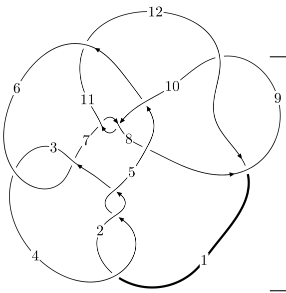
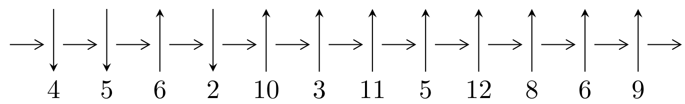
$12n_{0672}$ ($K12n_{0672}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 140432815u^{21} - 8970077u^{20} + \cdots + 4153725446b - 54946683,$$
$$2854951501u^{21} + 303304377u^{20} + \cdots + 6645960704a - 7253385201,\ u^{22} + 3u^{20} + \cdots + u + 1\rangle$$
$$I_2^u = \langle -17272682156856u^{19} + 65400234558575u^{18} + \cdots + 646621574147963b + 203992951331482,$$
$$3.50596 \times 10^{15}u^{19} - 1.00606 \times 10^{16}u^{18} + \cdots + 1.09926 \times 10^{16}a - 4.23310 \times 10^{16},\ u^{20} - 2u^{19} + \cdots - 4u + 1$$
$$I_3^u = \langle b,\ -5u^2 + 4a + 3u - 11,\ u^3 + 2u + 1\rangle$$
$$I_4^u = \langle -243a^4u + 1435a^3u + \cdots + 487a + 424,\ a^5 - 4a^4u - 5a^4 + 9a^3u + 2a^3 - 6a^2 + 6au + 7a - u,\ u^2 + 1\rangle$$
$$I_5^u = \langle b,\ u^3 + a + u,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 59 representations.

---

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

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

I. $\boldsymbol{I^u_1 = \langle 1.40\times10^{8}u^{21} - 8.97\times10^{6}u^{20} + \cdots + 4.15\times10^{8}b - 5.49\times10^{7},\ 2.85\times10^{9}u^{21} + 3.03\times10^{8}u^{20} + \cdots + 6.65\times10^{9}a - 7.25\times10^{9},\ u^{22} + 3u^{20} + \cdots + u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -0.429577u^{21} - 0.0456374u^{20} + \cdots - 2.64683u + 1.09140 \\ -0.338089u^{21} + 0.0215953u^{20} + \cdots - 1.82898u + 0.132283 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.339086u^{21} - 0.230329u^{20} + \cdots - 3.30702u + 0.269143 \\ 0.141109u^{21} - 0.152381u^{20} + \cdots - 1.58891u - 0.881521 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.119809u^{21} - 0.185566u^{20} + \cdots - 4.21378u - 0.352810 \\ -0.0118881u^{21} + 0.0634552u^{20} + \cdots + 1.25768u + 0.426641 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.00781250u^{21} - 0.00781250u^{20} + \cdots - 1.98438u - 0.992188 \\ 0.0156250u^{21} + 0.0156250u^{20} + \cdots + 1.96875u - 0.0156250 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -0.329484u^{21} - 0.213284u^{20} + \cdots - 3.71828u - 0.0429626 \\ 0.169327u^{21} - 0.142245u^{20} + \cdots - 1.15100u - 0.552370 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.371416u^{21} + 0.116662u^{20} + \cdots - 0.554103u + 0.690043 \\ -0.245528u^{21} + 0.287886u^{20} + \cdots + 0.564340u + 1.00801 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0156250u^{21} + 0.0156250u^{20} + \cdots + 1.96875u + 0.984375 \\ -0.0312500u^{21} - 0.0312500u^{20} + \cdots - 1.93750u + 0.0312500 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.00781250u^{21} - 0.00781250u^{20} + \cdots - 1.98438u + 0.00781250 \\ 0.0156250u^{21} + 0.0156250u^{20} + \cdots + 0.968750u - 0.0156250 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{63242885225}{26583842816}u^{21} - \frac{275520283}{26583842816}u^{20} + \cdots - \frac{34653626479}{13291921408}u + \frac{128655382851}{26583842816}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{22} - 4u^{21} + \cdots + 225u - 16$
c_3, c_6	$u^{22} + 3u^{21} + \cdots - 432u + 128$
c_5	$u^{22} + 6u^{21} + \cdots - 12u - 4$
c_7, c_9, c_{10} c_{12}	$u^{22} + 3u^{20} + \cdots - u + 1$
c_8, c_{11}	$u^{22} - 14u^{20} + \cdots - 160u - 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{22} - 12y^{21} + \cdots - 52961y + 256$
c_3, c_6	$y^{22} - 9y^{21} + \cdots - 181504y + 16384$
c_5	$y^{22} + 4y^{21} + \cdots - 56y + 16$
c_7, c_9, c_{10} c_{12}	$y^{22} + 6y^{21} + \cdots + 5y + 1$
c_8, c_{11}	$y^{22} - 28y^{21} + \cdots - 25600y + 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.928587 + 0.449929I$ $a = 0.444403 + 0.678322I$ $b = 0.105518 + 0.891648I$	$0.73454 - 1.42308I$	$6.61226 - 1.84054I$
$u = -0.928587 - 0.449929I$ $a = 0.444403 - 0.678322I$ $b = 0.105518 - 0.891648I$	$0.73454 + 1.42308I$	$6.61226 + 1.84054I$
$u = 0.805604 + 0.679539I$ $a = -0.675797 - 0.229153I$ $b = -0.10006 + 2.03537I$	$-0.58572 + 5.08842I$	$2.49387 - 7.97932I$
$u = 0.805604 - 0.679539I$ $a = -0.675797 + 0.229153I$ $b = -0.10006 - 2.03537I$	$-0.58572 - 5.08842I$	$2.49387 + 7.97932I$
$u = 0.016436 + 0.749464I$ $a = -0.280370 + 0.907991I$ $b = -0.438482 + 1.324440I$	$-8.18850 - 4.33155I$	$5.52961 + 2.50596I$
$u = 0.016436 - 0.749464I$ $a = -0.280370 - 0.907991I$ $b = -0.438482 - 1.324440I$	$-8.18850 + 4.33155I$	$5.52961 - 2.50596I$
$u = -0.722140$ $a = -3.32146$ $b = 0.476611$	-0.565730	30.7730
$u = 0.504021 + 0.445386I$ $a = 1.24386 - 0.98298I$ $b = -1.57016 + 0.27263I$	$-3.04188 + 1.34660I$	$-0.20456 - 4.71267I$
$u = 0.504021 - 0.445386I$ $a = 1.24386 + 0.98298I$ $b = -1.57016 - 0.27263I$	$-3.04188 - 1.34660I$	$-0.20456 + 4.71267I$
$u = 0.18886 + 1.40685I$ $a = 0.0573082 - 0.0995823I$ $b = -0.186722 - 0.594682I$	$-11.39190 + 5.29891I$	$-11.9974 - 9.4087I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.18886 - 1.40685I$ $a = 0.0573082 + 0.0995823I$ $b = -0.186722 + 0.594682I$	$-11.39190 - 5.29891I$	$-11.9974 + 9.4087I$
$u = 1.05891 + 1.05062I$ $a = -1.049610 + 0.673117I$ $b = 2.15765 + 0.77847I$	$6.65098 + 7.24014I$	$4.89876 - 5.30841I$
$u = 1.05891 - 1.05062I$ $a = -1.049610 - 0.673117I$ $b = 2.15765 - 0.77847I$	$6.65098 - 7.24014I$	$4.89876 + 5.30841I$
$u = -0.82129 + 1.28483I$ $a = -0.697328 - 0.815294I$ $b = 1.43657 - 0.80726I$	$4.44406 - 7.90966I$	$2.90985 + 4.71284I$
$u = -0.82129 - 1.28483I$ $a = -0.697328 + 0.815294I$ $b = 1.43657 + 0.80726I$	$4.44406 + 7.90966I$	$2.90985 - 4.71284I$
$u = 0.072819 + 0.411896I$ $a = 1.38341 - 1.45349I$ $b = 0.042570 - 1.004680I$	$-1.51746 - 1.42204I$	$1.40403 + 3.03703I$
$u = 0.072819 - 0.411896I$ $a = 1.38341 + 1.45349I$ $b = 0.042570 + 1.004680I$	$-1.51746 + 1.42204I$	$1.40403 - 3.03703I$
$u = 0.87848 + 1.33285I$ $a = 0.999157 - 0.834434I$ $b = -1.68011 - 1.04071I$	$3.8163 + 15.4146I$	$2.44451 - 7.76498I$
$u = 0.87848 - 1.33285I$ $a = 0.999157 + 0.834434I$ $b = -1.68011 + 1.04071I$	$3.8163 - 15.4146I$	$2.44451 + 7.76498I$
$u = -1.22340 + 1.04887I$ $a = 0.809743 + 0.604171I$ $b = -1.63736 + 0.34201I$	$6.54087 - 1.13702I$	$5.32063 - 0.78196I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.22340 - 1.04887I$ $a = 0.809743 - 0.604171I$ $b = -1.63736 - 0.34201I$	$6.54087 + 1.13702I$	$5.32063 + 0.78196I$
$u = -0.381582$ $a = 0.601919$ $b = 0.264566$	0.708401	14.4670

II. $\boldsymbol{I_2^u = \langle -1.73 \times 10^{13}u^{19} + 6.54 \times 10^{13}u^{18} + \cdots + 6.47 \times 10^{14}b + 2.04 \times 10^{14},\ 3.51 \times 10^{15}u^{19} - 1.01 \times 10^{16}u^{18} + \cdots + 1.10 \times 10^{16}a - 4.23 \times 10^{16},\ u^{20} - 2u^{19} + \cdots - 4u + 17\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix}-0.318939u^{19} + 0.915221u^{18} + \cdots - 12.9781u + 3.85087\\0.0267122u^{19} - 0.101141u^{18} + \cdots + 2.78094u - 0.315475\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.103485u^{19} + 0.0740278u^{18} + \cdots - 8.11622u + 2.12405\\0.107851u^{19} - 0.263722u^{18} + \cdots + 3.65066u - 1.56320\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.0148390u^{19} + 0.231650u^{18} + \cdots - 9.04018u + 5.85391\\0.0351704u^{19} - 0.0375853u^{18} + \cdots + 3.45642u + 0.00903128\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0.352319u^{19} - 1.31815u^{18} + \cdots + 3.33066u - 5.70075\\0.0984318u^{19} - 0.200644u^{18} + \cdots + 3.80209u - 1.16277\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}0.0188311u^{19} - 0.0566658u^{18} + \cdots - 6.85303u + 3.76850\\0.107524u^{19} - 0.232476u^{18} + \cdots + 4.01109u - 1.27070\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.104445u^{19} + 0.552187u^{18} + \cdots - 6.37772u + 4.35674\\-0.0495529u^{19} + 0.136649u^{18} + \cdots + 0.555470u + 0.796437\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-0.0250730u^{19} + 0.177714u^{18} + \cdots - 0.967992u + 3.13969\\-0.0256385u^{19} + 0.0848373u^{18} + \cdots + 0.0314805u + 0.0289650\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.469648u^{19} - 0.562887u^{18} + \cdots - 7.03901u + 5.29851\\-0.00409626u^{19} + 0.110585u^{18} + \cdots + 3.78370u + 1.79742\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{141694095517749}{646621574147963}u^{19} + \frac{110869416375 05}{646621574147963}u^{18} + \cdots - \frac{4773664927135288}{646621574147963}u + \frac{10701289907 14232}{646621574147963}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$(u^{10} - 3u^9 + 4u^8 + u^7 - 6u^6 + 6u^5 + u^4 - 2u^3 + 3u^2 - 2u + 1)^2$
c_3, c_6	$(u^{10} + u^9 - 7u^8 - 8u^7 + 13u^6 + 14u^5 - 2u^4 + 2u^3 + 13u^2 + 12u + 4)^2$
c_5	$(u^{10} - 2u^9 + 3u^8 - 2u^7 + 4u^6 - 3u^5 + 3u^4 + 3u^2 - u + 1)^2$
c_7, c_9, c_{10} c_{12}	$u^{20} + 2u^{19} + \cdots + 4u + 17$
c_8, c_{11}	$u^{20} - 3u^{18} + \cdots + 35738u + 11449$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^{10} - y^9 + 10y^8 - 11y^7 + 26y^6 - 30y^5 + y^4 + 14y^3 + 3y^2 + 2y + 1)^2$
c_3, c_6	$(y^{10} - 15y^9 + \cdots - 40y + 16)^2$
c_5	$(y^{10} + 2y^9 + 9y^8 + 14y^7 + 28y^6 + 31y^5 + 35y^4 + 20y^3 + 15y^2 + 5y + 1)^2$
c_7, c_9, c_{10} c_{12}	$y^{20} + 6y^{19} + \cdots + 4064y + 289$
c_8, c_{11}	$y^{20} - 6y^{19} + \cdots + 896868864y + 131079601$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.155799 + 0.881795I$ $a = 3.18440 - 1.02398I$ $b = -0.413972 + 0.524496I$	$-5.18909 + 0.79591I$	$-0.779599 + 0.811554I$
$u = 0.155799 - 0.881795I$ $a = 3.18440 + 1.02398I$ $b = -0.413972 - 0.524496I$	$-5.18909 - 0.79591I$	$-0.779599 - 0.811554I$
$u = 0.074318 + 1.117810I$ $a = 3.33328 - 3.01725I$ $b = -0.413972 - 0.524496I$	$-5.18909 - 0.79591I$	$-0.779599 - 0.811554I$
$u = 0.074318 - 1.117810I$ $a = 3.33328 + 3.01725I$ $b = -0.413972 + 0.524496I$	$-5.18909 + 0.79591I$	$-0.779599 + 0.811554I$
$u = 0.922088 + 0.638802I$ $a = 0.862882 - 0.144749I$ $b = -0.793271 + 0.121626I$	$-3.70278 + 2.81207I$	$4.88002 - 4.64391I$
$u = 0.922088 - 0.638802I$ $a = 0.862882 + 0.144749I$ $b = -0.793271 - 0.121626I$	$-3.70278 - 2.81207I$	$4.88002 + 4.64391I$
$u = 0.027793 + 1.142750I$ $a = 0.806614 - 0.400008I$ $b = 0.620250 - 0.748934I$	$-2.14407 - 1.46073I$	$6.65931 + 3.28644I$
$u = 0.027793 - 1.142750I$ $a = 0.806614 + 0.400008I$ $b = 0.620250 + 0.748934I$	$-2.14407 + 1.46073I$	$6.65931 - 3.28644I$
$u = -1.218430 + 0.658057I$ $a = -0.880056 - 0.414251I$ $b = 1.96899 + 0.18613I$	$6.57160 + 0.50253I$	$5.49701 + 0.08773I$
$u = -1.218430 - 0.658057I$ $a = -0.880056 + 0.414251I$ $b = 1.96899 - 0.18613I$	$6.57160 - 0.50253I$	$5.49701 - 0.08773I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.03744 + 1.07526I$ $a = -0.710678 + 0.832607I$ $b = 1.96899 + 0.18613I$	$6.57160 + 0.50253I$	$5.49701 + 0.08773I$
$u = 1.03744 - 1.07526I$ $a = -0.710678 - 0.832607I$ $b = 1.96899 - 0.18613I$	$6.57160 - 0.50253I$	$5.49701 - 0.08773I$
$u = 1.37291 + 0.66267I$ $a = 0.885501 - 0.517371I$ $b = -1.88200 + 0.46774I$	$6.10927 - 7.40677I$	$4.74326 + 4.41038I$
$u = 1.37291 - 0.66267I$ $a = 0.885501 + 0.517371I$ $b = -1.88200 - 0.46774I$	$6.10927 + 7.40677I$	$4.74326 - 4.41038I$
$u = -0.09604 + 1.52972I$ $a = -0.0133270 - 0.1369840I$ $b = -0.793271 - 0.121626I$	$-3.70278 - 2.81207I$	$4.88002 + 4.64391I$
$u = -0.09604 - 1.52972I$ $a = -0.0133270 + 0.1369840I$ $b = -0.793271 + 0.121626I$	$-3.70278 + 2.81207I$	$4.88002 - 4.64391I$
$u = -0.138308 + 0.379907I$ $a = -2.22932 - 2.47499I$ $b = 0.620250 + 0.748934I$	$-2.14407 + 1.46073I$	$6.65931 - 3.28644I$
$u = -0.138308 - 0.379907I$ $a = -2.22932 + 2.47499I$ $b = 0.620250 - 0.748934I$	$-2.14407 - 1.46073I$	$6.65931 + 3.28644I$
$u = -1.13757 + 1.18122I$ $a = 0.848938 + 0.551739I$ $b = -1.88200 + 0.46774I$	$6.10927 - 7.40677I$	$4.74326 + 4.41038I$
$u = -1.13757 - 1.18122I$ $a = 0.848938 - 0.551739I$ $b = -1.88200 - 0.46774I$	$6.10927 + 7.40677I$	$4.74326 - 4.41038I$

III. $\boldsymbol{I_3^u = \langle b,\ -5u^2 + 4a + 3u - 11,\ u^3 + 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} \frac{5}{4}u^2 - \frac{3}{4}u + \frac{11}{4} \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{5}{4}u^2 - \frac{3}{4}u + \frac{11}{4} \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ -u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2 + u + 1 \\ u^2 + 2u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{4}u^2 - \frac{7}{4}u + \frac{7}{4} \\ -u^2 - 2u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 - u - 1 \\ -u^2 - 2u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 - u \\ u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{69}{16}u^2 + \frac{47}{16}u - \frac{7}{16}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = -0.048505 - 0.268962I$ $b = 0$	$-11.08570 + 5.13794I$	$9.29669 + 1.44162I$
$u = 0.22670 - 1.46771I$ $a = -0.048505 + 0.268962I$ $b = 0$	$-11.08570 - 5.13794I$	$9.29669 - 1.44162I$
$u = -0.453398$ $a = 3.34701$ $b = 0$	-0.857735	-2.65590

IV. $I_4^u = \langle -243a^4u+1435a^3u+\cdots+487a+424,\ -4a^4u+9a^3u+\cdots-6a^2+7a,\ u^2+1\rangle$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} a \\ 0.335172a^4u - 1.97931a^3u + \cdots - 0.671724a - 0.584828 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 0.104828a^4u + 0.179310a^3u + \cdots + 0.711724a + 0.664828 \\ -0.00275862a^4u + 0.668966a^3u + \cdots + 0.307586a - 1.32276 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.377931a^4u - 1.84828a^3u + \cdots + 0.0606897a - 0.582069 \\ 0.0124138a^4u - 0.710345a^3u + \cdots - 1.68414a + 1.65241 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.397241a^4u + 1.93103a^3u + \cdots + 2.69241a - 0.0772414 \\ 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.102069a^4u + 0.848276a^3u + \cdots + 1.01931a - 0.657931 \\ -0.00275862a^4u + 0.668966a^3u + \cdots + 0.307586a - 1.32276 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.263448a^4u + 1.78621a^3u + \cdots + 0.474483a - 0.223448 \\ 0.131034a^4u + 0.324138a^3u + \cdots + 1.28966a - 2.26897 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0468966a^4u + 0.827586a^3u + \cdots + 2.57103a + 0.286897 \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$$= -\tfrac{28}{725}a^4u - \tfrac{104}{725}a^4 + \tfrac{24}{145}a^3u + \tfrac{172}{145}a^3 + \tfrac{48}{725}a^2u - \tfrac{3136}{725}a^2 - \tfrac{1156}{725}au + \tfrac{3992}{725}a + \tfrac{2308}{725}u - \tfrac{3856}{725}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$
c_3	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)^2$
c_4	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)^2$
c_5	$u^{10} + u^8 + 8u^6 + 3u^4 + 3u^2 + 1$
c_6	$(u^5 + u^4 + 2u^3 + u^2 + u + 1)^2$
c_7, c_9, c_{10} c_{12}	$(u^2 + 1)^5$
c_8	$u^{10} + 2u^9 + \cdots + 96u + 32$
c_{11}	$u^{10} - 2u^9 + \cdots - 96u + 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$
c_3, c_6	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^2$
c_5	$(y^5 + y^4 + 8y^3 + 3y^2 + 3y + 1)^2$
c_7, c_9, c_{10} c_{12}	$(y+1)^{10}$
c_8, c_{11}	$y^{10} + 12y^8 - 592y^6 + 4096y^4 - 3840y^2 + 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.361438 - 0.927855I$ $b = -0.455697 - 1.200150I$	$-9.16243 + 4.40083I$	$-4.74431 - 3.49859I$
$u = 1.000000I$ $a = 0.331455 + 0.820551I$ $b = 0.339110 - 0.822375I$	$-3.61897 - 1.53058I$	$-0.51511 + 4.43065I$
$u = 1.000000I$ $a = 0.0768928 + 0.0902877I$ $b = -0.455697 + 1.200150I$	$-9.16243 - 4.40083I$	$-4.74431 + 3.49859I$
$u = 1.000000I$ $a = 1.43128 + 1.79928I$ $b = 0.339110 + 0.822375I$	$-3.61897 + 1.53058I$	$-0.51511 - 4.43065I$
$u = 1.000000I$ $a = 3.52181 + 2.21774I$ $b = -0.766826$	-5.69095	$-1.48114 + 0.I$
$u = -1.000000I$ $a = -0.361438 + 0.927855I$ $b = -0.455697 + 1.200150I$	$-9.16243 - 4.40083I$	$-4.74431 + 3.49859I$
$u = -1.000000I$ $a = 0.331455 - 0.820551I$ $b = 0.339110 + 0.822375I$	$-3.61897 + 1.53058I$	$-0.51511 - 4.43065I$
$u = -1.000000I$ $a = 0.0768928 - 0.0902877I$ $b = -0.455697 - 1.200150I$	$-9.16243 + 4.40083I$	$-4.74431 - 3.49859I$
$u = -1.000000I$ $a = 1.43128 - 1.79928I$ $b = 0.339110 - 0.822375I$	$-3.61897 - 1.53058I$	$-0.51511 + 4.43065I$
$u = -1.000000I$ $a = 3.52181 - 2.21774I$ $b = -0.766826$	-5.69095	$-1.48114 + 0.I$

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

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -u^3 - u \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3 - u \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u^3 + u^2 - 2u + 2 \\ u^3 + u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 + u - 2 \\ -u^3 - u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 - u^2 + 2u - 2 \\ -u^3 - u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 - 2u + 1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -0.500000 - 0.866025I$ $b = 0$	$-4.93480 + 2.02988I$	$1.0000 - 3.46410I$
$u = 0.621744 - 0.440597I$ $a = -0.500000 + 0.866025I$ $b = 0$	$-4.93480 - 2.02988I$	$1.0000 + 3.46410I$
$u = -0.121744 + 1.306620I$ $a = -0.500000 + 0.866025I$ $b = 0$	$-4.93480 - 2.02988I$	$1.00000 + 3.46410I$
$u = -0.121744 - 1.306620I$ $a = -0.500000 - 0.866025I$ $b = 0$	$-4.93480 + 2.02988I$	$1.00000 - 3.46410I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^7(u^5+u^4-2u^3-u^2+u-1)^2$ $\cdot(u^{10}-3u^9+4u^8+u^7-6u^6+6u^5+u^4-2u^3+3u^2-2u+1)^2$ $\cdot(u^{22}-4u^{21}+\cdots+225u-16)$
c_3	$u^7(u^5-u^4+2u^3-u^2+u-1)^2$ $\cdot(u^{10}+u^9-7u^8-8u^7+13u^6+14u^5-2u^4+2u^3+13u^2+12u+4)^2$ $\cdot(u^{22}+3u^{21}+\cdots-432u+128)$
c_4	$(u+1)^7(u^5-u^4-2u^3+u^2+u+1)^2$ $\cdot(u^{10}-3u^9+4u^8+u^7-6u^6+6u^5+u^4-2u^3+3u^2-2u+1)^2$ $\cdot(u^{22}-4u^{21}+\cdots+225u-16)$
c_5	$(u^2-u+1)^2(u^3+3u^2+5u+2)(u^{10}+u^8+8u^6+3u^4+3u^2+1)$ $\cdot(u^{10}-2u^9+3u^8-2u^7+4u^6-3u^5+3u^4+3u^2-u+1)^2$ $\cdot(u^{22}+6u^{21}+\cdots-12u-4)$
c_6	$u^7(u^5+u^4+2u^3+u^2+u+1)^2$ $\cdot(u^{10}+u^9-7u^8-8u^7+13u^6+14u^5-2u^4+2u^3+13u^2+12u+4)^2$ $\cdot(u^{22}+3u^{21}+\cdots-432u+128)$
c_7, c_9	$(u^2+1)^5(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(u^{20}+2u^{19}+\cdots+4u+17)(u^{22}+3u^{20}+\cdots-u+1)$
c_8	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{10}+2u^9+\cdots+96u+32)$ $\cdot(u^{20}-3u^{18}+\cdots+35738u+11449)(u^{22}-14u^{20}+\cdots-160u-32)$
c_{10}, c_{12}	$(u^2+1)^5(u^3+2u-1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{20}+2u^{19}+\cdots+4u+17)(u^{22}+3u^{20}+\cdots-u+1)$
c_{11}	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{10}-2u^9+\cdots-96u+32)$ $\cdot(u^{20}-3u^{18}+\cdots+35738u+11449)(u^{22}-14u^{20}+\cdots-160u-32)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^7(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot\,(y^{10}-y^9+10y^8-11y^7+26y^6-30y^5+y^4+14y^3+3y^2+2y+1)^2$ $\cdot\,(y^{22}-12y^{21}+\cdots-52961y+256)$
c_3, c_6	$y^7(y^5+3y^4+\cdots-y-1)^2(y^{10}-15y^9+\cdots-40y+16)^2$ $\cdot\,(y^{22}-9y^{21}+\cdots-181504y+16384)$
c_5	$(y^2+y+1)^2(y^3+y^2+13y-4)(y^5+y^4+8y^3+3y^2+3y+1)^2$ $\cdot\,(y^{10}+2y^9+9y^8+14y^7+28y^6+31y^5+35y^4+20y^3+15y^2+5y+1)^2$ $\cdot\,(y^{22}+4y^{21}+\cdots-56y+16)$
c_7, c_9, c_{10} c_{12}	$(y+1)^{10}(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot\,(y^{20}+6y^{19}+\cdots+4064y+289)(y^{22}+6y^{21}+\cdots+5y+1)$
c_8, c_{11}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot\,(y^{10}+12y^8-592y^6+4096y^4-3840y^2+1024)$ $\cdot\,(y^{20}-6y^{19}+\cdots+896868864y+131079601)$ $\cdot\,(y^{22}-28y^{21}+\cdots-25600y+1024)$