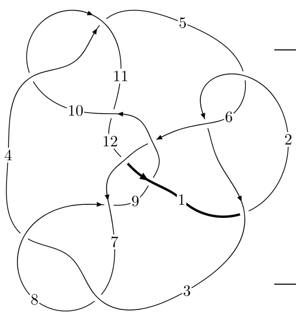
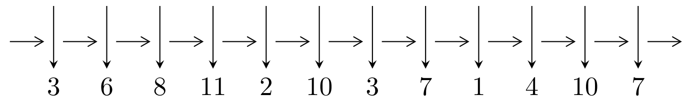
$12n_{0417}$ ($K12n_{0417}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 536u^{11} - 335u^{10} + \cdots + 239b + 523,\ -947u^{11} + 562u^{10} + \cdots + 239a - 1324,$$
$$u^{12} - 4u^{10} + 13u^8 - 2u^7 - 24u^6 - 3u^5 + 18u^4 + 3u^3 - 7u^2 - u + 1\rangle$$
$$I_2^u = \langle u^6 - 3u^4 + 3u^2 + b + u - 1,\ -u^6 + u^5 + 4u^4 - 3u^3 - 5u^2 + a + 2u + 3,\ u^7 - 4u^5 + 6u^3 + u^2 - 4u - 1\rangle$$
$$I_3^u = \langle 68215362482207u^{19} + 127486835274380u^{18} + \cdots + 1057281252711b + 705066157444833,$$
$$298873575023330u^{19} + 558685165549478u^{18} + \cdots + 3171843758133a + 3089653339595532,$$
$$u^{20} + u^{19} + \cdots + 18u - 9\rangle$$
$$I_4^u = \langle u^6 - 3u^4 - u^3 + 2u^2 + b - 2,\ -u^7 + 3u^5 + u^4 - 2u^3 + u^2 + a + 2u - 2,\ u^8 - 4u^6 - u^5 + 5u^4 + u^3 - 4u^2 + 1$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 47 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. $\boldsymbol{I^u_1 = \langle 536u^{11} - 335u^{10} + \cdots + 239b + 523,\ -947u^{11} + 562u^{10} + \cdots + 239a - 1324,\ u^{12} - 4u^{10} + \cdots - u + 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_{10} = \begin{pmatrix} 3.96234u^{11} - 2.35146u^{10} + \cdots - 11.8033u + 5.53975 \\ -2.24268u^{11} + 1.40167u^{10} + \cdots + 5.48954u - 2.18828 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 3.96234u^{11} - 2.35146u^{10} + \cdots - 11.8033u + 5.53975 \\ -2.24268u^{11} + 1.40167u^{10} + \cdots + 5.48954u - 2.18828 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.35146u^{11} - 1.71967u^{10} + \cdots - 10.5021u + 3.96234 \\ -1.40167u^{11} + 1.25105u^{10} + \cdots + 5.43096u - 2.24268 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.589958u^{11} - 0.493724u^{10} + \cdots + 1.58577u + 0.543933 \\ 2.71130u^{11} - 1.69456u^{10} + \cdots - 8.15900u + 3.13808 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 3.23431u^{11} - 2.14644u^{10} + \cdots - 7.33473u + 3.97490 \\ 0.974895u^{11} - 0.234310u^{10} + \cdots - 3.53556u + 1.35983 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 3.23431u^{11} - 2.14644u^{10} + \cdots - 7.33473u + 3.97490 \\ -0.991632u^{11} + 0.744770u^{10} + \cdots + 1.84519u - 0.786611 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 2.24268u^{11} - 1.40167u^{10} + \cdots - 5.48954u + 3.18828 \\ -0.991632u^{11} + 0.744770u^{10} + \cdots + 1.84519u - 0.786611 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1675}{239}u^{11} + \frac{1734}{239}u^{10} + \frac{5437}{239}u^9 - \frac{5818}{239}u^8 - \frac{17601}{239}u^7 + \frac{22148}{239}u^6 + \frac{23370}{239}u^5 - \frac{22069}{239}u^4 - \frac{17044}{239}u^3 + \frac{13395}{239}u^2 + \frac{5056}{239}u - \frac{6743}{239}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} + 6u^{11} + \cdots + 848u + 64$
c_2, c_5	$u^{12} + 8u^{11} + \cdots + 52u + 8$
c_3, c_4, c_7 c_{10}	$u^{12} - 4u^{10} + 13u^8 + 2u^7 - 24u^6 + 3u^5 + 18u^4 - 3u^3 - 7u^2 + u + 1$
c_6, c_9	$u^{12} + u^{11} + \cdots + 8u + 1$
c_8, c_{11}	$u^{12} + 8u^{11} + \cdots + 15u + 1$
c_{12}	$u^{12} + 10u^{11} + \cdots - 196u - 20$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} + 18y^{11} + \cdots - 419072y + 4096$
c_2, c_5	$y^{12} - 6y^{11} + \cdots - 848y + 64$
c_3, c_4, c_7 c_{10}	$y^{12} - 8y^{11} + \cdots - 15y + 1$
c_6, c_9	$y^{12} + 11y^{11} + \cdots - 16y + 1$
c_8, c_{11}	$y^{12} + 20y^{11} + \cdots - 43y + 1$
c_{12}	$y^{12} - 40y^{11} + \cdots - 4496y + 400$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.790520 + 0.392533I$ $a = -0.333077 - 0.431942I$ $b = 0.908183 + 0.435278I$	$-3.78101 + 0.45111I$	$-18.5516 - 2.4488I$
$u = -0.790520 - 0.392533I$ $a = -0.333077 + 0.431942I$ $b = 0.908183 - 0.435278I$	$-3.78101 - 0.45111I$	$-18.5516 + 2.4488I$
$u = -0.736086 + 0.101541I$ $a = 1.55509 + 1.56812I$ $b = 0.505873 - 0.967109I$	$-0.21900 + 4.19269I$	$-13.9112 - 5.3421I$
$u = -0.736086 - 0.101541I$ $a = 1.55509 - 1.56812I$ $b = 0.505873 + 0.967109I$	$-0.21900 - 4.19269I$	$-13.9112 + 5.3421I$
$u = 0.653112 + 0.249393I$ $a = 1.71916 - 0.21403I$ $b = -0.023047 + 0.696086I$	$-0.134851 + 0.667722I$	$-12.59936 + 0.82514I$
$u = 0.653112 - 0.249393I$ $a = 1.71916 + 0.21403I$ $b = -0.023047 - 0.696086I$	$-0.134851 - 0.667722I$	$-12.59936 - 0.82514I$
$u = 1.54915$ $a = -0.373370$ $b = 0.477327$	-15.2923	-6.68440
$u = 0.403757$ $a = 0.897573$ $b = 0.248749$	-0.603932	-16.3720
$u = -1.36080 + 0.93328I$ $a = -0.627613 - 0.831271I$ $b = -1.09936 + 1.61015I$	$5.78267 + 12.88920I$	$-12.7241 - 6.3496I$
$u = -1.36080 - 0.93328I$ $a = -0.627613 + 0.831271I$ $b = -1.09936 - 1.61015I$	$5.78267 - 12.88920I$	$-12.7241 + 6.3496I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.25783 + 1.10048I$ $a = -0.575658 + 0.547864I$ $b = -0.15469 - 1.93823I$	$7.12277 - 3.83904I$	$-10.68570 + 2.08253I$
$u = \quad 1.25783 - 1.10048I$ $a = -0.575658 - 0.547864I$ $b = -0.15469 + 1.93823I$	$7.12277 + 3.83904I$	$-10.68570 - 2.08253I$

II. $\boldsymbol{I_2^u = \langle u^6 - 3u^4 + 3u^2 + b + u - 1,\ -u^6 + u^5 + 4u^4 - 3u^3 - 5u^2 + a + 2u + 3,\ u^7 - 4u^5 + 6u^3 + u^2 - 4u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^6 + 4u^5 + 13u^4 - 10u^3 - 11u^2 + 4u - 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^7 - 7u^6 + 21u^5 - 37u^4 + 37u^3 - 24u^2 + 9u - 1$
c_2	$u^7 + u^6 - 3u^5 - 5u^4 + u^3 + 4u^2 + u - 1$
c_3, c_{10}	$u^7 - 4u^5 + 6u^3 - u^2 - 4u + 1$
c_4, c_7	$u^7 - 4u^5 + 6u^3 + u^2 - 4u - 1$
c_5	$u^7 - u^6 - 3u^5 + 5u^4 + u^3 - 4u^2 + u + 1$
c_6, c_9	$u^7 + u^6 + u^4 - u^3 - u^2 - u - 1$
c_8, c_{11}	$u^7 + 8u^6 + 28u^5 + 56u^4 + 68u^3 + 49u^2 + 18u + 1$
c_{12}	$u^7 + 7u^6 + 17u^5 + 30u^4 + 45u^3 + 27u^2 + 6u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^7 - 7y^6 - 3y^5 - 133y^4 - 43y^3 + 16y^2 + 33y - 1$
c_2, c_5	$y^7 - 7y^6 + 21y^5 - 37y^4 + 37y^3 - 24y^2 + 9y - 1$
c_3, c_4, c_7 c_{10}	$y^7 - 8y^6 + 28y^5 - 56y^4 + 68y^3 - 49y^2 + 18y - 1$
c_6, c_9	$y^7 - y^6 - 4y^5 - y^4 + 5y^3 + 3y^2 - y - 1$
c_8, c_{11}	$y^7 - 8y^6 + 24y^5 - 76y^4 + 128y^3 - 65y^2 + 226y - 1$
c_{12}	$y^7 - 15y^6 - 41y^5 + 264y^4 + 553y^3 - 429y^2 - 180y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.970575 + 0.467764I$ $a = 0.61390 + 1.62676I$ $b = 0.307176 - 1.007690I$	$-0.15907 + 5.95632I$	$-10.30399 - 9.49474I$
$u = -0.970575 - 0.467764I$ $a = 0.61390 - 1.62676I$ $b = 0.307176 + 1.007690I$	$-0.15907 - 5.95632I$	$-10.30399 + 9.49474I$
$u = 1.28252$ $a = -0.853969$ $b = -1.55070$	-9.96367	-15.2580
$u = 1.219310 + 0.473158I$ $a = 0.831288 - 0.514652I$ $b = -0.187678 + 0.823913I$	$-1.96867 - 1.64297I$	$-12.60937 + 1.83263I$
$u = 1.219310 - 0.473158I$ $a = 0.831288 + 0.514652I$ $b = -0.187678 - 0.823913I$	$-1.96867 + 1.64297I$	$-12.60937 - 1.83263I$
$u = -1.52200$ $a = 0.182606$ $b = -0.759603$	-15.6521	-29.3740
$u = -0.257994$ $a = -2.21901$ $b = 1.07131$	-3.02746	-9.54090

III.
$\boldsymbol{I_3^u = \langle 6.82\times10^{13}u^{19}+1.27\times10^{14}u^{18}+\cdots+1.06\times10^{12}b+7.05\times10^{14},\ 2.99\times10^{14}u^{19}+5.59\times10^{14}u^{18}+\cdots+3.17\times10^{12}a+3.09\times10^{15},\ u^{20}+u^{19}+\cdots+18u-9\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-94.2271u^{19}-176.139u^{18}+\cdots+828.728u-974.087\\-64.5196u^{19}-120.580u^{18}+\cdots+565.622u-666.867\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-27.9506u^{19}-52.2643u^{18}+\cdots+246.326u-288.781\\-80.6876u^{19}-150.746u^{18}+\cdots+707.746u-833.790\end{pmatrix}$$
$$a_5 = \begin{pmatrix}4.98357u^{19}+9.51307u^{18}+\cdots-45.9289u+48.9194\\-99.9143u^{19}-186.269u^{18}+\cdots+873.984u-1037.72\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-68.8452u^{19}-128.348u^{18}+\cdots+604.749u-717.167\\-76.2363u^{19}-142.302u^{18}+\cdots+674.421u-794.311\end{pmatrix}$$
$$a_2 = \begin{pmatrix}69.0216u^{19}+129.223u^{18}+\cdots-608.826u+712.093\\105.226u^{19}+196.557u^{18}+\cdots-922.384u+1090.86\end{pmatrix}$$
$$a_1 = \begin{pmatrix}69.0216u^{19}+129.223u^{18}+\cdots-608.826u+712.093\\52.6964u^{19}+98.1510u^{18}+\cdots-459.959u+549.054\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}121.718u^{19}+227.374u^{18}+\cdots-1068.79u+1261.15\\52.6964u^{19}+98.1510u^{18}+\cdots-459.959u+549.054\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{128749727823573}{352427084237}u^{19} - \frac{240297448875642}{352427084237}u^{18} + \cdots + \frac{11274844403652596}{352427084237}u - \frac{13387357904875\,57}{352427084237}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{10}+u^9+8u^8+12u^7-8u^6-6u^5-4u^4+21u^3+21u^2+14u+1)^2$
c_2, c_5	$(u^{10}-3u^9+4u^8-2u^7+2u^6-4u^5-u^3+5u^2-2u-1)^2$
c_3, c_4, c_7 c_{10}	$u^{20}-u^{19}+\cdots-18u-9$
c_6, c_9	$u^{20}-3u^{19}+\cdots-6u-1$
c_8, c_{11}	$u^{20}+5u^{19}+\cdots+576u+81$
c_{12}	$(u^{10}-4u^9-u^8+23u^7-31u^6+7u^5+6u^4+4u^3-10u^2+5u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10} + 15y^9 + \cdots - 154y + 1)^2$
c_2, c_5	$(y^{10} - y^9 + 8y^8 - 12y^7 - 8y^6 + 6y^5 - 4y^4 - 21y^3 + 21y^2 - 14y + 1)^2$
c_3, c_4, c_7 c_{10}	$y^{20} - 5y^{19} + \cdots - 576y + 81$
c_6, c_9	$y^{20} + 9y^{19} + \cdots + 144y + 1$
c_8, c_{11}	$y^{20} + 7y^{19} + \cdots - 23004y + 6561$
c_{12}	$(y^{10} - 18y^9 + \cdots - 5y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.388171 + 0.947508I$ $a = 0.0090099 + 0.1229930I$ $b = -1.35420 + 0.42025I$	$2.99056 - 3.56450I$	$-10.26354 + 3.14852I$
$u = 0.388171 - 0.947508I$ $a = 0.0090099 - 0.1229930I$ $b = -1.35420 - 0.42025I$	$2.99056 + 3.56450I$	$-10.26354 - 3.14852I$
$u = -0.992473 + 0.348531I$ $a = 0.17968 + 1.68020I$ $b = 0.0378360 - 0.0943430I$	$-1.26454 + 5.52673I$	$-18.1850 - 5.9531I$
$u = -0.992473 - 0.348531I$ $a = 0.17968 - 1.68020I$ $b = 0.0378360 + 0.0943430I$	$-1.26454 - 5.52673I$	$-18.1850 + 5.9531I$
$u = 0.872812 + 0.011238I$ $a = 1.102060 - 0.425174I$ $b = 0.274355 - 0.471998I$	$-0.136787 - 0.639555I$	$-12.53187 - 0.40948I$
$u = 0.872812 - 0.011238I$ $a = 1.102060 + 0.425174I$ $b = 0.274355 + 0.471998I$	$-0.136787 + 0.639555I$	$-12.53187 + 0.40948I$
$u = 0.866881$ $a = -1.65529$ $b = -1.53301$	-12.1512	-23.7630
$u = 1.001390 + 0.640706I$ $a = 0.418488 - 1.217960I$ $b = 0.531023 + 1.236570I$	$-1.26454 - 5.52673I$	$-18.1850 + 5.9531I$
$u = 1.001390 - 0.640706I$ $a = 0.418488 + 1.217960I$ $b = 0.531023 - 1.236570I$	$-1.26454 + 5.52673I$	$-18.1850 - 5.9531I$
$u = 0.468108 + 0.513336I$ $a = 1.40798 - 1.10900I$ $b = -0.102915 + 0.895664I$	$-0.136787 + 0.639555I$	$-12.53187 + 0.40948I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.468108 - 0.513336I$ $a = 1.40798 + 1.10900I$ $b = -0.102915 - 0.895664I$	$-0.136787 - 0.639555I$	$-12.53187 - 0.40948I$
$u = -0.605174$ $a = 0.762515$ $b = 1.92560$	-7.31763	-2.93760
$u = -1.07994 + 0.93851I$ $a = 0.617818 + 0.827405I$ $b = 0.59658 - 1.52167I$	$2.99056 + 3.56450I$	$-10.26354 - 3.14852I$
$u = -1.07994 - 0.93851I$ $a = 0.617818 - 0.827405I$ $b = 0.59658 + 1.52167I$	$2.99056 - 3.56450I$	$-10.26354 + 3.14852I$
$u = -1.45778$ $a = -1.23121$ $b = -0.970112$	-7.31763	-2.93760
$u = 0.91975 + 1.23722I$ $a = -0.446520 + 0.963248I$ $b = -0.95499 - 1.76369I$	$8.14515 - 4.60681I$	$-10.16934 + 2.47582I$
$u = 0.91975 - 1.23722I$ $a = -0.446520 - 0.963248I$ $b = -0.95499 + 1.76369I$	$8.14515 + 4.60681I$	$-10.16934 - 2.47582I$
$u = -0.63701 + 1.40514I$ $a = -0.447242 - 0.786229I$ $b = 0.22554 + 1.94609I$	$8.14515 - 4.60681I$	$-10.16934 + 2.47582I$
$u = -0.63701 - 1.40514I$ $a = -0.447242 + 0.786229I$ $b = 0.22554 - 1.94609I$	$8.14515 + 4.60681I$	$-10.16934 - 2.47582I$
$u = -1.68554$ $a = -0.225221$ $b = -0.928948$	-12.1512	-23.7630

IV. $\boldsymbol{I_4^u = \langle u^6 - 3u^4 - u^3 + 2u^2 + b - 2,\ -u^7 + 3u^5 + u^4 - 2u^3 + u^2 + a + 2u - 2,\ u^8 - 4u^6 - u^5 + 5u^4 + u^3 - 4u^2 + 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_{10} = \begin{pmatrix} u^7 - 3u^5 - u^4 + 2u^3 - u^2 - 2u + 2 \\ -u^6 + 3u^4 + u^3 - 2u^2 + 2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^7 - 3u^5 - u^4 + 2u^3 - u^2 - 2u + 1 \\ -u^6 + 3u^4 + u^3 - 3u^2 + 3 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^7 - u^6 - 4u^5 + 2u^4 + 6u^3 - u^2 - 4u + 2 \\ 3u^7 - 11u^5 - 3u^4 + 11u^3 + 2u^2 - 8u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2u^7 + 7u^5 + 2u^4 - 6u^3 - u^2 + 4u - 1 \\ u^7 + 2u^6 - 3u^5 - 8u^4 + 6u^2 - u - 4 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^7 + u^6 + 4u^5 - 3u^4 - 6u^3 + 4u^2 + 5u - 3 \\ u^6 - 4u^4 - u^3 + 5u^2 + 2u - 4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^7 + u^6 + 4u^5 - 3u^4 - 6u^3 + 4u^2 + 5u - 3 \\ u^6 - 4u^4 - u^3 + 4u^2 + u - 3 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -u^7 + 2u^6 + 4u^5 - 7u^4 - 7u^3 + 8u^2 + 6u - 6 \\ u^6 - 4u^4 - u^3 + 4u^2 + u - 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 15u^7 + 5u^6 - 53u^5 - 35u^4 + 49u^3 + 28u^2 - 33u - 25$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4 - 4u^3 + 6u^2 - 5u + 1)^2$
c_2	$(u^4 - 2u^2 + u + 1)^2$
c_3, c_{10}	$u^8 - 4u^6 + u^5 + 5u^4 - u^3 - 4u^2 + 1$
c_4, c_7	$u^8 - 4u^6 - u^5 + 5u^4 + u^3 - 4u^2 + 1$
c_5	$(u^4 - 2u^2 - u + 1)^2$
c_6, c_9	$u^8 - 4u^7 + 5u^6 - u^5 - 4u^4 + 5u^3 - 2u^2 + 1$
c_8, c_{11}	$u^8 + 8u^7 + 26u^6 + 49u^5 + 61u^4 + 49u^3 + 26u^2 + 8u + 1$
c_{12}	$(u^4 - 4u^3 + 4u^2 - u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4-4y^3-2y^2-13y+1)^2$
c_2, c_5	$(y^4-4y^3+6y^2-5y+1)^2$
c_3, c_4, c_7 c_{10}	$y^8-8y^7+26y^6-49y^5+61y^4-49y^3+26y^2-8y+1$
c_6, c_9	$y^8-6y^7+9y^6-5y^5+8y^4+y^3-4y^2-4y+1$
c_8, c_{11}	$y^8-12y^7+14y^6+39y^5+145y^4+39y^3+14y^2-12y+1$
c_{12}	$(y^4-8y^3+10y^2+7y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.744022 + 0.443105I$ $a = 1.42333 - 1.57383I$ $b = 0.758066 + 0.777626I$	$-0.24852 - 1.96274I$	$-13.4834 + 4.4361I$
$u = 0.744022 - 0.443105I$ $a = 1.42333 + 1.57383I$ $b = 0.758066 - 0.777626I$	$-0.24852 + 1.96274I$	$-13.4834 - 4.4361I$
$u = -0.992148 + 0.590877I$ $a = 1.145330 + 0.258001I$ $b = 0.241934 - 0.777626I$	$-0.24852 - 1.96274I$	$-13.4834 + 4.4361I$
$u = -0.992148 - 0.590877I$ $a = 1.145330 - 0.258001I$ $b = 0.241934 + 0.777626I$	$-0.24852 + 1.96274I$	$-13.4834 - 4.4361I$
$u = 0.701343$ $a = 0.127840$ $b = 1.96805$	-7.58970	-33.0820
$u = -1.42584$ $a = -1.41328$ $b = -0.968048$	-7.58970	-33.0820
$u = -0.561188$ $a = 2.50424$ $b = 1.45971$	-11.6525	-6.95090
$u = 1.78193$ $a = -0.356111$ $b = -0.459710$	-11.6525	-6.95090

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4-4u^3+6u^2-5u+1)^2$ $\cdot(u^7-7u^6+21u^5-37u^4+37u^3-24u^2+9u-1)$ $\cdot(u^{10}+u^9+8u^8+12u^7-8u^6-6u^5-4u^4+21u^3+21u^2+14u+1)^2$ $\cdot(u^{12}+6u^{11}+\cdots+848u+64)$
c_2	$(u^4-2u^2+u+1)^2(u^7+u^6-3u^5-5u^4+u^3+4u^2+u-1)$ $\cdot(u^{10}-3u^9+4u^8-2u^7+2u^6-4u^5-u^3+5u^2-2u-1)^2$ $\cdot(u^{12}+8u^{11}+\cdots+52u+8)$
c_3, c_{10}	$(u^7-4u^5+6u^3-u^2-4u+1)(u^8-4u^6+u^5+5u^4-u^3-4u^2+1)$ $\cdot(u^{12}-4u^{10}+13u^8+2u^7-24u^6+3u^5+18u^4-3u^3-7u^2+u+1)$ $\cdot(u^{20}-u^{19}+\cdots-18u-9)$
c_4, c_7	$(u^7-4u^5+6u^3+u^2-4u-1)(u^8-4u^6-u^5+5u^4+u^3-4u^2+1)$ $\cdot(u^{12}-4u^{10}+13u^8+2u^7-24u^6+3u^5+18u^4-3u^3-7u^2+u+1)$ $\cdot(u^{20}-u^{19}+\cdots-18u-9)$
c_5	$(u^4-2u^2-u+1)^2(u^7-u^6-3u^5+5u^4+u^3-4u^2+u+1)$ $\cdot(u^{10}-3u^9+4u^8-2u^7+2u^6-4u^5-u^3+5u^2-2u-1)^2$ $\cdot(u^{12}+8u^{11}+\cdots+52u+8)$
c_6, c_9	$(u^7+u^6+u^4-u^3-u^2-u-1)(u^8-4u^7+\cdots-2u^2+1)$ $\cdot(u^{12}+u^{11}+\cdots+8u+1)(u^{20}-3u^{19}+\cdots-6u-1)$
c_8, c_{11}	$(u^7+8u^6+28u^5+56u^4+68u^3+49u^2+18u+1)$ $\cdot(u^8+8u^7+26u^6+49u^5+61u^4+49u^3+26u^2+8u+1)$ $\cdot(u^{12}+8u^{11}+\cdots+15u+1)(u^{20}+5u^{19}+\cdots+576u+81)$
c_{12}	$(u^4-4u^3+4u^2-u+1)^2$ $\cdot(u^7+7u^6+17u^5+30u^4+45u^3+27u^2+6u+4)$ $\cdot(u^{10}-4u^9-u^8+23u^7-31u^6+7u^5+6u^4+4u^3-10u^2+5u-1)^2$ $\cdot(u^{12}+10u^{11}+\cdots-196u-20)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^4 - 4y^3 - 2y^2 - 13y + 1)^2$ $\cdot (y^7 - 7y^6 - 3y^5 - 133y^4 - 43y^3 + 16y^2 + 33y - 1)$ $\cdot (y^{10} + 15y^9 + \cdots - 154y + 1)^2$ $\cdot (y^{12} + 18y^{11} + \cdots - 419072y + 4096)$
c_2, c_5	$(y^4 - 4y^3 + 6y^2 - 5y + 1)^2$ $\cdot (y^7 - 7y^6 + 21y^5 - 37y^4 + 37y^3 - 24y^2 + 9y - 1)$ $\cdot (y^{10} - y^9 + 8y^8 - 12y^7 - 8y^6 + 6y^5 - 4y^4 - 21y^3 + 21y^2 - 14y + 1)^2$ $\cdot (y^{12} - 6y^{11} + \cdots - 848y + 64)$
c_3, c_4, c_7 c_{10}	$(y^7 - 8y^6 + 28y^5 - 56y^4 + 68y^3 - 49y^2 + 18y - 1)$ $\cdot (y^8 - 8y^7 + 26y^6 - 49y^5 + 61y^4 - 49y^3 + 26y^2 - 8y + 1)$ $\cdot (y^{12} - 8y^{11} + \cdots - 15y + 1)(y^{20} - 5y^{19} + \cdots - 576y + 81)$
c_6, c_9	$(y^7 - y^6 - 4y^5 - y^4 + 5y^3 + 3y^2 - y - 1)$ $\cdot (y^8 - 6y^7 + 9y^6 - 5y^5 + 8y^4 + y^3 - 4y^2 - 4y + 1)$ $\cdot (y^{12} + 11y^{11} + \cdots - 16y + 1)(y^{20} + 9y^{19} + \cdots + 144y + 1)$
c_8, c_{11}	$(y^7 - 8y^6 + 24y^5 - 76y^4 + 128y^3 - 65y^2 + 226y - 1)$ $\cdot (y^8 - 12y^7 + 14y^6 + 39y^5 + 145y^4 + 39y^3 + 14y^2 - 12y + 1)$ $\cdot (y^{12} + 20y^{11} + \cdots - 43y + 1)(y^{20} + 7y^{19} + \cdots - 23004y + 6561)$
c_{12}	$(y^4 - 8y^3 + 10y^2 + 7y + 1)^2$ $\cdot (y^7 - 15y^6 - 41y^5 + 264y^4 + 553y^3 - 429y^2 - 180y - 16)$ $\cdot ((y^{10} - 18y^9 + \cdots - 5y + 1)^2)(y^{12} - 40y^{11} + \cdots - 4496y + 400)$