9.64745I$	$-6.0000 + 14.3164I$

III. $I_3^u = \langle b-u,\ 2.01\times10^5u^{19} - 8.02\times10^5u^{18} + \cdots + 2.69\times10^4a - 1.96\times10^5,\ u^{20}-4u^{19}+\cdots-4u+1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-7.47682u^{19}+29.7894u^{18}+\cdots-36.6305u+7.28413\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-7.47682u^{19}+29.7894u^{18}+\cdots-35.6305u+7.28413\\u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}17.3713u^{19}-71.0832u^{18}+\cdots+123.789u-31.5849\\3.32229u^{19}-11.0375u^{18}+\cdots+8.00554u+0.117820\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1.59423u^{19}-2.41343u^{18}+\cdots-10.6391u-1.01835\\-1.44965u^{19}+5.33845u^{18}+\cdots-2.84978u+0.253994\end{pmatrix}$$
$$a_1 = \begin{pmatrix}2.19796u^{19}-6.68247u^{18}+\cdots+0.770751u-4.72784\\0.505759u^{19}-2.02586u^{18}+\cdots+5.17032u-1.60010\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-4.15453u^{19}+18.7520u^{18}+\cdots-28.6249u+7.40195\\-0.502415u^{19}+2.36568u^{18}+\cdots-4.68433u+2.25165\end{pmatrix}$$
$$a_5 = \begin{pmatrix}6.35220u^{19}-16.2202u^{18}+\cdots-3.98086u+4.50119\\-0.391989u^{19}+3.27629u^{18}+\cdots-8.30244u+3.34528\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}24.0158u^{19}-93.1582u^{18}+\cdots+137.800u-31.3493\\3.32229u^{19}-11.0375u^{18}+\cdots+8.00554u+0.117820\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.498439u^{19}-6.37475u^{18}+\cdots+38.7268u-18.0626\\3.19473u^{19}-11.9776u^{18}+\cdots+16.8010u-4.49101\end{pmatrix}$$

(ii) Obstruction class $=-1$

(iii) Cusp Shapes $= -\frac{182014}{13457}u^{19} + \frac{673876}{13457}u^{18} + \cdots - \frac{1440624}{13457}u + \frac{66848}{13457}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{20} - 10u^{19} + \cdots - 432u + 64$
c_2, c_6	$u^{20} + 4u^{19} + \cdots + 9u + 1$
c_3, c_7	$u^{20} + 4u^{19} + \cdots + 4u + 1$
c_5, c_8, c_9 c_{12}	$u^{20} + 4u^{19} + \cdots + 6u + 1$
c_{10}	$u^{20} - 21u^{19} + \cdots - 5888u + 512$
c_{11}	$u^{20} - 17u^{19} + \cdots - 58u^2 + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{20} + 6y^{19} + \cdots - 256y + 4096$
c_2, c_6	$y^{20} - 8y^{19} + \cdots - 29y + 1$
c_3, c_7	$y^{20} + 4y^{19} + \cdots + 10y + 1$
c_5, c_8, c_9 c_{12}	$y^{20} + 14y^{19} + \cdots + 18y + 1$
c_{10}	$y^{20} - y^{19} + \cdots + 8454144y + 262144$
c_{11}	$y^{20} - 3y^{19} + \cdots - 928y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.491834 + 0.721967I$ $a = -0.379455 - 0.526881I$ $b = 0.491834 + 0.721967I$	$-1.94038 - 0.72654I$	$-7.43882 - 4.55749I$
$u = 0.491834 - 0.721967I$ $a = -0.379455 + 0.526881I$ $b = 0.491834 - 0.721967I$	$-1.94038 + 0.72654I$	$-7.43882 + 4.55749I$
$u = -0.314766 + 1.101470I$ $a = 0.053706 - 0.195362I$ $b = -0.314766 + 1.101470I$	$3.52200 - 3.40437I$	$-3.46913 + 3.36431I$
$u = -0.314766 - 1.101470I$ $a = 0.053706 + 0.195362I$ $b = -0.314766 - 1.101470I$	$3.52200 + 3.40437I$	$-3.46913 - 3.36431I$
$u = -0.605304 + 0.531225I$ $a = 0.92890 + 1.79077I$ $b = -0.605304 + 0.531225I$	$-0.09983 - 3.38858I$	$-2.41701 + 8.48871I$
$u = -0.605304 - 0.531225I$ $a = 0.92890 - 1.79077I$ $b = -0.605304 - 0.531225I$	$-0.09983 + 3.38858I$	$-2.41701 - 8.48871I$
$u = -0.024746 + 0.800894I$ $a = 1.37667 + 1.87340I$ $b = -0.024746 + 0.800894I$	$0.49272 - 7.72234I$	$-10.36662 + 6.86541I$
$u = -0.024746 - 0.800894I$ $a = 1.37667 - 1.87340I$ $b = -0.024746 - 0.800894I$	$0.49272 + 7.72234I$	$-10.36662 - 6.86541I$
$u = 1.009240 + 0.849113I$ $a = -0.564068 + 0.300488I$ $b = 1.009240 + 0.849113I$	$7.45841 + 1.00347I$	$0.36457 + 2.52329I$
$u = 1.009240 - 0.849113I$ $a = -0.564068 - 0.300488I$ $b = 1.009240 - 0.849113I$	$7.45841 - 1.00347I$	$0.36457 - 2.52329I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.484465 + 0.475215I$ $a = -0.24586 + 2.97086I$ $b = 0.484465 + 0.475215I$	$2.10928 + 9.64745I$	$-3.9407 - 14.3164I$
$u = 0.484465 - 0.475215I$ $a = -0.24586 - 2.97086I$ $b = 0.484465 - 0.475215I$	$2.10928 - 9.64745I$	$-3.9407 + 14.3164I$
$u = 0.861225 + 1.031420I$ $a = -1.172820 + 0.005099I$ $b = 0.861225 + 1.031420I$	$-3.04305 + 6.67086I$	$-5.21791 - 2.63870I$
$u = 0.861225 - 1.031420I$ $a = -1.172820 - 0.005099I$ $b = 0.861225 - 1.031420I$	$-3.04305 - 6.67086I$	$-5.21791 + 2.63870I$
$u = 0.167038 + 0.535886I$ $a = -3.21835 + 0.89733I$ $b = 0.167038 + 0.535886I$	$-2.57404 + 2.62147I$	$-15.2857 - 10.0855I$
$u = 0.167038 - 0.535886I$ $a = -3.21835 - 0.89733I$ $b = 0.167038 - 0.535886I$	$-2.57404 - 2.62147I$	$-15.2857 + 10.0855I$
$u = -1.13134 + 0.95673I$ $a = 0.644805 - 0.143797I$ $b = -1.13134 + 0.95673I$	$5.94853 - 3.83843I$	$-3.28174 + 4.00815I$
$u = -1.13134 - 0.95673I$ $a = 0.644805 + 0.143797I$ $b = -1.13134 - 0.95673I$	$5.94853 + 3.83843I$	$-3.28174 - 4.00815I$
$u = 1.06235 + 1.12612I$ $a = -0.923523 - 0.104897I$ $b = 1.06235 + 1.12612I$	$-2.00404 + 10.90100I$	$-3.44699 - 8.30760I$
$u = 1.06235 - 1.12612I$ $a = -0.923523 + 0.104897I$ $b = 1.06235 - 1.12612I$	$-2.00404 - 10.90100I$	$-3.44699 + 8.30760I$

IV. $I_4^u =$
$\langle 3171u^{19} - 102100u^{18} + \cdots + 26914b - 201231,\ a - 1,\ u^{20} - 4u^{19} + \cdots - 4u + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -0.117820u^{19} + 3.79356u^{18} + \cdots - 22.6231u + 7.47682 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.117820u^{19} + 3.79356u^{18} + \cdots - 22.6231u + 8.47682 \\ -0.117820u^{19} + 3.79356u^{18} + \cdots - 22.6231u + 7.47682 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ 3.32229u^{19} - 11.0375u^{18} + \cdots + 8.00554u + 0.117820 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.25165u^{19} + 8.50420u^{18} + \cdots - 13.4070u + 4.32229 \\ -1.44965u^{19} + 5.33845u^{18} + \cdots - 2.84978u + 0.253994 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3.34528u^{19} + 12.9892u^{18} + \cdots - 16.0148u + 5.07870 \\ -2.80196u^{19} + 9.51397u^{18} + \cdots - 4.38512u + 0.364420 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.117820u^{19} + 3.79356u^{18} + \cdots - 22.6231u + 8.47682 \\ -2.36947u^{19} + 12.2978u^{18} + \cdots - 36.0301u + 10.7991 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 4.49101u^{19} - 14.7693u^{18} + \cdots + 12.3599u - 1.16307 \\ 3.33299u^{19} - 10.7501u^{18} + \cdots + 1.56071u + 0.402802 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.253994u^{19} + 0.433678u^{18} + \cdots - 8.75284u + 1.83380 \\ -3.06829u^{19} + 11.4712u^{18} + \cdots - 15.7584u + 1.71598 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.60010u^{19} + 5.89463u^{18} + \cdots - 10.0474u + 1.23007 \\ -3.43063u^{19} + 12.6272u^{18} + \cdots - 15.7517u + 3.37174 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{182014}{13457}u^{19} + \frac{673876}{13457}u^{18} + \cdots - \frac{1440624}{13457}u + \frac{66848}{13457}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8	$u^{20} + 4u^{19} + \cdots + 6u + 1$
c_2, c_{10}	$u^{20} + 4u^{19} + \cdots + 9u + 1$
c_3, c_{11}	$u^{20} + 4u^{19} + \cdots + 4u + 1$
c_6	$u^{20} - 21u^{19} + \cdots - 5888u + 512$
c_7	$u^{20} - 17u^{19} + \cdots - 58u^2 + 8$
c_9, c_{12}	$u^{20} - 10u^{19} + \cdots - 432u + 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{20} + 14y^{19} + \cdots + 18y + 1$
c_2, c_{10}	$y^{20} - 8y^{19} + \cdots - 29y + 1$
c_3, c_{11}	$y^{20} + 4y^{19} + \cdots + 10y + 1$
c_6	$y^{20} - y^{19} + \cdots + 8454144y + 262144$
c_7	$y^{20} - 3y^{19} + \cdots - 928y + 64$
c_9, c_{12}	$y^{20} + 6y^{19} + \cdots - 256y + 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.491834 + 0.721967I$ $a = 1.00000$ $b = 0.193762 - 0.533092I$	$-1.94038 - 0.72654I$	$-7.43882 - 4.55749I$
$u = 0.491834 - 0.721967I$ $a = 1.00000$ $b = 0.193762 + 0.533092I$	$-1.94038 + 0.72654I$	$-7.43882 + 4.55749I$
$u = -0.314766 + 1.101470I$ $a = 1.00000$ $b = 0.198279 + 0.120648I$	$3.52200 - 3.40437I$	$-3.46913 + 3.36431I$
$u = -0.314766 - 1.101470I$ $a = 1.00000$ $b = 0.198279 - 0.120648I$	$3.52200 + 3.40437I$	$-3.46913 - 3.36431I$
$u = -0.605304 + 0.531225I$ $a = 1.00000$ $b = -1.51357 - 0.59051I$	$-0.09983 - 3.38858I$	$-2.41701 + 8.48871I$
$u = -0.605304 - 0.531225I$ $a = 1.00000$ $b = -1.51357 + 0.59051I$	$-0.09983 + 3.38858I$	$-2.41701 - 8.48871I$
$u = -0.024746 + 0.800894I$ $a = 1.00000$ $b = -1.53446 + 1.05621I$	$0.49272 - 7.72234I$	$-10.36662 + 6.86541I$
$u = -0.024746 - 0.800894I$ $a = 1.00000$ $b = -1.53446 - 1.05621I$	$0.49272 + 7.72234I$	$-10.36662 - 6.86541I$
$u = 1.009240 + 0.849113I$ $a = 1.00000$ $b = -0.824428 - 0.175693I$	$7.45841 + 1.00347I$	$0.36457 + 2.52329I$
$u = 1.009240 - 0.849113I$ $a = 1.00000$ $b = -0.824428 + 0.175693I$	$7.45841 - 1.00347I$	$0.36457 - 2.52329I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.484465 + 0.475215I$ $a = 1.00000$ $b = -1.53091 + 1.32244I$	$2.10928 + 9.64745I$	$-3.9407 - 14.3164I$
$u = 0.484465 - 0.475215I$ $a = 1.00000$ $b = -1.53091 - 1.32244I$	$2.10928 - 9.64745I$	$-3.9407 + 14.3164I$
$u = 0.861225 + 1.031420I$ $a = 1.00000$ $b = -1.01532 - 1.20528I$	$-3.04305 + 6.67086I$	$-5.21791 - 2.63870I$
$u = 0.861225 - 1.031420I$ $a = 1.00000$ $b = -1.01532 + 1.20528I$	$-3.04305 - 6.67086I$	$-5.21791 + 2.63870I$
$u = 0.167038 + 0.535886I$ $a = 1.00000$ $b = -1.01845 - 1.57478I$	$-2.57404 + 2.62147I$	$-15.2857 - 10.0855I$
$u = 0.167038 - 0.535886I$ $a = 1.00000$ $b = -1.01845 + 1.57478I$	$-2.57404 - 2.62147I$	$-15.2857 + 10.0855I$
$u = -1.13134 + 0.95673I$ $a = 1.00000$ $b = -0.591919 + 0.779585I$	$5.94853 - 3.83843I$	$-3.28174 + 4.00815I$
$u = -1.13134 - 0.95673I$ $a = 1.00000$ $b = -0.591919 - 0.779585I$	$5.94853 + 3.83843I$	$-3.28174 - 4.00815I$
$u = 1.06235 + 1.12612I$ $a = 1.00000$ $b = -0.86298 - 1.15143I$	$-2.00404 + 10.90100I$	$-3.44699 - 8.30760I$
$u = 1.06235 - 1.12612I$ $a = 1.00000$ $b = -0.86298 + 1.15143I$	$-2.00404 - 10.90100I$	$-3.44699 + 8.30760I$

V. $I_5^u = \langle b+u,\ a+1,\ u^8+3u^7+4u^6+u^5-2u^4-2u^3+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^7+3u^6-3u^4+9u^3+9u^2-9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9	$u^8 - 2u^7 + 4u^6 - 2u^5 + 3u^3 - 2u^2 - u + 1$
c_2, c_6, c_{10}	$u^8 + 2u^7 + u^6 - 3u^5 - 2u^4 + u^3 + 5u^2 + 4u + 2$
c_3, c_7, c_{11}	$u^8 + 3u^7 + 4u^6 + u^5 - 2u^4 - 2u^3 + 1$
c_4, c_8, c_{12}	$u^8 + 2u^7 + 4u^6 + 2u^5 - 3u^3 - 2u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$y^8 + 4y^7 + 8y^6 + 4y^5 - 6y^4 - 5y^3 + 10y^2 - 5y + 1$
c_2, c_6, c_{10}	$y^8 - 2y^7 + 9y^6 - 7y^5 + 8y^4 + 7y^3 + 9y^2 + 4y + 4$
c_3, c_7, c_{11}	$y^8 - y^7 + 6y^6 - 5y^5 + 10y^4 + 4y^3 - 4y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.103931 + 0.718671I$ $a = -1.00000$ $b = 0.103931 - 0.718671I$	$-2.30991 + 1.50082I$	$-12.82887 - 5.43370I$
$u = -0.103931 - 0.718671I$ $a = -1.00000$ $b = 0.103931 + 0.718671I$	$-2.30991 - 1.50082I$	$-12.82887 + 5.43370I$
$u = 0.694301 + 0.211526I$ $a = -1.00000$ $b = -0.694301 - 0.211526I$	$1.98217 - 8.48228I$	$-3.44672 + 5.24976I$
$u = 0.694301 - 0.211526I$ $a = -1.00000$ $b = -0.694301 + 0.211526I$	$1.98217 + 8.48228I$	$-3.44672 - 5.24976I$
$u = -1.122430 + 0.641983I$ $a = -1.00000$ $b = 1.122430 - 0.641983I$	$9.81320 - 5.60717I$	$4.40282 + 4.85815I$
$u = -1.122430 - 0.641983I$ $a = -1.00000$ $b = 1.122430 + 0.641983I$	$9.81320 + 5.60717I$	$4.40282 - 4.85815I$
$u = -0.96794 + 1.10283I$ $a = -1.00000$ $b = 0.96794 - 1.10283I$	$-2.90573 - 8.64274I$	$-4.62723 + 6.48607I$
$u = -0.96794 - 1.10283I$ $a = -1.00000$ $b = 0.96794 + 1.10283I$	$-2.90573 + 8.64274I$	$-4.62723 - 6.48607I$

VI. $\boldsymbol{I_6^u = \langle -47u^{11} - 28u^{10} + \cdots + 592b - 663,\ 663u^{11}a + 949u^{11} + \cdots - 913a - 2279,\ u^{12} - 3u^{11} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} a \\ 0.0793919u^{11} + 0.0472973u^{10} + \cdots + 0.422297u + 1.11993 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0793919u^{11} + 0.0472973u^{10} + \cdots + a + 1.11993 \\ 0.0793919u^{11} + 0.0472973u^{10} + \cdots + 0.422297u + 1.11993 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0793919au^{11} - 0.322635u^{11} + \cdots + 1.11993a + 1.60304 \\ 0.346284u^{11} - 1.40541u^{10} + \cdots - 0.280405u - 0.322635 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.596284au^{11} - 0.346284u^{11} + \cdots - 0.427365a + 1.07264 \\ -\frac{3}{4}u^{11} + \frac{7}{4}u^{10} + \cdots + \frac{9}{4}u^2 + \frac{1}{4}u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.395270au^{11} - 0.145270u^{11} + \cdots - 0.543919a - 0.0439189 \\ 0.217905au^{11} - 0.532095u^{11} + \cdots - 0.0591216a - 0.0591216 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0793919u^{11} + 0.0472973u^{10} + \cdots + a + 1.11993 \\ -0.351351u^{11} + 1.21622u^{10} + \cdots + 0.216216u + 1.40541 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.520270au^{11} + 0.712838u^{11} + \cdots + 0.831081a + 0.0236486 \\ -0.118243au^{11} + 0.282095u^{11} + \cdots - 0.402027a + 0.309122 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.351351au^{11} - 0.00506757u^{11} + \cdots + 1.40541a + 2.08277 \\ -0.430743au^{11} - 0.0287162u^{11} + \cdots + 0.285473a + 0.802365 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.280405au^{11} - 0.518581u^{11} + \cdots + 0.753378a + 0.886824 \\ -0.712838au^{11} + 0.172297u^{11} + \cdots + 0.976351a + 0.685811 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{489}{74}u^{11} + \frac{566}{37}u^{10} - \frac{448}{37}u^9 - \frac{2875}{74}u^8 + \frac{1670}{37}u^7 + \frac{943}{74}u^6 - \frac{4507}{37}u^5 + \frac{5645}{74}u^4 - \frac{1385}{74}u^3 - \frac{1039}{37}u^2 + \frac{233}{37}u - \frac{597}{74}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$(u^{12} + 3u^{11} + \cdots + 9u + 7)^2$
c_2, c_6, c_{10}	$(u^{12} + 2u^{11} + 2u^{10} - 4u^9 - u^8 + 4u^6 + 24u^5 + 6u^4 - 10u^3 + 6u^2 + 6u + 1)^2$
c_3, c_7, c_{11}	$(u^{12} + 3u^{11} + \cdots + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$(y^{12} + 7y^{11} + \cdots + 227y + 49)^2$
c_2, c_6, c_{10}	$(y^{12} + 18y^{10} + \cdots - 24y + 1)^2$
c_3, c_7, c_{11}	$(y^{12} - y^{11} + \cdots + 7y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_6	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.660686 + 0.508519I$ $a = 1.63037 + 0.35251I$ $b = -1.33481 - 0.55559I$	$6.76819 + 5.97824I$	$2.38371 - 7.63117I$
$u = 0.660686 + 0.508519I$ $a = -1.67518 + 0.44843I$ $b = 0.897901 + 1.061970I$	$6.76819 + 5.97824I$	$2.38371 - 7.63117I$
$u = 0.660686 - 0.508519I$ $a = 1.63037 - 0.35251I$ $b = -1.33481 + 0.55559I$	$6.76819 - 5.97824I$	$2.38371 + 7.63117I$
$u = 0.660686 - 0.508519I$ $a = -1.67518 - 0.44843I$ $b = 0.897901 - 1.061970I$	$6.76819 - 5.97824I$	$2.38371 + 7.63117I$
$u = 0.247330 + 0.683605I$ $a = -0.601210 + 0.100710I$ $b = 1.24643 - 1.36934I$	$-1.83339 + 2.29825I$	$-8.3837 - 11.7360I$
$u = 0.247330 + 0.683605I$ $a = -1.18793 - 2.25312I$ $b = -0.217544 - 0.386081I$	$-1.83339 + 2.29825I$	$-8.3837 - 11.7360I$
$u = 0.247330 - 0.683605I$ $a = -0.601210 - 0.100710I$ $b = 1.24643 + 1.36934I$	$-1.83339 - 2.29825I$	$-8.3837 + 11.7360I$
$u = 0.247330 - 0.683605I$ $a = -1.18793 + 2.25312I$ $b = -0.217544 + 0.386081I$	$-1.83339 - 2.29825I$	$-8.3837 + 11.7360I$
$u = 0.897901 + 1.061970I$ $a = -0.924786 + 0.475002I$ $b = 0.660686 + 0.508519I$	$6.76819 + 5.97824I$	$2.38371 - 7.63117I$
$u = 0.897901 + 1.061970I$ $a = 0.585965 - 0.126695I$ $b = -1.33481 - 0.55559I$	$6.76819 + 5.97824I$	$2.38371 - 7.63117I$

Solutions to I^u_6	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.897901 - 1.061970I$ $a = -0.924786 - 0.475002I$ $b = 0.660686 - 0.508519I$	$6.76819 - 5.97824I$	$2.38371 + 7.63117I$
$u = 0.897901 - 1.061970I$ $a = 0.585965 + 0.126695I$ $b = -1.33481 + 0.55559I$	$6.76819 - 5.97824I$	$2.38371 + 7.63117I$
$u = -1.33481 + 0.55559I$ $a = -0.855605 + 0.439468I$ $b = 0.660686 - 0.508519I$	$6.76819 - 5.97824I$	$2.38371 + 7.63117I$
$u = -1.33481 + 0.55559I$ $a = -0.557033 + 0.149112I$ $b = 0.897901 - 1.061970I$	$6.76819 - 5.97824I$	$2.38371 + 7.63117I$
$u = -1.33481 - 0.55559I$ $a = -0.855605 - 0.439468I$ $b = 0.660686 + 0.508519I$	$6.76819 + 5.97824I$	$2.38371 - 7.63117I$
$u = -1.33481 - 0.55559I$ $a = -0.557033 - 0.149112I$ $b = 0.897901 + 1.061970I$	$6.76819 + 5.97824I$	$2.38371 - 7.63117I$
$u = -0.217544 + 0.386081I$ $a = -1.61791 + 0.27102I$ $b = 1.24643 + 1.36934I$	$-1.83339 - 2.29825I$	$-8.3837 + 11.7360I$
$u = -0.217544 + 0.386081I$ $a = 1.31133 - 3.96730I$ $b = 0.247330 - 0.683605I$	$-1.83339 - 2.29825I$	$-8.3837 + 11.7360I$
$u = -0.217544 - 0.386081I$ $a = -1.61791 - 0.27102I$ $b = 1.24643 - 1.36934I$	$-1.83339 + 2.29825I$	$-8.3837 - 11.7360I$
$u = -0.217544 - 0.386081I$ $a = 1.31133 + 3.96730I$ $b = 0.247330 + 0.683605I$	$-1.83339 + 2.29825I$	$-8.3837 - 11.7360I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.24643 + 1.36934I$ $a = -0.183104 - 0.347289I$ $b = -0.217544 + 0.386081I$	$-1.83339 - 2.29825I$	$-8.3837 + 11.7360I$
$u = 1.24643 + 1.36934I$ $a = 0.075109 + 0.227234I$ $b = 0.247330 - 0.683605I$	$-1.83339 - 2.29825I$	$-8.3837 + 11.7360I$
$u = 1.24643 - 1.36934I$ $a = -0.183104 + 0.347289I$ $b = -0.217544 - 0.386081I$	$-1.83339 + 2.29825I$	$-8.3837 - 11.7360I$
$u = 1.24643 - 1.36934I$ $a = 0.075109 - 0.227234I$ $b = 0.247330 + 0.683605I$	$-1.83339 + 2.29825I$	$-8.3837 - 11.7360I$

VII.

$I_7^u = \langle b+u,\ 2u^7-6u^6+7u^5-2u^4-4u^2+a+5u-3,\ u^8-3u^7+\cdots-2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $=1$

(iii) Cusp Shapes $=-15u^7+37u^6-35u^5+2u^4-7u^3+29u^2-29u+7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^8 - 4u^7 + 10u^6 - 18u^5 + 20u^4 - 15u^3 + 8u^2 - 2u + 1$
c_2, c_6	$u^8 - 2u^6 + u^5 + u^4 - 4u^3 + 3u + 1$
c_3, c_7	$u^8 - 3u^7 + 4u^6 - 2u^5 + u^4 - 2u^3 + 3u^2 - 2u + 1$
c_4	$u^8 + 4u^7 + 10u^6 + 18u^5 + 20u^4 + 15u^3 + 8u^2 + 2u + 1$
c_5, c_9	$u^8 - u^7 + 3u^6 - 4u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1$
c_8, c_{12}	$u^8 + u^7 + 3u^6 + 4u^5 + 4u^4 + 4u^3 + 3u^2 + 2u + 1$
c_{10}	$u^8 + 4u^7 + 8u^6 + 10u^5 + 10u^4 + 3u^3 - u^2 + u + 1$
c_{11}	$u^8 + 5u^7 + 12u^6 + 16u^5 + 13u^4 + 7u^3 + 4u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^8 + 4y^7 - 4y^6 - 28y^5 + 6y^4 + 43y^3 + 44y^2 + 12y + 1$
c_2, c_6	$y^8 - 4y^7 + 6y^6 - 5y^5 + 11y^4 - 26y^3 + 26y^2 - 9y + 1$
c_3, c_7	$y^8 - y^7 + 6y^6 - 2y^5 + 7y^4 + 2y^3 + 3y^2 + 2y + 1$
c_5, c_8, c_9 c_{12}	$y^8 + 5y^7 + 9y^6 + 6y^5 - 2y^3 + y^2 + 2y + 1$
c_{10}	$y^8 + 4y^6 + 34y^5 + 18y^4 - 33y^3 + 15y^2 - 3y + 1$
c_{11}	$y^8 - y^7 + 10y^6 - 6y^5 + 23y^4 + 15y^3 + 14y^2 + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.883954 + 0.567268I$ $a = 1.52507 + 0.35374I$ $b = -0.883954 - 0.567268I$	$7.95377 + 2.68532I$	$3.33468 - 4.18449I$
$u = 0.883954 - 0.567268I$ $a = 1.52507 - 0.35374I$ $b = -0.883954 + 0.567268I$	$7.95377 - 2.68532I$	$3.33468 + 4.18449I$
$u = -0.704204 + 0.626099I$ $a = -0.144311 + 0.603307I$ $b = 0.704204 - 0.626099I$	$-1.49979 + 1.51030I$	$-2.66904 - 3.09158I$
$u = -0.704204 - 0.626099I$ $a = -0.144311 - 0.603307I$ $b = 0.704204 + 0.626099I$	$-1.49979 - 1.51030I$	$-2.66904 + 3.09158I$
$u = 0.228862 + 0.666962I$ $a = -0.38534 - 1.93462I$ $b = -0.228862 - 0.666962I$	$-2.24789 + 1.12072I$	$-12.14274 - 5.83810I$
$u = 0.228862 - 0.666962I$ $a = -0.38534 + 1.93462I$ $b = -0.228862 + 0.666962I$	$-2.24789 - 1.12072I$	$-12.14274 + 5.83810I$
$u = 1.09139 + 0.92852I$ $a = 0.504583 + 0.133700I$ $b = -1.09139 - 0.92852I$	$5.66352 + 5.68496I$	$-6.02290 - 6.27011I$
$u = 1.09139 - 0.92852I$ $a = 0.504583 - 0.133700I$ $b = -1.09139 + 0.92852I$	$5.66352 - 5.68496I$	$-6.02290 + 6.27011I$

VIII. $\boldsymbol{I^u_8 = \langle -u^6 + 2u^5 - 2u^4 - u^2 + b + u - 2,\ a + 1,\ u^8 - 3u^7 + \cdots - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -15u^7 + 37u^6 - 35u^5 + 2u^4 - 7u^3 + 29u^2 - 29u + 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^8 - u^7 + 3u^6 - 4u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1$
c_2, c_{10}	$u^8 - 2u^6 + u^5 + u^4 - 4u^3 + 3u + 1$
c_3, c_{11}	$u^8 - 3u^7 + 4u^6 - 2u^5 + u^4 - 2u^3 + 3u^2 - 2u + 1$
c_4, c_8	$u^8 + u^7 + 3u^6 + 4u^5 + 4u^4 + 4u^3 + 3u^2 + 2u + 1$
c_6	$u^8 + 4u^7 + 8u^6 + 10u^5 + 10u^4 + 3u^3 - u^2 + u + 1$
c_7	$u^8 + 5u^7 + 12u^6 + 16u^5 + 13u^4 + 7u^3 + 4u^2 + 2u + 1$
c_9	$u^8 - 4u^7 + 10u^6 - 18u^5 + 20u^4 - 15u^3 + 8u^2 - 2u + 1$
c_{12}	$u^8 + 4u^7 + 10u^6 + 18u^5 + 20u^4 + 15u^3 + 8u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^8 + 5y^7 + 9y^6 + 6y^5 - 2y^3 + y^2 + 2y + 1$
c_2, c_{10}	$y^8 - 4y^7 + 6y^6 - 5y^5 + 11y^4 - 26y^3 + 26y^2 - 9y + 1$
c_3, c_{11}	$y^8 - y^7 + 6y^6 - 2y^5 + 7y^4 + 2y^3 + 3y^2 + 2y + 1$
c_6	$y^8 + 4y^6 + 34y^5 + 18y^4 - 33y^3 + 15y^2 - 3y + 1$
c_7	$y^8 - y^7 + 10y^6 - 6y^5 + 23y^4 + 15y^3 + 14y^2 + 4y + 1$
c_9, c_{12}	$y^8 + 4y^7 - 4y^6 - 28y^5 + 6y^4 + 43y^3 + 44y^2 + 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.883954 + 0.567268I$ $a = -1.00000$ $b = 1.14742 + 1.17781I$	$7.95377 + 2.68532I$	$3.33468 - 4.18449I$
$u = 0.883954 - 0.567268I$ $a = -1.00000$ $b = 1.14742 - 1.17781I$	$7.95377 - 2.68532I$	$3.33468 + 4.18449I$
$u = -0.704204 + 0.626099I$ $a = -1.00000$ $b = -0.276106 - 0.515204I$	$-1.49979 + 1.51030I$	$-2.66904 - 3.09158I$
$u = -0.704204 - 0.626099I$ $a = -1.00000$ $b = -0.276106 + 0.515204I$	$-1.49979 - 1.51030I$	$-2.66904 + 3.09158I$
$u = 0.228862 + 0.666962I$ $a = -1.00000$ $b = 1.202130 - 0.699769I$	$-2.24789 + 1.12072I$	$-12.14274 - 5.83810I$
$u = 0.228862 - 0.666962I$ $a = -1.00000$ $b = 1.202130 + 0.699769I$	$-2.24789 - 1.12072I$	$-12.14274 + 5.83810I$
$u = 1.09139 + 0.92852I$ $a = -1.00000$ $b = 0.426552 + 0.614435I$	$5.66352 + 5.68496I$	$-6.02290 - 6.27011I$
$u = 1.09139 - 0.92852I$ $a = -1.00000$ $b = 0.426552 - 0.614435I$	$5.66352 - 5.68496I$	$-6.02290 + 6.27011I$

IX. $\boldsymbol{I_9^u = \langle -u^7 - 4u^6 - 7u^5 - 5u^4 + u^2 + b - u,\ -u^6 - 4u^5 - 7u^4 - 5u^3 + a + u - 1,\ u^8 + 5u^7 + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^6 + 4u^5 + 7u^4 + 5u^3 - u + 1 \\ u^7 + 4u^6 + 7u^5 + 5u^4 - u^2 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^7 + 5u^6 + 11u^5 + 12u^4 + 5u^3 - u^2 + 1 \\ u^7 + 4u^6 + 7u^5 + 5u^4 - u^2 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2u^7 + 8u^6 + 15u^5 + 13u^4 + 5u^3 + u^2 + 2u - 1 \\ -2u^7 - 9u^6 - 19u^5 - 21u^4 - 13u^3 - 6u^2 - 4u - 2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2u^7 - 11u^6 - 27u^5 - 35u^4 - 24u^3 - 9u^2 - 6u - 3 \\ -2u^7 - 8u^6 - 14u^5 - 11u^4 - 3u^3 - 2u^2 - 2u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -2u^7 - 10u^6 - 23u^5 - 28u^4 - 18u^3 - 6u^2 - 4u - 2 \\ -u^7 - 3u^6 - 4u^5 - u^4 + 2u^3 + u^2 + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^4 - 3u^3 - 4u^2 - 2u \\ -u^5 - 4u^4 - 6u^3 - 4u^2 - u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -2u^7 - 8u^6 - 14u^5 - 10u^4 - u^3 + u^2 - 2u + 1 \\ u^7 + 6u^6 + 15u^5 + 19u^4 + 12u^3 + 4u^2 + 3u + 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^7 - 5u^6 - 12u^5 - 16u^4 - 13u^3 - 8u^2 - 6u - 3 \\ -u^7 - 4u^6 - 8u^5 - 8u^4 - 5u^3 - 3u^2 - 2u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^7 - 11u^6 - 28u^5 - 39u^4 - 31u^3 - 16u^2 - 10u - 6 \\ -u^7 - 4u^6 - 8u^5 - 7u^4 - 3u^3 - u^2 - 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^7 + 23u^6 + 50u^5 + 54u^4 + 23u^3 + 5u^2 + 8u$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^8 - u^7 + 3u^6 - 4u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1$
c_2	$u^8 + 4u^7 + 8u^6 + 10u^5 + 10u^4 + 3u^3 - u^2 + u + 1$
c_3	$u^8 + 5u^7 + 12u^6 + 16u^5 + 13u^4 + 7u^3 + 4u^2 + 2u + 1$
c_4, c_{12}	$u^8 + u^7 + 3u^6 + 4u^5 + 4u^4 + 4u^3 + 3u^2 + 2u + 1$
c_5	$u^8 - 4u^7 + 10u^6 - 18u^5 + 20u^4 - 15u^3 + 8u^2 - 2u + 1$
c_6, c_{10}	$u^8 - 2u^6 + u^5 + u^4 - 4u^3 + 3u + 1$
c_7, c_{11}	$u^8 - 3u^7 + 4u^6 - 2u^5 + u^4 - 2u^3 + 3u^2 - 2u + 1$
c_8	$u^8 + 4u^7 + 10u^6 + 18u^5 + 20u^4 + 15u^3 + 8u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_9 c_{12}	$y^8+5y^7+9y^6+6y^5-2y^3+y^2+2y+1$
c_2	$y^8+4y^6+34y^5+18y^4-33y^3+15y^2-3y+1$
c_3	$y^8-y^7+10y^6-6y^5+23y^4+15y^3+14y^2+4y+1$
c_5, c_8	$y^8+4y^7-4y^6-28y^5+6y^4+43y^3+44y^2+12y+1$
c_6, c_{10}	$y^8-4y^7+6y^6-5y^5+11y^4-26y^3+26y^2-9y+1$
c_7, c_{11}	$y^8-y^7+6y^6-2y^5+7y^4+2y^3+3y^2+2y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.426552 + 0.614435I$ $a = 1.85182 + 0.49068I$ $b = -1.09139 + 0.92852I$	$5.66352 - 5.68496I$	$-6.02290 + 6.27011I$
$u = -0.426552 - 0.614435I$ $a = 1.85182 - 0.49068I$ $b = -1.09139 - 0.92852I$	$5.66352 + 5.68496I$	$-6.02290 - 6.27011I$
$u = -1.202130 + 0.699769I$ $a = -0.099027 + 0.497173I$ $b = -0.228862 - 0.666962I$	$-2.24789 + 1.12072I$	$-12.14274 - 5.83810I$
$u = -1.202130 - 0.699769I$ $a = -0.099027 - 0.497173I$ $b = -0.228862 + 0.666962I$	$-2.24789 - 1.12072I$	$-12.14274 + 5.83810I$
$u = 0.276106 + 0.515204I$ $a = -0.37502 - 1.56783I$ $b = 0.704204 - 0.626099I$	$-1.49979 + 1.51030I$	$-2.66904 - 3.09158I$
$u = 0.276106 - 0.515204I$ $a = -0.37502 + 1.56783I$ $b = 0.704204 + 0.626099I$	$-1.49979 - 1.51030I$	$-2.66904 + 3.09158I$
$u = -1.14742 + 1.17781I$ $a = 0.622232 + 0.144327I$ $b = -0.883954 + 0.567268I$	$7.95377 - 2.68532I$	$3.33468 + 4.18449I$
$u = -1.14742 - 1.17781I$ $a = 0.622232 - 0.144327I$ $b = -0.883954 - 0.567268I$	$7.95377 + 2.68532I$	$3.33468 - 4.18449I$

X. $I_{10}^u = \langle -u^4 + 2u^3 - 2u^2 + b + 2u - 2,\ u^4 - 2u^3 + u^2 + a + 1,\ u^6 - 3u^5 + 4u^4 - 4u^3 + 4u^2 - 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_5, c_7, c_8 c_9, c_{11}, c_{12}	$y^6 - y^5 + 6y^3 + 8y^2 + 4y + 1$
c_2, c_6, c_{10}	$y^6 - 6y^5 + 25y^4 - 14y^3 + 10y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{10}^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.198713 + 0.922132I$ $a = 0.28582 - 1.57759I$ $b = 0.300767 - 0.633156I$	-1.64493	-6.00000
$u = -0.198713 - 0.922132I$ $a = 0.28582 + 1.57759I$ $b = 0.300767 + 0.633156I$	-1.64493	-6.00000
$u = 0.300767 + 0.633156I$ $a = -1.309910 - 0.308397I$ $b = 1.39795 - 0.57705I$	-1.64493	-6.00000
$u = 0.300767 - 0.633156I$ $a = -1.309910 + 0.308397I$ $b = 1.39795 + 0.57705I$	-1.64493	-6.00000
$u = 1.39795 + 0.57705I$ $a = 0.024087 - 0.462862I$ $b = -0.198713 + 0.922132I$	-1.64493	-6.00000
$u = 1.39795 - 0.57705I$ $a = 0.024087 + 0.462862I$ $b = -0.198713 - 0.922132I$	-1.64493	-6.00000

XI. $I^u_{11} = \langle u^5 - 2u^4 + u^3 + b + u,\ 2u^5 - 6u^4 + 7u^3 - 6u^2 + a + 6u - 2,\ u^6 - 3u^5 + 4u^4 - 4u^3 + 4u^2 - 2u + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2u^5 + 6u^4 - 7u^3 + 6u^2 - 6u + 2 \\ -u^5 + 2u^4 - u^3 - u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -3u^5 + 8u^4 - 8u^3 + 6u^2 - 7u + 2 \\ -u^5 + 2u^4 - u^3 - u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -3u^5 + 8u^4 - 8u^3 + 6u^2 - 7u + 1 \\ -u^5 + 2u^4 - u^3 + u^2 - u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2u^5 + 6u^4 - 7u^3 + 6u^2 - 6u + 4 \\ -u^3 - u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^5 + 4u^4 - 6u^3 + 6u^2 - 5u + 4 \\ -2u^3 + 2u^2 - 2u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2u^5 + 6u^4 - 6u^3 + 4u^2 - 5u + 2 \\ -2u^5 + 4u^4 - 2u^3 - u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^5 - 4u^4 + 3u^3 - 3u^2 + 4u + 1 \\ -u^5 + 2u^4 - u^3 - u^2 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -6u^5 + 15u^4 - 14u^3 + 11u^2 - 13u + 1 \\ -2u^5 + 5u^4 - 5u^3 + 4u^2 - 3u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -5u^5 + 11u^4 - 8u^3 + 6u^2 - 8u - 2 \\ -u^5 + 2u^4 - 2u^3 + u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_5, c_7, c_8 c_9, c_{11}, c_{12}	$y^6 - y^5 + 6y^3 + 8y^2 + 4y + 1$
c_2, c_6, c_{10}	$y^6 - 6y^5 + 25y^4 - 14y^3 + 10y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{11}^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.198713 + 0.922132I$ $a = -0.723320 - 0.170295I$ $b = 1.39795 + 0.57705I$	-1.64493	-6.00000
$u = -0.198713 - 0.922132I$ $a = -0.723320 + 0.170295I$ $b = 1.39795 - 0.57705I$	-1.64493	-6.00000
$u = 0.300767 + 0.633156I$ $a = 0.11213 - 2.15464I$ $b = -0.198713 - 0.922132I$	-1.64493	-6.00000
$u = 0.300767 - 0.633156I$ $a = 0.11213 + 2.15464I$ $b = -0.198713 + 0.922132I$	-1.64493	-6.00000
$u = 1.39795 + 0.57705I$ $a = 0.111193 + 0.613734I$ $b = 0.300767 - 0.633156I$	-1.64493	-6.00000
$u = 1.39795 - 0.57705I$ $a = 0.111193 - 0.613734I$ $b = 0.300767 + 0.633156I$	-1.64493	-6.00000

XII. $I^u_{12} = \langle b - u,\ a - 1,\ u^3 + u^2 + u - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u+1 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u^2+u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ u^2-1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} u^2+1 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{12}^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.771845 + 1.115140I$ $a = \quad 1.00000$ $b = -0.771845 + 1.115140I$	-1.64493	-6.00000
$u = -0.771845 - 1.115140I$ $a = \quad 1.00000$ $b = -0.771845 - 1.115140I$	-1.64493	-6.00000
$u = \quad 0.543689$ $a = \quad 1.00000$ $b = \quad 0.543689$	-1.64493	-6.00000

XIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9	$(u^3 - u^2 + u + 1)(u^6 - 2u^5 + 5u^4 - 4u^3 + 5u^2 - u + 1)$ $\cdot (u^6 + 3u^5 + 4u^4 + 4u^3 + 4u^2 + 2u + 1)^2$ $\cdot (u^8 - 4u^7 + 10u^6 - 18u^5 + 20u^4 - 15u^3 + 8u^2 - 2u + 1)$ $\cdot (u^8 - 2u^7 + 4u^6 - 2u^5 + 3u^3 - 2u^2 - u + 1)$ $\cdot (u^8 - u^7 + 3u^6 - 4u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1)^2$ $\cdot ((u^{12} + 3u^{11} + \cdots + 9u + 7)^2)(u^{20} - 10u^{19} + \cdots - 432u + 64)$ $\cdot (u^{20} + 4u^{19} + \cdots + 6u + 1)^2$
c_2, c_6, c_{10}	$(u^3 - 2u^2 + 2)(u^6 - 4u^5 + 9u^4 - 11u^3 + 10u^2 - 5u + 1)$ $\cdot (u^6 + 4u^5 + 5u^4 + 2u + 1)^2(u^8 - 2u^6 + u^5 + u^4 - 4u^3 + 3u + 1)^2$ $\cdot (u^8 + 2u^7 + u^6 - 3u^5 - 2u^4 + u^3 + 5u^2 + 4u + 2)$ $\cdot (u^8 + 4u^7 + 8u^6 + 10u^5 + 10u^4 + 3u^3 - u^2 + u + 1)$ $\cdot (u^{12} + 2u^{11} + 2u^{10} - 4u^9 - u^8 + 4u^6 + 24u^5 + 6u^4 - 10u^3 + 6u^2 + 6u + 1)^2$ $\cdot (u^{20} - 21u^{19} + \cdots - 5888u + 512)(u^{20} + 4u^{19} + \cdots + 9u + 1)^2$
c_3, c_7, c_{11}	$(u^3 - u^2 + u + 1)(u^6 - 3u^5 + 5u^4 - 4u^3 + 3u^2 - 2u + 1)$ $\cdot (u^6 + 3u^5 + 4u^4 + 4u^3 + 4u^2 + 2u + 1)^2$ $\cdot (u^8 - 3u^7 + 4u^6 - 2u^5 + u^4 - 2u^3 + 3u^2 - 2u + 1)^2$ $\cdot (u^8 + 3u^7 + 4u^6 + u^5 - 2u^4 - 2u^3 + 1)$ $\cdot (u^8 + 5u^7 + 12u^6 + 16u^5 + 13u^4 + 7u^3 + 4u^2 + 2u + 1)$ $\cdot ((u^{12} + 3u^{11} + \cdots + u + 1)^2)(u^{20} - 17u^{19} + \cdots - 58u^2 + 8)$ $\cdot (u^{20} + 4u^{19} + \cdots + 4u + 1)^2$
c_4, c_8, c_{12}	$(u^3 - u^2 + u + 1)(u^6 - 2u^5 + 5u^4 - 4u^3 + 5u^2 - u + 1)$ $\cdot (u^6 + 3u^5 + 4u^4 + 4u^3 + 4u^2 + 2u + 1)^2$ $\cdot (u^8 + u^7 + 3u^6 + 4u^5 + 4u^4 + 4u^3 + 3u^2 + 2u + 1)^2$ $\cdot (u^8 + 2u^7 + 4u^6 + 2u^5 - 3u^3 - 2u^2 + u + 1)$ $\cdot (u^8 + 4u^7 + 10u^6 + 18u^5 + 20u^4 + 15u^3 + 8u^2 + 2u + 1)$ $\cdot ((u^{12} + 3u^{11} + \cdots + 9u + 7)^2)(u^{20} - 10u^{19} + \cdots - 432u + 64)$ $\cdot (u^{20} + 4u^{19} + \cdots + 6u + 1)^2$

XIV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
	$(y^3+y^2+3y-1)(y^6-y^5+6y^3+8y^2+4y+1)^2$
c_1, c_4, c_5	$\cdot\,(y^6+6y^5+19y^4+32y^3+27y^2+9y+1)$
c_8, c_9, c_{12}	$\cdot\,(y^8+4y^7-4y^6-28y^5+6y^4+43y^3+44y^2+12y+1)$
	$\cdot\,(y^8+4y^7+8y^6+4y^5-6y^4-5y^3+10y^2-5y+1)$
	$\cdot\,(y^8+5y^7+9y^6+6y^5-2y^3+y^2+2y+1)^2$
	$\cdot\,((y^{12}+7y^{11}+\cdots+227y+49)^2)(y^{20}+6y^{19}+\cdots-256y+4096)$
	$\cdot\,(y^{20}+14y^{19}+\cdots+18y+1)^2$
	$(y^3-4y^2+8y-4)(y^6-6y^5+25y^4-14y^3+10y^2-4y+1)^2$
	$\cdot\,(y^6+2y^5+13y^4+21y^3+8y^2-5y+1)$
c_2, c_6, c_{10}	$\cdot\,(y^8+4y^6+34y^5+18y^4-33y^3+15y^2-3y+1)$
	$\cdot\,(y^8-4y^7+6y^6-5y^5+11y^4-26y^3+26y^2-9y+1)^2$
	$\cdot\,(y^8-2y^7+9y^6-7y^5+8y^4+7y^3+9y^2+4y+4)$
	$\cdot\,((y^{12}+18y^{10}+\cdots-24y+1)^2)(y^{20}-8y^{19}+\cdots-29y+1)^2$
	$\cdot\,(y^{20}-y^{19}+\cdots+8454144y+262144)$
	$(y^3+y^2+3y-1)(y^6-y^5+6y^3+8y^2+4y+1)^2$
	$\cdot\,(y^6+y^5+7y^4+4y^3+3y^2+2y+1)$
c_3, c_7, c_{11}	$\cdot\,(y^8-y^7+6y^6-5y^5+10y^4+4y^3-4y^2+1)$
	$\cdot\,(y^8-y^7+6y^6-2y^5+7y^4+2y^3+3y^2+2y+1)^2$
	$\cdot\,(y^8-y^7+10y^6-6y^5+23y^4+15y^3+14y^2+4y+1)$
	$\cdot\,((y^{12}-y^{11}+\cdots+7y+1)^2)(y^{20}-3y^{19}+\cdots-928y+64)$
	$\cdot\,(y^{20}+4y^{19}+\cdots+10y+1)^2$