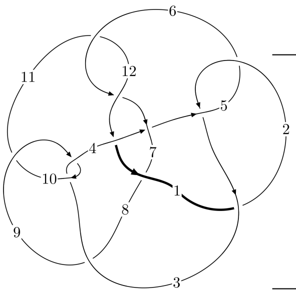
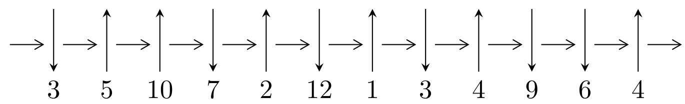
$12n_{0482}$ ($K12n_{0482}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b+u,\ 135u^{10} - 671u^9 + \cdots + 493a + 107,$$
$$u^{11} - 2u^{10} + 3u^9 - 4u^8 + 8u^7 - 11u^6 + 12u^5 - 11u^4 + 5u^3 - 3u^2 - 1\rangle$$
$$I_2^u = \langle 1.98818 \times 10^{32}u^{37} + 5.18591 \times 10^{31}u^{36} + \cdots + 3.87572 \times 10^{32}b - 1.54819 \times 10^{32},$$
$$4.74622 \times 10^{33}u^{37} + 1.04073 \times 10^{33}u^{36} + \cdots + 3.87572 \times 10^{32}a - 3.08284 \times 10^{33},\ u^{38} + u^{37} + \cdots + 11u + 1$$
$$I_3^u = \langle b+u,\ -3u^4 + 3u^3 - 2u^2 + a + 5u - 2,\ u^5 - u^4 + u^3 - 2u^2 + u - 1\rangle$$
$$I_4^u = \langle b+u,\ a + 2u + 2,\ u^2 + u + 1\rangle$$
$$I_5^u = \langle -u^{13} - 2u^{12} - 3u^{11} - 8u^{10} - 7u^9 - 16u^8 - 10u^7 - 21u^6 - 13u^5 - 18u^4 - 9u^3 - 11u^2 + b - 3u - 2,$$
$$3u^{13} - u^{12} + 10u^{11} + 19u^9 + 2u^8 + 22u^7 + 8u^6 + 19u^5 + 5u^4 + 12u^3 + 3u^2 + a + 2u,$$
$$u^{14} + 4u^{12} + u^{11} + 9u^{10} + 3u^9 + 13u^8 + 6u^7 + 14u^6 + 6u^5 + 11u^4 + 4u^3 + 5u^2 + u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 70 representations.

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

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

I. $\boldsymbol{I_1^u = \langle b+u,\ 135u^{10} - 671u^9 + \cdots + 493a + 107,\ u^{11} - 2u^{10} + \cdots - 3u^2 - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.273834u^{10} + 1.36105u^9 + \cdots + 3.25761u - 0.217039 \\ -u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.813387u^{10} + 1.76876u^9 + \cdots + 0.217039u + 1.27383 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.415822u^{10} + 1.36308u^9 + \cdots + 1.98377u + 0.596349 \\ -u^3 - u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.813387u^{10} + 1.76876u^9 + \cdots + 0.217039u + 1.27383 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.0263692u^{10} - 0.271805u^9 + \cdots - 3.30629u + 1.00609 \\ 0.0953347u^{10} - 0.444219u^9 + \cdots + 0.969574u - 0.131846 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1.09533u^{10} + 2.44422u^9 + \cdots + 1.03043u + 1.13185 \\ -0.150101u^{10} + 0.316430u^9 + \cdots + 0.281947u - 0.111562 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1818}{493}u^{10} - \frac{2167}{493}u^9 + \frac{2637}{493}u^8 - \frac{3733}{493}u^7 + \frac{10857}{493}u^6 - \frac{10419}{493}u^5 + \frac{8712}{493}u^4 - \frac{7389}{493}u^3 + \frac{2214}{493}u^2 - \frac{3255}{493}u - \frac{301}{493}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{11} + 2u^{10} + \cdots - 6u - 1$
c_2, c_3, c_5 c_9	$u^{11} - 2u^{10} + 3u^9 - 4u^8 + 8u^7 - 11u^6 + 12u^5 - 11u^4 + 5u^3 - 3u^2 - 1$
c_4, c_6, c_{11}	$u^{11} - u^{10} - u^9 + u^8 + 5u^7 - 3u^6 - 4u^5 + u^4 + 3u^3 - u^2 + 3u - 1$
c_7	$u^{11} + u^{10} + \cdots - 51u - 17$
c_8	$u^{11} - 4u^{10} + \cdots - 16u - 1$
c_{12}	$u^{11} + 8u^{10} + \cdots - 320u - 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{11} + 14y^{10} + \cdots - 26y - 1$
c_2, c_3, c_5 c_9	$y^{11} + 2y^{10} + \cdots - 6y - 1$
c_4, c_6, c_{11}	$y^{11} - 3y^{10} + \cdots + 7y - 1$
c_7	$y^{11} - 15y^{10} + \cdots - 425y - 289$
c_8	$y^{11} + 20y^{10} + \cdots + 92y - 1$
c_{12}	$y^{11} - 22y^{10} + \cdots - 10240y - 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.069055 + 1.000350I$ $a = -0.981312 - 0.304041I$ $b = -0.069055 - 1.000350I$	$-5.87879 + 3.62795I$	$-10.28819 - 4.50965I$
$u = 0.069055 - 1.000350I$ $a = -0.981312 + 0.304041I$ $b = -0.069055 + 1.000350I$	$-5.87879 - 3.62795I$	$-10.28819 + 4.50965I$
$u = 0.457197 + 0.753480I$ $a = 0.883878 - 0.436496I$ $b = -0.457197 - 0.753480I$	$0.73694 + 2.00002I$	$2.64478 - 3.99897I$
$u = 0.457197 - 0.753480I$ $a = 0.883878 + 0.436496I$ $b = -0.457197 + 0.753480I$	$0.73694 - 2.00002I$	$2.64478 + 3.99897I$
$u = 1.21408$ $a = 0.899878$ $b = -1.21408$	2.41788	20.6200
$u = 1.06044 + 0.99031I$ $a = 1.37322 - 0.35892I$ $b = -1.06044 - 0.99031I$	$10.12310 + 0.00215I$	$1.32048 + 0.53124I$
$u = 1.06044 - 0.99031I$ $a = 1.37322 + 0.35892I$ $b = -1.06044 + 0.99031I$	$10.12310 - 0.00215I$	$1.32048 - 0.53124I$
$u = -0.92863 + 1.13891I$ $a = -1.51448 - 0.57303I$ $b = 0.92863 - 1.13891I$	$8.9020 - 15.0293I$	$-0.32227 + 7.97448I$
$u = -0.92863 - 1.13891I$ $a = -1.51448 + 0.57303I$ $b = 0.92863 + 1.13891I$	$8.9020 + 15.0293I$	$-0.32227 - 7.97448I$
$u = -0.265103 + 0.402117I$ $a = 1.28876 + 2.59793I$ $b = 0.265103 - 0.402117I$	$-1.93271 + 1.18056I$	$-1.16495 - 2.63475I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.265103 - 0.402117I$ $a = \quad 1.28876 - 2.59793I$ $b = \quad 0.265103 + 0.402117I$	$-1.93271 - 1.18056I$	$-1.16495 + 2.63475I$

II.
$\boldsymbol{I_2^u = \langle 1.99\times10^{32}u^{37} + 5.19\times10^{31}u^{36} + \cdots + 3.88\times10^{32}b - 1.55\times10^{32},\ 4.75\times10^{33}u^{37} + 1.04\times10^{33}u^{36} + \cdots + 3.88\times10^{32}a - 3.08\times10^{33},\ u^{38} + u^{37} + \cdots + 11u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-12.2460u^{37} - 2.68526u^{36} + \cdots + 1.99894u + 7.95423\\-0.512982u^{37} - 0.133805u^{36} + \cdots + 0.536992u + 0.399459\end{pmatrix}$$
$$a_2 = \begin{pmatrix}7.74425u^{37} + 4.31734u^{36} + \cdots + 215.566u + 26.2164\\0.565194u^{37} + 2.66371u^{36} + \cdots + 55.8911u + 6.22476\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-11.1078u^{37} - 6.54371u^{36} + \cdots - 143.314u - 12.5852\\3.29534u^{37} + 2.38055u^{36} + \cdots + 112.115u + 12.6582\end{pmatrix}$$
$$a_1 = \begin{pmatrix}8.30944u^{37} + 6.98105u^{36} + \cdots + 271.458u + 32.4411\\0.565194u^{37} + 2.66371u^{36} + \cdots + 55.8911u + 6.22476\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u\\u^3 + u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^3\\u^5 + u^3 + u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^3\\u^3 + u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}2.38323u^{37} + 1.44709u^{36} + \cdots + 51.2510u + 3.28992\\1.45749u^{37} + 1.85739u^{36} + \cdots + 1.74398u - 1.81804\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}7.40661u^{37} + 4.29257u^{36} + \cdots + 209.264u + 24.8880\\-1.35180u^{37} + 1.74929u^{36} + \cdots + 35.3462u + 4.43912\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 25.3622u^{37} + 20.1574u^{36} + \cdots + 887.101u + 105.896$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{38} + 7u^{37} + \cdots - 3u + 1$
c_2, c_3, c_5 c_9	$u^{38} + u^{37} + \cdots + 11u + 1$
c_4, c_6, c_{11}	$u^{38} + u^{37} + \cdots - 13u + 1$
c_7	$u^{38} + 6u^{37} + \cdots + 279558u + 34943$
c_8	$u^{38} + 2u^{37} + \cdots + 31225u + 84625$
c_{12}	$(u^{19} - 4u^{18} + \cdots + 182u - 103)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{38} + 47y^{37} + \cdots + 41y + 1$
c_2, c_3, c_5 c_9	$y^{38} + 7y^{37} + \cdots - 3y + 1$
c_4, c_6, c_{11}	$y^{38} - 7y^{37} + \cdots - 27y + 1$
c_7	$y^{38} - 54y^{37} + \cdots + 19424324302y + 1221013249$
c_8	$y^{38} + 90y^{37} + \cdots + 115039950625y + 7161390625$
c_{12}	$(y^{19} - 18y^{18} + \cdots - 49070y - 10609)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.004590 + 0.172131I$ $a = 0.883738 - 0.151424I$ $b = -1.004590 + 0.172131I$	2.25367	$8.32597 + 0.I$
$u = 1.004590 - 0.172131I$ $a = 0.883738 + 0.151424I$ $b = -1.004590 - 0.172131I$	2.25367	$8.32597 + 0.I$
$u = -0.769998 + 0.586991I$ $a = 1.117170 + 0.263942I$ $b = -0.49939 + 1.38926I$	$-1.95090 - 5.96839I$	$0.62541 + 10.55313I$
$u = -0.769998 - 0.586991I$ $a = 1.117170 - 0.263942I$ $b = -0.49939 - 1.38926I$	$-1.95090 + 5.96839I$	$0.62541 - 10.55313I$
$u = -0.250368 + 0.928587I$ $a = 0.922332 + 0.890681I$ $b = 0.516346 + 1.055000I$	$-3.76429 + 1.96233I$	$-6.97090 - 0.90766I$
$u = -0.250368 - 0.928587I$ $a = 0.922332 - 0.890681I$ $b = 0.516346 - 1.055000I$	$-3.76429 - 1.96233I$	$-6.97090 + 0.90766I$
$u = 0.685299 + 0.877713I$ $a = 0.431131 + 0.017894I$ $b = 0.221102 - 0.581236I$	$0.80155 + 2.69495I$	$4.30397 - 0.26494I$
$u = 0.685299 - 0.877713I$ $a = 0.431131 - 0.017894I$ $b = 0.221102 + 0.581236I$	$0.80155 - 2.69495I$	$4.30397 + 0.26494I$
$u = -0.151590 + 0.840331I$ $a = 1.15667 + 1.14014I$ $b = 0.319310 + 0.249382I$	$-1.87491 + 1.48071I$	$-3.81413 - 3.72384I$
$u = -0.151590 - 0.840331I$ $a = 1.15667 - 1.14014I$ $b = 0.319310 - 0.249382I$	$-1.87491 - 1.48071I$	$-3.81413 + 3.72384I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.479231 + 1.064790I$ $a = -1.79535 - 0.55808I$ $b = 0.350575 - 0.499346I$	$-3.82831 - 4.84634I$	$-7.70612 + 6.88664I$
$u = -0.479231 - 1.064790I$ $a = -1.79535 + 0.55808I$ $b = 0.350575 + 0.499346I$	$-3.82831 + 4.84634I$	$-7.70612 - 6.88664I$
$u = 0.908346 + 0.735932I$ $a = -0.339798 - 0.249688I$ $b = 0.400909 + 0.103737I$	$1.01937 + 3.04219I$	$4.58994 - 7.02078I$
$u = 0.908346 - 0.735932I$ $a = -0.339798 + 0.249688I$ $b = 0.400909 - 0.103737I$	$1.01937 - 3.04219I$	$4.58994 + 7.02078I$
$u = -0.516346 + 1.055000I$ $a = -0.088440 + 1.046130I$ $b = 0.250368 + 0.928587I$	$-3.76429 - 1.96233I$	$-6.97090 + 0.90766I$
$u = -0.516346 - 1.055000I$ $a = -0.088440 - 1.046130I$ $b = 0.250368 - 0.928587I$	$-3.76429 + 1.96233I$	$-6.97090 - 0.90766I$
$u = -1.044560 + 0.842557I$ $a = -0.811923 - 0.654907I$ $b = 1.044560 + 0.842557I$	10.6548	0
$u = -1.044560 - 0.842557I$ $a = -0.811923 + 0.654907I$ $b = 1.044560 - 0.842557I$	10.6548	0
$u = 0.976290 + 0.949251I$ $a = -1.63572 + 0.33244I$ $b = 0.887628 + 1.095510I$	$9.80034 + 7.08036I$	$0. - 4.76593I$
$u = 0.976290 - 0.949251I$ $a = -1.63572 - 0.33244I$ $b = 0.887628 - 1.095510I$	$9.80034 - 7.08036I$	$0. + 4.76593I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.221102 + 0.581236I$ $a = 0.427232 - 0.643816I$ $b = -0.685299 - 0.877713I$	$0.80155 + 2.69495I$	$4.30397 - 0.26494I$
$u = -0.221102 - 0.581236I$ $a = 0.427232 + 0.643816I$ $b = -0.685299 + 0.877713I$	$0.80155 - 2.69495I$	$4.30397 + 0.26494I$
$u = 0.950416 + 1.005200I$ $a = 0.568027 - 0.600769I$ $b = -0.950416 + 1.005200I$	9.62378	0
$u = 0.950416 - 1.005200I$ $a = 0.568027 + 0.600769I$ $b = -0.950416 - 1.005200I$	9.62378	0
$u = -0.350575 + 0.499346I$ $a = -3.57554 - 0.40279I$ $b = 0.479231 - 1.064790I$	$-3.82831 - 4.84634I$	$-7.70612 + 6.88664I$
$u = -0.350575 - 0.499346I$ $a = -3.57554 + 0.40279I$ $b = 0.479231 + 1.064790I$	$-3.82831 + 4.84634I$	$-7.70612 - 6.88664I$
$u = -0.887628 + 1.095510I$ $a = 1.53068 + 0.50554I$ $b = -0.976290 + 0.949251I$	$9.80034 - 7.08036I$	0
$u = -0.887628 - 1.095510I$ $a = 1.53068 - 0.50554I$ $b = -0.976290 - 0.949251I$	$9.80034 + 7.08036I$	0
$u = -1.14162 + 0.84482I$ $a = 0.714096 + 0.478108I$ $b = -1.00890 - 1.04517I$	$9.91517 + 7.54398I$	0
$u = -1.14162 - 0.84482I$ $a = 0.714096 - 0.478108I$ $b = -1.00890 + 1.04517I$	$9.91517 - 7.54398I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00890 + 1.04517I$ $a = -0.554397 + 0.631289I$ $b = 1.14162 - 0.84482I$	$9.91517 + 7.54398I$	0
$u = 1.00890 - 1.04517I$ $a = -0.554397 - 0.631289I$ $b = 1.14162 + 0.84482I$	$9.91517 - 7.54398I$	0
$u = 0.49939 + 1.38926I$ $a = -0.521072 + 0.543402I$ $b = 0.769998 + 0.586991I$	$-1.95090 + 5.96839I$	0
$u = 0.49939 - 1.38926I$ $a = -0.521072 - 0.543402I$ $b = 0.769998 - 0.586991I$	$-1.95090 - 5.96839I$	0
$u = -0.400909 + 0.103737I$ $a = 0.580462 - 1.039280I$ $b = -0.908346 + 0.735932I$	$1.01937 - 3.04219I$	$4.58994 + 7.02078I$
$u = -0.400909 - 0.103737I$ $a = 0.580462 + 1.039280I$ $b = -0.908346 - 0.735932I$	$1.01937 + 3.04219I$	$4.58994 - 7.02078I$
$u = -0.319310 + 0.249382I$ $a = 0.99071 + 3.27648I$ $b = 0.151590 + 0.840331I$	$-1.87491 - 1.48071I$	$-3.81413 + 3.72384I$
$u = -0.319310 - 0.249382I$ $a = 0.99071 - 3.27648I$ $b = 0.151590 - 0.840331I$	$-1.87491 + 1.48071I$	$-3.81413 - 3.72384I$

III. $\boldsymbol{I_3^u = \langle b+u,\ -3u^4+3u^3-2u^2+a+5u-2,\ u^5-u^4+u^3-2u^2+u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^4-2u^3-7u^2-u-12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^5 - 3y^4 + 3y^3 - 8y^2 + y - 1$
c_2, c_3, c_5 c_9	$y^5 + y^4 - y^3 - 4y^2 - 3y - 1$
c_4, c_6, c_{11}	$y^5 - 4y^4 + 8y^3 - 9y^2 + 6y - 1$
c_7	$y^5 - 4y^3 - 5y^2 - 2y - 1$
c_8	$y^5 - 13y^4 + 8y^3 - 7y^2 - 5y - 1$
c_{12}	$y^5 - 18y^4 - 7y^3 - 4y^2 - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.428550 + 1.039280I$ $a = -1.54944 - 0.53709I$ $b = 0.428550 - 1.039280I$	$-5.20316 - 6.77491I$	$-7.90607 + 7.89291I$
$u = -0.428550 - 1.039280I$ $a = -1.54944 + 0.53709I$ $b = 0.428550 + 1.039280I$	$-5.20316 + 6.77491I$	$-7.90607 - 7.89291I$
$u = 0.276511 + 0.728237I$ $a = 1.09747 - 3.27495I$ $b = -0.276511 - 0.728237I$	$-2.50012 - 0.60716I$	$-8.21805 - 3.47460I$
$u = 0.276511 - 0.728237I$ $a = 1.09747 + 3.27495I$ $b = -0.276511 + 0.728237I$	$-2.50012 + 0.60716I$	$-8.21805 + 3.47460I$
$u = 1.30408$ $a = 0.903937$ $b = -1.30408$	2.24708	-26.7520

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 12u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-1.00000-1.73205I$ $b=\ \ 0.500000-0.866025I$	$-6.08965I$	$0.+10.39230I$
$u=-0.500000-0.866025I$ $a=-1.00000+1.73205I$ $b=\ \ 0.500000+0.866025I$	$6.08965I$	$0.-10.39230I$

V.

$\boldsymbol{I_5^u = \langle -u^{13} - 2u^{12} + \cdots + b - 2,\ 3u^{13} - u^{12} + \cdots + a + 2u,\ u^{14} + 4u^{12} + \cdots + u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} -3u^{13} + u^{12} + \cdots - 3u^2 - 2u \\ u^{13} + 2u^{12} + \cdots + 3u + 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 3u^{13} - u^{12} + \cdots + 6u + 1 \\ -u^{13} - u^{12} + \cdots - 4u - 3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2u^{13} + 2u^{12} + \cdots - 4u + 2 \\ u^{13} + 2u^{12} + \cdots + 6u + 4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 2u^{13} - 2u^{12} + \cdots + 2u - 2 \\ -u^{13} - u^{12} + \cdots - 4u - 3 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2u^{13} - u^{12} + \cdots + 4u + 2 \\ u^{11} - u^{10} + 3u^9 - 2u^8 + 5u^7 - 3u^6 + 5u^5 - u^4 + 4u^3 - u^2 + 3u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3u^{13} - 2u^{12} + \cdots + 6u - 1 \\ -u^{13} - u^{12} + \cdots - 3u - 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 5u^{13}+7u^{12}+16u^{11}+31u^{10}+38u^9+65u^8+56u^7+90u^6+72u^5+79u^4+53u^3+50u^2+18u+4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 8u^{13} + \cdots - 9u + 1$
c_2, c_9	$u^{14} + 4u^{12} + \cdots - u + 1$
c_3, c_5	$u^{14} + 4u^{12} + \cdots + u + 1$
c_4, c_6	$u^{14} - 2u^{13} + \cdots + u + 1$
c_7	$u^{14} - 3u^{13} + \cdots - 2u + 1$
c_8	$u^{14} - 3u^{13} + \cdots - 3u + 1$
c_{10}	$u^{14} + 8u^{13} + \cdots + 9u + 1$
c_{11}	$u^{14} + 2u^{13} + \cdots - u + 1$
c_{12}	$(u^7 - 2u^6 + 2u^5 - u^4 + 2u^2 - 2u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{14} + 4y^{13} + \cdots - 3y + 1$
c_2, c_3, c_5 c_9	$y^{14} + 8y^{13} + \cdots + 9y + 1$
c_4, c_6, c_{11}	$y^{14} - 6y^{13} + \cdots - 11y + 1$
c_7	$y^{14} + 11y^{13} + \cdots + 2y + 1$
c_8	$y^{14} + 3y^{13} + \cdots + 17y + 1$
c_{12}	$(y^7 + 3y^4 - 2y^2 - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.716205+0.619830I$ $a=\ \ 1.50526+0.73982I$ $b=-0.417581+1.200450I$	$-2.50419-5.00992I$	$-2.87922+5.19233I$
$u=-0.716205-0.619830I$ $a=\ \ 1.50526-0.73982I$ $b=-0.417581-1.200450I$	$-2.50419+5.00992I$	$-2.87922-5.19233I$
$u=\ \ 0.369492+1.060950I$ $a=-1.074490-0.287225I$ $b=\ \ 0.355639-0.671652I$	$-3.83313+3.38801I$	$-5.24712-4.06276I$
$u=\ \ 0.369492-1.060950I$ $a=-1.074490+0.287225I$ $b=\ \ 0.355639+0.671652I$	$-3.83313-3.38801I$	$-5.24712+4.06276I$
$u=\ \ 0.764704+0.855799I$ $a=-0.685493-0.365462I$ $b=-0.064397+0.681658I$	$0.24628+2.90027I$	$-9.12896-4.50234I$
$u=\ \ 0.764704-0.855799I$ $a=-0.685493+0.365462I$ $b=-0.064397-0.681658I$	$0.24628-2.90027I$	$-9.12896+4.50234I$
$u=-0.544331+1.111970I$ $a=\ \ 0.113385+0.231625I$ $b=\ \ 0.544331+1.111970I$	-4.26728	$-4.48940+0.I$
$u=-0.544331-1.111970I$ $a=\ \ 0.113385-0.231625I$ $b=\ \ 0.544331-1.111970I$	-4.26728	$-4.48940+0.I$
$u=-0.355639+0.671652I$ $a=-1.39220+0.87457I$ $b=-0.369492-1.060950I$	$-3.83313+3.38801I$	$-5.24712-4.06276I$
$u=-0.355639-0.671652I$ $a=-1.39220-0.87457I$ $b=-0.369492+1.060950I$	$-3.83313-3.38801I$	$-5.24712+4.06276I$

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.417581 + 1.200450I$ $a = -0.696781 + 1.037670I$ $b = \quad 0.716205 + 0.619830I$	$-2.50419 + 5.00992I$	$-2.87922 - 5.19233I$
$u = \quad 0.417581 - 1.200450I$ $a = -0.696781 - 1.037670I$ $b = \quad 0.716205 - 0.619830I$	$-2.50419 - 5.00992I$	$-2.87922 + 5.19233I$
$u = \quad 0.064397 + 0.681658I$ $a = \quad 1.230320 + 0.426410I$ $b = -0.764704 + 0.855799I$	$0.24628 - 2.90027I$	$-9.12896 + 4.50234I$
$u = \quad 0.064397 - 0.681658I$ $a = \quad 1.230320 - 0.426410I$ $b = -0.764704 - 0.855799I$	$0.24628 + 2.90027I$	$-9.12896 - 4.50234I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)(u^5-u^4+\cdots-3u+1)(u^{11}+2u^{10}+\cdots-6u-1)$ $\cdot(u^{14}-8u^{13}+\cdots-9u+1)(u^{38}+7u^{37}+\cdots-3u+1)$
c_2, c_9	$(u^2+u+1)(u^5+u^4+u^3+2u^2+u+1)$ $\cdot(u^{11}-2u^{10}+3u^9-4u^8+8u^7-11u^6+12u^5-11u^4+5u^3-3u^2-1)$ $\cdot(u^{14}+4u^{12}+\cdots-u+1)(u^{38}+u^{37}+\cdots+11u+1)$
c_3, c_5	$(u^2+u+1)(u^5-u^4+u^3-2u^2+u-1)$ $\cdot(u^{11}-2u^{10}+3u^9-4u^8+8u^7-11u^6+12u^5-11u^4+5u^3-3u^2-1)$ $\cdot(u^{14}+4u^{12}+\cdots+u+1)(u^{38}+u^{37}+\cdots+11u+1)$
c_4, c_6	$(u^2+u+1)(u^5-2u^3+u^2+2u-1)$ $\cdot(u^{11}-u^{10}-u^9+u^8+5u^7-3u^6-4u^5+u^4+3u^3-u^2+3u-1)$ $\cdot(u^{14}-2u^{13}+\cdots+u+1)(u^{38}+u^{37}+\cdots-13u+1)$
c_7	$(u^2-u+1)(u^5+2u^4+\cdots+2u+1)(u^{11}+u^{10}+\cdots-51u-17)$ $\cdot(u^{14}-3u^{13}+\cdots-2u+1)(u^{38}+6u^{37}+\cdots+279558u+34943)$
c_8	$(u^2-u+1)(u^5+5u^4+\cdots+u+1)(u^{11}-4u^{10}+\cdots-16u-1)$ $\cdot(u^{14}-3u^{13}+\cdots-3u+1)(u^{38}+2u^{37}+\cdots+31225u+84625)$
c_{10}	$(u^2+u+1)(u^5+u^4+\cdots-3u-1)(u^{11}+2u^{10}+\cdots-6u-1)$ $\cdot(u^{14}+8u^{13}+\cdots+9u+1)(u^{38}+7u^{37}+\cdots-3u+1)$
c_{11}	$(u^2+u+1)(u^5-2u^3-u^2+2u+1)$ $\cdot(u^{11}-u^{10}-u^9+u^8+5u^7-3u^6-4u^5+u^4+3u^3-u^2+3u-1)$ $\cdot(u^{14}+2u^{13}+\cdots-u+1)(u^{38}+u^{37}+\cdots-13u+1)$
c_{12}	$(u^2+u+1)(u^5+6u^4+9u^3+8u^2+4u+1)$ $\cdot((u^7-2u^6+2u^5-u^4+2u^2-2u+1)^2)(u^{11}+8u^{10}+\cdots-320u-64)$ $\cdot(u^{19}-4u^{18}+\cdots+182u-103)^2$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^2+y+1)(y^5-3y^4+\cdots+y-1)(y^{11}+14y^{10}+\cdots-26y-1)$ $\cdot(y^{14}+4y^{13}+\cdots-3y+1)(y^{38}+47y^{37}+\cdots+41y+1)$
c_2, c_3, c_5 c_9	$(y^2+y+1)(y^5+y^4+\cdots-3y-1)(y^{11}+2y^{10}+\cdots-6y-1)$ $\cdot(y^{14}+8y^{13}+\cdots+9y+1)(y^{38}+7y^{37}+\cdots-3y+1)$
c_4, c_6, c_{11}	$(y^2+y+1)(y^5-4y^4+\cdots+6y-1)(y^{11}-3y^{10}+\cdots+7y-1)$ $\cdot(y^{14}-6y^{13}+\cdots-11y+1)(y^{38}-7y^{37}+\cdots-27y+1)$
c_7	$(y^2+y+1)(y^5-4y^3+\cdots-2y-1)(y^{11}-15y^{10}+\cdots-425y-289)$ $\cdot(y^{14}+11y^{13}+\cdots+2y+1)$ $\cdot(y^{38}-54y^{37}+\cdots+19424324302y+1221013249)$
c_8	$(y^2+y+1)(y^5-13y^4+\cdots-5y-1)(y^{11}+20y^{10}+\cdots+92y-1)$ $\cdot(y^{14}+3y^{13}+\cdots+17y+1)$ $\cdot(y^{38}+90y^{37}+\cdots+115039950625y+7161390625)$
c_{12}	$(y^2+y+1)(y^5-18y^4-7y^3-4y^2-1)(y^7+3y^4-2y^2-1)^2$ $\cdot(y^{11}-22y^{10}+\cdots-10240y-4096)$ $\cdot(y^{19}-18y^{18}+\cdots-49070y-10609)^2$