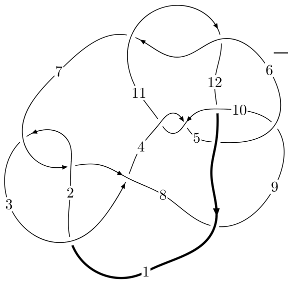
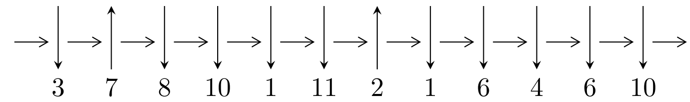
$12n_{0551}$ ($K12n_{0551}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 3u^{30} - 13u^{29} + \cdots + 2b - 2,\ -7u^{30} + 37u^{29} + \cdots + 4a - 40,\ u^{31} - 5u^{30} + \cdots + 26u - 4 \rangle \\
I_2^u &= \langle u^{18} - u^{17} + \cdots + b - 2,\ u^{18} + 2u^{17} + \cdots + a + 1, \\
&\quad u^{19} + 5u^{17} + 13u^{15} + 20u^{13} + 20u^{11} + 13u^9 + u^8 + 7u^7 + 2u^6 + 4u^5 + 3u^4 + 2u^3 + 2u^2 + 1 \rangle \\
I_3^u &= \langle 758a^3u^3 - 3539u^3a^2 + \cdots + 1193a - 9295, \\
&\quad a^3u^3 + a^3u^2 - 2u^3a^2 + a^4 + a^3u - a^2u^2 - a^3 + a^2u - 2u^2a + u^3 - a^2 + 3au + 9u^2 + 3a - 7u + 2, \\
&\quad u^4 + u^2 - u + 1 \rangle \\
I_4^u &= \langle -18352u^5a^3 + 13327u^5a^2 + \cdots + 704a - 29929,\ u^5a^2 + u^5a + \cdots + a^4 + a^3, \\
&\quad u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 90 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. $\boldsymbol{I_1^u = \langle 3u^{30} - 13u^{29} + \cdots + 2b - 2,\ -7u^{30} + 37u^{29} + \cdots + 4a - 40,\ u^{31} - 5u^{30} + \cdots + 26u - 4\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^8 + u^6 + u^4 + 1 \\ u^{10} + 2u^8 + 3u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{7}{4}u^{30} - \frac{37}{4}u^{29} + \cdots - \frac{223}{4}u + 10 \\ -\frac{3}{2}u^{30} + \frac{13}{2}u^{29} + \cdots + \frac{9}{2}u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{30} + \frac{1}{2}u^{28} + \cdots - 22u + \frac{9}{2} \\ -\frac{5}{2}u^{30} + \frac{25}{2}u^{29} + \cdots + \frac{139}{2}u - 12 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{3}{2}u^{30} - 8u^{29} + \cdots - 48u + \frac{17}{2} \\ -\frac{1}{2}u^{30} + \frac{5}{2}u^{29} + \cdots + \frac{21}{2}u - 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{11}{4}u^{30} - \frac{49}{4}u^{29} + \cdots - \frac{223}{4}u + 10 \\ -\frac{5}{2}u^{30} + \frac{19}{2}u^{29} + \cdots + \frac{29}{2}u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u^{30} - 5u^{29} + \cdots - 48u + \frac{17}{2} \\ -\frac{1}{2}u^{30} + \frac{7}{2}u^{29} + \cdots - \frac{3}{2}u + 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -3u^{30}+11u^{29}-40u^{28}+89u^{27}-194u^{26}+336u^{25}-572u^{24}+853u^{23}-1224u^{22}+1607u^{21}-2012u^{20}+2378u^{19}-2693u^{18}+2898u^{17}-3000u^{16}+2942u^{15}-2813u^{14}+2557u^{13}-2256u^{12}+1890u^{11}-1511u^{10}+1161u^9-859u^8+595u^7-400u^6+233u^5-122u^4+58u^3-13u^2+6u-14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{31} + 15u^{30} + \cdots + 12u - 16$
c_2, c_7	$u^{31} + 5u^{30} + \cdots + 26u + 4$
c_3	$u^{31} - 5u^{30} + \cdots - 240u + 32$
c_4, c_6, c_{10} c_{11}	$u^{31} + 7u^{29} + \cdots + 3u + 1$
c_5, c_9	$u^{31} + u^{30} + \cdots + 4u + 1$
c_8	$u^{31} + 25u^{30} + \cdots + 101226u + 9028$
c_{12}	$u^{31} - 24u^{30} + \cdots - 9728u + 1024$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{31} + 3y^{30} + \cdots + 5360y - 256$
c_2, c_7	$y^{31} + 15y^{30} + \cdots + 12y - 16$
c_3	$y^{31} - 9y^{30} + \cdots + 29696y - 1024$
c_4, c_6, c_{10} c_{11}	$y^{31} + 14y^{30} + \cdots - 11y - 1$
c_5, c_9	$y^{31} - 49y^{30} + \cdots + 50y - 1$
c_8	$y^{31} + 3y^{30} + \cdots - 146312468y - 81504784$
c_{12}	$y^{31} - 18y^{30} + \cdots + 4980736y - 1048576$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.721636 + 0.688504I$ $a = 0.652136 - 0.856774I$ $b = -0.153998 + 0.558335I$	$0.12057 - 7.84511I$	$-4.92980 + 6.31603I$
$u = -0.721636 - 0.688504I$ $a = 0.652136 + 0.856774I$ $b = -0.153998 - 0.558335I$	$0.12057 + 7.84511I$	$-4.92980 - 6.31603I$
$u = 0.107386 + 1.053710I$ $a = 1.161140 + 0.418626I$ $b = -0.848962 + 0.418880I$	$-1.06007 - 1.48672I$	$-11.73110 + 4.30166I$
$u = 0.107386 - 1.053710I$ $a = 1.161140 - 0.418626I$ $b = -0.848962 - 0.418880I$	$-1.06007 + 1.48672I$	$-11.73110 - 4.30166I$
$u = -0.747524 + 0.519989I$ $a = -0.367732 + 0.710748I$ $b = 0.063240 - 0.394635I$	$4.39870 - 0.57100I$	$-5.18268 + 2.58205I$
$u = -0.747524 - 0.519989I$ $a = -0.367732 - 0.710748I$ $b = 0.063240 + 0.394635I$	$4.39870 + 0.57100I$	$-5.18268 - 2.58205I$
$u = -0.228069 + 0.871292I$ $a = 0.493234 - 0.013294I$ $b = -0.220969 + 0.195636I$	$-0.647219 - 1.174890I$	$-7.74715 + 5.33716I$
$u = -0.228069 - 0.871292I$ $a = 0.493234 + 0.013294I$ $b = -0.220969 - 0.195636I$	$-0.647219 + 1.174890I$	$-7.74715 - 5.33716I$
$u = 0.826592 + 0.330880I$ $a = 0.611177 - 0.577058I$ $b = 1.51649 + 1.30911I$	$-1.86480 - 10.61960I$	$-6.01076 + 5.40369I$
$u = 0.826592 - 0.330880I$ $a = 0.611177 + 0.577058I$ $b = 1.51649 - 1.30911I$	$-1.86480 + 10.61960I$	$-6.01076 - 5.40369I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.771083 + 0.435830I$ $a = -0.445507 + 0.696759I$ $b = -1.22832 - 0.83980I$	$3.95523 - 3.38934I$	$-6.35399 + 4.30144I$
$u = 0.771083 - 0.435830I$ $a = -0.445507 - 0.696759I$ $b = -1.22832 + 0.83980I$	$3.95523 + 3.38934I$	$-6.35399 - 4.30144I$
$u = -0.659178 + 0.906469I$ $a = 0.847117 + 0.308890I$ $b = -0.532248 + 0.049305I$	$-0.52577 + 2.60216I$	$-5.79015 - 0.92756I$
$u = -0.659178 - 0.906469I$ $a = 0.847117 - 0.308890I$ $b = -0.532248 - 0.049305I$	$-0.52577 - 2.60216I$	$-5.79015 + 0.92756I$
$u = 0.431568 + 1.070840I$ $a = -1.72983 - 0.61820I$ $b = 1.51123 - 0.88116I$	$-3.48253 + 3.49821I$	$-13.1203 - 5.5567I$
$u = 0.431568 - 1.070840I$ $a = -1.72983 + 0.61820I$ $b = 1.51123 + 0.88116I$	$-3.48253 - 3.49821I$	$-13.1203 + 5.5567I$
$u = 0.831503 + 0.123089I$ $a = 0.072492 + 0.269764I$ $b = -0.554560 + 0.979079I$	$-4.92001 + 1.57506I$	$-6.24630 - 4.36146I$
$u = 0.831503 - 0.123089I$ $a = 0.072492 - 0.269764I$ $b = -0.554560 - 0.979079I$	$-4.92001 - 1.57506I$	$-6.24630 + 4.36146I$
$u = 0.210275 + 1.194020I$ $a = -1.29566 - 1.42704I$ $b = 1.62781 + 0.12223I$	$-6.84341 - 7.58988I$	$-11.74966 + 3.94255I$
$u = 0.210275 - 1.194020I$ $a = -1.29566 + 1.42704I$ $b = 1.62781 - 0.12223I$	$-6.84341 + 7.58988I$	$-11.74966 - 3.94255I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.618523+1.046160I$ $a=-0.569195-0.233428I$ $b=\ \ 0.386901-0.028623I$	$2.83735-4.61812I$	$-7.27766+3.11789I$
$u=-0.618523-1.046160I$ $a=-0.569195+0.233428I$ $b=\ \ 0.386901+0.028623I$	$2.83735+4.61812I$	$-7.27766-3.11789I$
$u=\ \ 0.601498+1.094000I$ $a=\ \ 1.80478+0.82107I$ $b=-1.93685+0.87675I$	$2.00079+8.57439I$	$-9.56481-9.13529I$
$u=\ \ 0.601498-1.094000I$ $a=\ \ 1.80478-0.82107I$ $b=-1.93685-0.87675I$	$2.00079-8.57439I$	$-9.56481+9.13529I$
$u=\ \ 0.372959+1.216560I$ $a=\ \ 1.28688-0.66870I$ $b=-0.421817+1.280630I$	$-9.03283+5.64879I$	$-11.83814-7.15330I$
$u=\ \ 0.372959-1.216560I$ $a=\ \ 1.28688+0.66870I$ $b=-0.421817-1.280630I$	$-9.03283-5.64879I$	$-11.83814+7.15330I$
$u=\ \ 0.587276+1.148200I$ $a=-2.51290-0.46864I$ $b=\ \ 2.17768-1.59943I$	$-4.3002+15.8732I$	$-8.95437-9.00468I$
$u=\ \ 0.587276-1.148200I$ $a=-2.51290+0.46864I$ $b=\ \ 2.17768+1.59943I$	$-4.3002-15.8732I$	$-8.95437+9.00468I$
$u=\ \ 0.501811+1.205770I$ $a=-0.157189+1.192800I$ $b=-0.733813-0.955023I$	$-8.15901+3.28278I$	$-8.89616+2.41825I$
$u=\ \ 0.501811-1.205770I$ $a=-0.157189-1.192800I$ $b=-0.733813+0.955023I$	$-8.15901-3.28278I$	$-8.89616-2.41825I$

Solutions to I_1^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	0.465958		
$a =$	0.798102	-0.881419	-11.2140
$b =$	0.696353		

II.

$\boldsymbol{I_2^u = \langle u^{18} - u^{17} + \cdots + b - 2,\ u^{18} + 2u^{17} + \cdots + a + 1,\ u^{19} + 5u^{17} + \cdots + 2u^2 + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^8 + u^6 + u^4 + 1 \\ u^{10} + 2u^8 + 3u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{18} - 2u^{17} + \cdots - 3u - 1 \\ -u^{18} + u^{17} + \cdots + u + 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{17} + 5u^{15} + \cdots + u + 2 \\ u^{18} + 5u^{16} + \cdots + u^3 - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^{17} + 9u^{15} + \cdots + u + 2 \\ u^{18} + 5u^{16} + \cdots + u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^{17} - u^{16} + \cdots - 2u - 1 \\ -u^{18} + u^{17} + \cdots + 2u^2 + 2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -3u^{18} - 2u^{17} + \cdots - 6u - 2 \\ -u^{18} + u^{17} + \cdots + 2u + 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^{17} - 10u^{15} + 4u^{14} - 24u^{13} + 12u^{12} - 34u^{11} + 17u^{10} - 30u^9 + 6u^8 - 18u^7 - 7u^6 - 7u^5 - 6u^4 + u^3 + u^2 + u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} + 2y^{18} + \cdots - 4y - 1$
c_2, c_7	$y^{19} + 10y^{18} + \cdots - 4y - 1$
c_3	$y^{19} - 6y^{18} + \cdots + 5y - 4$
c_4, c_6, c_{10} c_{11}	$y^{19} + 12y^{18} + \cdots + 7y - 1$
c_5, c_9	$y^{19} - 7y^{18} + \cdots - 12y - 1$
c_8	$y^{19} + 2y^{18} + \cdots - 6y - 1$
c_{12}	$y^{19} - 15y^{18} + \cdots - 35y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.342966 + 0.928812I$ $a = 1.348510 + 0.263101I$ $b = -0.760930 + 0.339185I$	$2.81022 - 1.37153I$	$-9.77927 + 0.03000I$
$u = -0.342966 - 0.928812I$ $a = 1.348510 - 0.263101I$ $b = -0.760930 - 0.339185I$	$2.81022 + 1.37153I$	$-9.77927 - 0.03000I$
$u = 0.462820 + 1.013630I$ $a = -2.71881 - 1.75930I$ $b = 2.96409 - 1.05294I$	$-5.17143 + 3.04865I$	$-17.3001 - 5.4133I$
$u = 0.462820 - 1.013630I$ $a = -2.71881 + 1.75930I$ $b = 2.96409 + 1.05294I$	$-5.17143 - 3.04865I$	$-17.3001 + 5.4133I$
$u = 0.233225 + 1.122880I$ $a = 0.57215 + 1.46143I$ $b = -1.222460 - 0.507809I$	$0.773516 - 0.146851I$	$-4.77195 + 0.70902I$
$u = 0.233225 - 1.122880I$ $a = 0.57215 - 1.46143I$ $b = -1.222460 + 0.507809I$	$0.773516 + 0.146851I$	$-4.77195 - 0.70902I$
$u = -0.666278 + 0.525489I$ $a = -0.803308 + 0.905672I$ $b = 0.208916 - 0.549594I$	$6.17150 - 0.46362I$	$0.865849 + 0.093263I$
$u = -0.666278 - 0.525489I$ $a = -0.803308 - 0.905672I$ $b = 0.208916 + 0.549594I$	$6.17150 + 0.46362I$	$0.865849 - 0.093263I$
$u = 0.755679 + 0.375560I$ $a = -0.759994 + 0.411460I$ $b = -0.93480 - 1.33254I$	$5.35455 - 2.68854I$	$0.27590 + 1.63116I$
$u = 0.755679 - 0.375560I$ $a = -0.759994 - 0.411460I$ $b = -0.93480 + 1.33254I$	$5.35455 + 2.68854I$	$0.27590 - 1.63116I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.572364 + 1.036080I$ $a = -0.875217 - 0.298710I$ $b = 0.574390 - 0.089490I$	$4.65158 - 4.35826I$	$-3.03168 + 5.37971I$
$u = -0.572364 - 1.036080I$ $a = -0.875217 + 0.298710I$ $b = 0.574390 + 0.089490I$	$4.65158 + 4.35826I$	$-3.03168 - 5.37971I$
$u = 0.583300 + 1.114080I$ $a = 2.02438 + 0.07803I$ $b = -1.48959 + 1.53903I$	$3.18311 + 7.76425I$	$-3.26242 - 5.87229I$
$u = 0.583300 - 1.114080I$ $a = 2.02438 - 0.07803I$ $b = -1.48959 - 1.53903I$	$3.18311 - 7.76425I$	$-3.26242 + 5.87229I$
$u = -0.458473 + 1.178850I$ $a = -0.111178 + 0.351572I$ $b = -0.052777 - 0.243038I$	$-8.21489 - 4.24741I$	$-10.19096 + 5.10189I$
$u = -0.458473 - 1.178850I$ $a = -0.111178 - 0.351572I$ $b = -0.052777 + 0.243038I$	$-8.21489 + 4.24741I$	$-10.19096 - 5.10189I$
$u = 0.351995 + 0.609402I$ $a = 0.67301 - 2.19679I$ $b = 1.56998 + 0.91609I$	$-3.79826 + 0.59510I$	$-11.16480 + 2.33336I$
$u = 0.351995 - 0.609402I$ $a = 0.67301 + 2.19679I$ $b = 1.56998 - 0.91609I$	$-3.79826 - 0.59510I$	$-11.16480 - 2.33336I$
$u = -0.693876$ $a = -0.699080$ $b = 0.286370$	-4.94005	-7.28110

III. $\boldsymbol{I_3^u = \langle 758a^3u^3 - 3539u^3a^2 + \cdots + 1193a - 9295,\ a^3u^3 - 2u^3a^2 + \cdots + 3a + 2,\ u^4 + u^2 - u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 + u^2 - u + 1 \\ -u^2 + u - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ -0.0877721a^3u^3 + 0.409796a^2u^3 + \cdots - 0.138143a + 1.07631 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0211904a^3u^3 + 0.0128532a^2u^3 + \cdots + 0.183997a - 0.0683187 \\ 0.0507179a^3u^3 - 0.325845a^2u^3 + \cdots - 0.178092a - 0.754516 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0620658a^3u^3 + 0.234368a^2u^3 + \cdots + 0.364057a - 0.254748 \\ 0.189787a^3u^3 - 0.0823298a^2u^3 + \cdots - 0.232631a - 1.50834 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.100741a^3u^3 - 0.123321a^2u^3 + \cdots + 0.788675a + 0.351436 \\ -0.0507179a^3u^3 + 0.575845a^2u^3 + \cdots + 0.428092a + 1.50452 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0211904a^3u^3 + 0.0128532a^2u^3 + \cdots + 0.183997a - 0.0683187 \\ 0.0100741a^3u^3 + 0.387332a^2u^3 + \cdots - 0.103868a + 2.58986 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4+2u^3+3u^2+u+1)^4$
c_2, c_7	$(u^4+u^2+u+1)^4$
c_3	$(u^4+3u^3+4u^2+3u+2)^4$
c_4, c_6, c_{10} c_{11}	$u^{16}+3u^{14}+\cdots+4u+19$
c_5, c_9	$u^{16}-5u^{14}+\cdots-26u+31$
c_8	$(u^4-2u^3+3u^2-u+1)^4$
c_{12}	$(u^2+u-1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^4 + 2y^3 + 7y^2 + 5y + 1)^4$
c_2, c_7	$(y^4 + 2y^3 + 3y^2 + y + 1)^4$
c_3	$(y^4 - y^3 + 2y^2 + 7y + 4)^4$
c_4, c_6, c_{10} c_{11}	$y^{16} + 6y^{15} + \cdots + 1428y + 361$
c_5, c_9	$y^{16} - 10y^{15} + \cdots - 5760y + 961$
c_{12}	$(y^2 - 3y + 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.547424 + 0.585652I$ $a = 0.499523 - 0.414695I$ $b = 1.49449 + 0.67486I$	$-2.96775 + 1.39709I$	$-4.22981 - 3.86736I$
$u = 0.547424 + 0.585652I$ $a = -1.41065 - 0.30491I$ $b = -0.139658 + 0.204609I$	$4.92794 + 1.39709I$	$-4.22981 - 3.86736I$
$u = 0.547424 + 0.585652I$ $a = 0.85743 + 1.26440I$ $b = -0.789932 - 0.962845I$	$4.92794 + 1.39709I$	$-4.22981 - 3.86736I$
$u = 0.547424 + 0.585652I$ $a = 0.94882 - 2.09729I$ $b = 0.93920 + 1.31022I$	$-2.96775 + 1.39709I$	$-4.22981 - 3.86736I$
$u = 0.547424 - 0.585652I$ $a = 0.499523 + 0.414695I$ $b = 1.49449 - 0.67486I$	$-2.96775 - 1.39709I$	$-4.22981 + 3.86736I$
$u = 0.547424 - 0.585652I$ $a = -1.41065 + 0.30491I$ $b = -0.139658 - 0.204609I$	$4.92794 - 1.39709I$	$-4.22981 + 3.86736I$
$u = 0.547424 - 0.585652I$ $a = 0.85743 - 1.26440I$ $b = -0.789932 + 0.962845I$	$4.92794 - 1.39709I$	$-4.22981 + 3.86736I$
$u = 0.547424 - 0.585652I$ $a = 0.94882 + 2.09729I$ $b = 0.93920 - 1.31022I$	$-2.96775 - 1.39709I$	$-4.22981 + 3.86736I$
$u = -0.547424 + 1.120870I$ $a = 1.98981 - 0.07512I$ $b = -1.28422 - 1.69317I$	$1.32281 - 7.64338I$	$-9.77019 + 6.51087I$
$u = -0.547424 + 1.120870I$ $a = -0.79640 + 1.83226I$ $b = 1.57066 - 0.08141I$	$-6.57287 - 7.64338I$	$-9.77019 + 6.51087I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.547424 + 1.120870I$ $a = 1.77511 - 1.01217I$ $b = -2.38632 - 0.09060I$	$-6.57287 - 7.64338I$	$-9.77019 + 6.51087I$
$u = -0.547424 + 1.120870I$ $a = -2.36364 - 0.23813I$ $b = 1.59578 + 1.75888I$	$1.32281 - 7.64338I$	$-9.77019 + 6.51087I$
$u = -0.547424 - 1.120870I$ $a = 1.98981 + 0.07512I$ $b = -1.28422 + 1.69317I$	$1.32281 + 7.64338I$	$-9.77019 - 6.51087I$
$u = -0.547424 - 1.120870I$ $a = -0.79640 - 1.83226I$ $b = 1.57066 + 0.08141I$	$-6.57287 + 7.64338I$	$-9.77019 - 6.51087I$
$u = -0.547424 - 1.120870I$ $a = 1.77511 + 1.01217I$ $b = -2.38632 + 0.09060I$	$-6.57287 + 7.64338I$	$-9.77019 - 6.51087I$
$u = -0.547424 - 1.120870I$ $a = -2.36364 + 0.23813I$ $b = 1.59578 - 1.75888I$	$1.32281 + 7.64338I$	$-9.77019 - 6.51087I$

IV. $\boldsymbol{I_4^u = \langle -18352u^5a^3 + 13327u^5a^2 + \cdots + 704a - 29929,\ u^5a^2 + u^5a + \cdots + a^4 + a^3,\ u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^4 + u^2 + u + 1 \\ -2u^5 - u^4 - 3u^3 - 2u^2 - 3u - 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ 1.15472a^3u^5 - 0.838545a^2u^5 + \cdots - 0.0442962a + 1.88316 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0661297a^3u^5 + 0.889259a^2u^5 + \cdots + 0.219782a + 0.555591 \\ -1.41358a^3u^5 + 0.949475a^2u^5 + \cdots - 0.855974a - 1.68401 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0667590a^3u^5 + 0.480966a^2u^5 + \cdots + 0.115900a + 1.06424 \\ -1.27723a^3u^5 + 0.321525a^2u^5 + \cdots - 1.09835a - 1.10174 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0751903a^3u^5 + 0.758007a^2u^5 + \cdots + 0.385956a - 0.569999 \\ 0.960423a^3u^5 - 1.91279a^2u^5 + \cdots + 1.61442a + 2.68747 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0661297a^3u^5 + 0.889259a^2u^5 + \cdots + 0.219782a - 1.44441 \\ 1.21972a^3u^5 - 0.682879a^2u^5 + \cdots + 0.779714a + 3.95445 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 - 4u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6+3u^5+4u^4+2u^3+1)^4$
c_2, c_7	$(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^4$
c_3	$(u^3-u^2+1)^8$
c_4, c_6, c_{10} c_{11}	$u^{24}-u^{23}+\cdots+16u+11$
c_5, c_9	$u^{24}+u^{23}+\cdots+186u+79$
c_8	$(u^6-3u^5+4u^4-2u^3+1)^4$
c_{12}	$(u^2+u-1)^{12}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^6 - y^5 + 4y^4 - 2y^3 + 8y^2 + 1)^4$
c_2, c_7	$(y^6 + 3y^5 + 4y^4 + 2y^3 + 1)^4$
c_3	$(y^3 - y^2 + 2y - 1)^8$
c_4, c_6, c_{10} c_{11}	$y^{24} + 9y^{23} + \cdots + 1856y + 121$
c_5, c_9	$y^{24} - 15y^{23} + \cdots - 45972y + 6241$
c_{12}	$(y^2 - 3y + 1)^{12}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.498832 + 1.001300I$ $a = -0.211070 + 0.743684I$ $b = -0.224034 + 0.553154I$	$3.68210 + 2.82812I$	$-6.49024 - 2.97945I$
$u = 0.498832 + 1.001300I$ $a = 1.86886 + 0.18851I$ $b = -1.51557 + 0.21123I$	$3.68210 + 2.82812I$	$-6.49024 - 2.97945I$
$u = 0.498832 + 1.001300I$ $a = -2.16524 - 0.68774I$ $b = 2.43868 - 1.28895I$	$-4.21358 + 2.82812I$	$-6.49024 - 2.97945I$
$u = 0.498832 + 1.001300I$ $a = -2.17491 - 1.75278I$ $b = 2.11567 - 0.71224I$	$-4.21358 + 2.82812I$	$-6.49024 - 2.97945I$
$u = 0.498832 - 1.001300I$ $a = -0.211070 - 0.743684I$ $b = -0.224034 - 0.553154I$	$3.68210 - 2.82812I$	$-6.49024 + 2.97945I$
$u = 0.498832 - 1.001300I$ $a = 1.86886 - 0.18851I$ $b = -1.51557 - 0.21123I$	$3.68210 - 2.82812I$	$-6.49024 + 2.97945I$
$u = 0.498832 - 1.001300I$ $a = -2.16524 + 0.68774I$ $b = 2.43868 + 1.28895I$	$-4.21358 - 2.82812I$	$-6.49024 + 2.97945I$
$u = 0.498832 - 1.001300I$ $a = -2.17491 + 1.75278I$ $b = 2.11567 + 0.71224I$	$-4.21358 - 2.82812I$	$-6.49024 + 2.97945I$
$u = -0.284920 + 1.115140I$ $a = 1.029620 - 0.410831I$ $b = -0.672823 - 1.187000I$	-8.35116	$-13.01951 + 0.I$
$u = -0.284920 + 1.115140I$ $a = -0.32107 + 1.53891I$ $b = 1.092390 - 0.411344I$	-0.455481	$-13.01951 + 0.I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.284920 + 1.115140I$ $a = 0.89594 - 1.36997I$ $b = -1.47716 + 0.53887I$	-0.455481	$-13.01951 + 0.I$
$u = -0.284920 + 1.115140I$ $a = -2.53465 - 0.03145I$ $b = 1.68015 + 0.85313I$	-8.35116	$-13.01951 + 0.I$
$u = -0.284920 - 1.115140I$ $a = 1.029620 + 0.410831I$ $b = -0.672823 + 1.187000I$	-8.35116	$-13.01951 + 0.I$
$u = -0.284920 - 1.115140I$ $a = -0.32107 - 1.53891I$ $b = 1.092390 + 0.411344I$	-0.455481	$-13.01951 + 0.I$
$u = -0.284920 - 1.115140I$ $a = 0.89594 + 1.36997I$ $b = -1.47716 - 0.53887I$	-0.455481	$-13.01951 + 0.I$
$u = -0.284920 - 1.115140I$ $a = -2.53465 + 0.03145I$ $b = 1.68015 - 0.85313I$	-8.35116	$-13.01951 + 0.I$
$u = -0.713912 + 0.305839I$ $a = 0.805409 + 0.530294I$ $b = 0.83973 - 1.49814I$	$3.68210 + 2.82812I$	$-6.49024 - 2.97945I$
$u = -0.713912 + 0.305839I$ $a = -0.874949 + 0.153226I$ $b = -0.87848 + 1.19410I$	$3.68210 + 2.82812I$	$-6.49024 - 2.97945I$
$u = -0.713912 + 0.305839I$ $a = -0.16062 - 1.58358I$ $b = -1.309340 + 0.402018I$	$-4.21358 + 2.82812I$	$-6.49024 - 2.97945I$
$u = -0.713912 + 0.305839I$ $a = 0.342678 - 0.205899I$ $b = 1.41079 + 0.39396I$	$-4.21358 + 2.82812I$	$-6.49024 - 2.97945I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.713912 - 0.305839I$ $a = 0.805409 - 0.530294I$ $b = 0.83973 + 1.49814I$	$3.68210 - 2.82812I$	$-6.49024 + 2.97945I$
$u = -0.713912 - 0.305839I$ $a = -0.874949 - 0.153226I$ $b = -0.87848 - 1.19410I$	$3.68210 - 2.82812I$	$-6.49024 + 2.97945I$
$u = -0.713912 - 0.305839I$ $a = -0.16062 + 1.58358I$ $b = -1.309340 - 0.402018I$	$-4.21358 - 2.82812I$	$-6.49024 + 2.97945I$
$u = -0.713912 - 0.305839I$ $a = 0.342678 + 0.205899I$ $b = 1.41079 - 0.39396I$	$-4.21358 - 2.82812I$	$-6.49024 + 2.97945I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4+2u^3+3u^2+u+1)^4(u^6+3u^5+4u^4+2u^3+1)^4$ $\cdot(u^{19}-10u^{18}+\cdots-4u+1)(u^{31}+15u^{30}+\cdots+12u-16)$
c_2	$(u^4+u^2+u+1)^4(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^4$ $\cdot(u^{19}+5u^{17}+\cdots-2u^2-1)(u^{31}+5u^{30}+\cdots+26u+4)$
c_3	$((u^3-u^2+1)^8)(u^4+3u^3+\cdots+3u+2)^4(u^{19}-3u^{17}+\cdots+3u-2)$ $\cdot(u^{31}-5u^{30}+\cdots-240u+32)$
c_4, c_{11}	$(u^{16}+3u^{14}+\cdots+4u+19)(u^{19}+6u^{17}+\cdots-u+1)$ $\cdot(u^{24}-u^{23}+\cdots+16u+11)(u^{31}+7u^{29}+\cdots+3u+1)$
c_5, c_9	$(u^{16}-5u^{14}+\cdots-26u+31)(u^{19}-u^{18}+\cdots+6u^2+1)$ $\cdot(u^{24}+u^{23}+\cdots+186u+79)(u^{31}+u^{30}+\cdots+4u+1)$
c_6, c_{10}	$(u^{16}+3u^{14}+\cdots+4u+19)(u^{19}+6u^{17}+\cdots-u-1)$ $\cdot(u^{24}-u^{23}+\cdots+16u+11)(u^{31}+7u^{29}+\cdots+3u+1)$
c_7	$(u^4+u^2+u+1)^4(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^4$ $\cdot(u^{19}+5u^{17}+\cdots+2u^2+1)(u^{31}+5u^{30}+\cdots+26u+4)$
c_8	$(u^4-2u^3+3u^2-u+1)^4(u^6-3u^5+4u^4-2u^3+1)^4$ $\cdot(u^{19}+u^{17}+\cdots+3u^2+1)(u^{31}+25u^{30}+\cdots+101226u+9028)$
c_{12}	$((u^2+u-1)^{20})(u^{19}+7u^{18}+\cdots+3u+2)$ $\cdot(u^{31}-24u^{30}+\cdots-9728u+1024)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+2y^3+7y^2+5y+1)^4(y^6-y^5+4y^4-2y^3+8y^2+1)^4$ $\cdot(y^{19}+2y^{18}+\cdots-4y-1)(y^{31}+3y^{30}+\cdots+5360y-256)$
c_2, c_7	$(y^4+2y^3+3y^2+y+1)^4(y^6+3y^5+4y^4+2y^3+1)^4$ $\cdot(y^{19}+10y^{18}+\cdots-4y-1)(y^{31}+15y^{30}+\cdots+12y-16)$
c_3	$(y^3-y^2+2y-1)^8(y^4-y^3+2y^2+7y+4)^4$ $\cdot(y^{19}-6y^{18}+\cdots+5y-4)(y^{31}-9y^{30}+\cdots+29696y-1024)$
c_4, c_6, c_{10} c_{11}	$(y^{16}+6y^{15}+\cdots+1428y+361)(y^{19}+12y^{18}+\cdots+7y-1)$ $\cdot(y^{24}+9y^{23}+\cdots+1856y+121)(y^{31}+14y^{30}+\cdots-11y-1)$
c_5, c_9	$(y^{16}-10y^{15}+\cdots-5760y+961)(y^{19}-7y^{18}+\cdots-12y-1)$ $\cdot(y^{24}-15y^{23}+\cdots-45972y+6241)(y^{31}-49y^{30}+\cdots+50y-1)$
c_8	$(y^4+2y^3+7y^2+5y+1)^4(y^6-y^5+4y^4-2y^3+8y^2+1)^4$ $\cdot(y^{19}+2y^{18}+\cdots-6y-1)$ $\cdot(y^{31}+3y^{30}+\cdots-146312468y-81504784)$
c_{12}	$((y^2-3y+1)^{20})(y^{19}-15y^{18}+\cdots-35y-4)$ $\cdot(y^{31}-18y^{30}+\cdots+4980736y-1048576)$