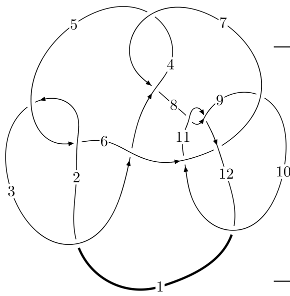
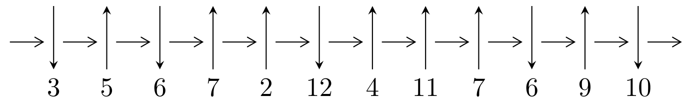
$12n_{0028}$ ($K12n_{0028}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3.08304 \times 10^{52} u^{37} - 3.92285 \times 10^{53} u^{36} + \cdots + 2.56521 \times 10^{53} b - 1.92852 \times 10^{53}, \\
& - 4.66168 \times 10^{52} u^{37} + 5.98970 \times 10^{53} u^{36} + \cdots + 2.56521 \times 10^{53} a - 4.47281 \times 10^{53}, \\
& u^{38} - 13u^{37} + \cdots - 8u + 1 \rangle \\
I_2^u = \langle & b,\ -u^5 a + 2u^4 a + u^5 - 3u^4 - 2u^2 a + 3u^3 + a^2 + au - 2u + 1,\ u^6 - u^5 - u^4 + 2u^3 - u + 1 \rangle \\
I_3^u = \langle & a^3 + b + 2a,\ a^4 - a^3 + 3a^2 - 2a + 1,\ u + 1 \rangle \\
I_4^u = \langle & 39a^5 - 213a^4 + 550a^3 - 390a^2 + 295b + 748a - 63,\ a^6 - 5a^5 + 11a^4 + 7a^2 + 2a + 1,\ u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 60 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. $\boldsymbol{I^u_1 = \langle 3.08\times10^{52}u^{37} - 3.92\times10^{53}u^{36} + \cdots + 2.57\times10^{53}b - 1.93\times10^{53},\ -4.66\times10^{52}u^{37} + 5.99\times10^{53}u^{36} + \cdots + 2.57\times10^{53}a - 4.47\times10^{53},\ u^{38} - 13u^{37} + \cdots - 8u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.181727u^{37} - 2.33497u^{36} + \cdots + 20.3488u + 1.74364 \\ -0.120187u^{37} + 1.52925u^{36} + \cdots - 5.67119u + 0.751797 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.780745u^{37} + 9.98000u^{36} + \cdots - 13.8096u + 4.94182 \\ 0.239039u^{37} - 3.07898u^{36} + \cdots + 2.00450u - 1.30500 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.05713u^{37} - 13.6449u^{36} + \cdots + 30.2257u - 4.50545 \\ -0.236519u^{37} + 3.03144u^{36} + \cdots - 6.54670u + 2.04114 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.187039u^{37} - 2.41394u^{36} + \cdots - 7.46873u - 2.11666 \\ -0.000250736u^{37} + 0.0152541u^{36} + \cdots + 2.70178u + 0.223799 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0174232u^{37} - 0.223414u^{36} + \cdots + 2.06976u - 0.961603 \\ 0.0147652u^{37} - 0.190086u^{36} + \cdots + 2.06249u + 0.0414843 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.758911u^{37} + 9.70005u^{36} + \cdots - 13.2564u + 4.74750 \\ 0.261495u^{37} - 3.36527u^{36} + \cdots + 2.54841u - 1.49543 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.858153u^{37} - 11.0889u^{36} + \cdots + 28.3257u - 4.91506 \\ -0.174044u^{37} + 2.22800u^{36} + \cdots - 3.74240u + 1.77583 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.474366u^{37} + 6.13382u^{36} + \cdots + 28.8620u + 0.288063 \\ 0.0102207u^{37} - 0.155656u^{36} + \cdots + 0.659483u - 0.0673376 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.765395u^{37} + 9.83295u^{36} + \cdots - 3.08287u + 7.31166$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} + 28u^{37} + \cdots + 159u + 1$
c_2, c_5	$u^{38} + 8u^{37} + \cdots + 11u + 1$
c_3	$u^{38} - 8u^{37} + \cdots + 17360u + 1732$
c_4, c_7	$u^{38} + 2u^{37} + \cdots - 12288u + 4096$
c_6	$u^{38} - 4u^{37} + \cdots - 3u + 1$
c_8, c_{11}	$u^{38} + 13u^{37} + \cdots + 8u + 1$
c_9	$u^{38} + 8u^{37} + \cdots - 149993u + 47809$
c_{10}	$u^{38} + 2u^{37} + \cdots + 575973u + 248449$
c_{12}	$u^{38} - 3u^{37} + \cdots - 11264u + 1024$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{38} - 28y^{37} + \cdots - 10893y + 1$
c_2, c_5	$y^{38} + 28y^{37} + \cdots + 159y + 1$
c_3	$y^{38} - 84y^{37} + \cdots + 436784552y + 2999824$
c_4, c_7	$y^{38} + 70y^{37} + \cdots + 134217728y + 16777216$
c_6	$y^{38} + 4y^{37} + \cdots + 19y + 1$
c_8, c_{11}	$y^{38} + y^{37} + \cdots - 84y + 1$
c_9	$y^{38} + 48y^{37} + \cdots + 51838210455y + 2285700481$
c_{10}	$y^{38} - 84y^{37} + \cdots + 1086486467931y + 61726905601$
c_{12}	$y^{38} - 69y^{37} + \cdots - 7864320y + 1048576$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.872556 + 0.495557I$ $a = 0.505994 - 0.202943I$ $b = -0.690714 - 0.617908I$	$0.91553 + 4.18220I$	$3.10264 - 7.31279I$
$u = 0.872556 - 0.495557I$ $a = 0.505994 + 0.202943I$ $b = -0.690714 + 0.617908I$	$0.91553 - 4.18220I$	$3.10264 + 7.31279I$
$u = -1.029200 + 0.216658I$ $a = -0.422423 + 0.457150I$ $b = -0.209980 + 0.250980I$	$1.91078 - 0.79833I$	$4.44525 - 0.45789I$
$u = -1.029200 - 0.216658I$ $a = -0.422423 - 0.457150I$ $b = -0.209980 - 0.250980I$	$1.91078 + 0.79833I$	$4.44525 + 0.45789I$
$u = -0.933302 + 0.093882I$ $a = -2.24303 + 4.72814I$ $b = 0.300084 + 0.412662I$	$1.67684 - 2.65330I$	$7.7232 - 16.8130I$
$u = -0.933302 - 0.093882I$ $a = -2.24303 - 4.72814I$ $b = 0.300084 - 0.412662I$	$1.67684 + 2.65330I$	$7.7232 + 16.8130I$
$u = -1.130550 + 0.077748I$ $a = 1.43764 - 2.54970I$ $b = -0.392217 - 0.325280I$	$2.15015 + 1.46241I$	$0. - 14.08993I$
$u = -1.130550 - 0.077748I$ $a = 1.43764 + 2.54970I$ $b = -0.392217 + 0.325280I$	$2.15015 - 1.46241I$	$0. + 14.08993I$
$u = 1.094840 + 0.358324I$ $a = -0.425261 - 0.241871I$ $b = 0.269512 + 0.935520I$	$-0.61516 + 8.47206I$	$-1.23185 - 12.18265I$
$u = 1.094840 - 0.358324I$ $a = -0.425261 + 0.241871I$ $b = 0.269512 - 0.935520I$	$-0.61516 - 8.47206I$	$-1.23185 + 12.18265I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.851367+0.892503I$ $a=-0.001244-0.292263I$ $b=-0.962152-0.487944I$	$0.067821-0.704860I$	$2.00000+2.96425I$
$u=-0.851367-0.892503I$ $a=-0.001244+0.292263I$ $b=-0.962152+0.487944I$	$0.067821+0.704860I$	$2.00000-2.96425I$
$u=0.697244+0.310286I$ $a=0.159158+0.892544I$ $b=0.334991-0.821597I$	$-3.35491+0.78621I$	$-8.48784-2.29609I$
$u=0.697244-0.310286I$ $a=0.159158-0.892544I$ $b=0.334991+0.821597I$	$-3.35491-0.78621I$	$-8.48784+2.29609I$
$u=0.110487+0.652381I$ $a=-0.913173+0.555160I$ $b=0.154768+0.641440I$	$-1.32113-1.32492I$	$-1.95750+1.98412I$
$u=0.110487-0.652381I$ $a=-0.913173-0.555160I$ $b=0.154768-0.641440I$	$-1.32113+1.32492I$	$-1.95750-1.98412I$
$u=0.224375+1.325980I$ $a=0.096188+1.029440I$ $b=1.75400+1.85534I$	$-6.74677+2.59569I$	0
$u=0.224375-1.325980I$ $a=0.096188-1.029440I$ $b=1.75400-1.85534I$	$-6.74677-2.59569I$	0
$u=-0.281259+0.487374I$ $a=1.158940-0.418649I$ $b=1.336190-0.226899I$	$-0.61371+2.86891I$	$-0.25435-4.83204I$
$u=-0.281259-0.487374I$ $a=1.158940+0.418649I$ $b=1.336190+0.226899I$	$-0.61371-2.86891I$	$-0.25435+4.83204I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.12152 + 1.66606I$ $a = 0.019900 - 0.800533I$ $b = -1.10703 - 1.69579I$	$-6.26733 - 3.08288I$	0
$u = 0.12152 - 1.66606I$ $a = 0.019900 + 0.800533I$ $b = -1.10703 + 1.69579I$	$-6.26733 + 3.08288I$	0
$u = 1.40051 + 1.03446I$ $a = 1.000780 - 0.696492I$ $b = -0.98102 - 2.10542I$	$-16.2164 + 7.5794I$	0
$u = 1.40051 - 1.03446I$ $a = 1.000780 + 0.696492I$ $b = -0.98102 + 2.10542I$	$-16.2164 - 7.5794I$	0
$u = 1.24001 + 1.25622I$ $a = -0.795058 + 0.781650I$ $b = 0.41366 + 2.27352I$	$-12.39510 + 1.09723I$	0
$u = 1.24001 - 1.25622I$ $a = -0.795058 - 0.781650I$ $b = 0.41366 - 2.27352I$	$-12.39510 - 1.09723I$	0
$u = 1.28856 + 1.21540I$ $a = 0.770618 - 0.850146I$ $b = -0.58138 - 2.41986I$	$-12.2225 + 8.2203I$	0
$u = 1.28856 - 1.21540I$ $a = 0.770618 + 0.850146I$ $b = -0.58138 + 2.41986I$	$-12.2225 - 8.2203I$	0
$u = 1.45865 + 1.07373I$ $a = -0.932042 + 0.820199I$ $b = 1.14222 + 2.13195I$	$-15.9377 + 14.9717I$	0
$u = 1.45865 - 1.07373I$ $a = -0.932042 - 0.820199I$ $b = 1.14222 - 2.13195I$	$-15.9377 - 14.9717I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.137741 + 0.126546I$ $a = 0.67206 + 4.46519I$ $b = 0.730737 + 0.068723I$	$-0.42860 - 2.78462I$	$1.78865 + 4.97070I$
$u = -0.137741 - 0.126546I$ $a = 0.67206 - 4.46519I$ $b = 0.730737 - 0.068723I$	$-0.42860 + 2.78462I$	$1.78865 - 4.97070I$
$u = 0.135837 + 0.044906I$ $a = 4.46953 + 0.98915I$ $b = -0.615656 - 0.694581I$	$1.12636 + 1.44186I$	$2.40380 - 3.54555I$
$u = 0.135837 - 0.044906I$ $a = 4.46953 - 0.98915I$ $b = -0.615656 + 0.694581I$	$1.12636 - 1.44186I$	$2.40380 + 3.54555I$
$u = 1.07616 + 1.52432I$ $a = -0.618148 + 0.747510I$ $b = -0.22384 + 3.07549I$	$-17.7767 + 1.7959I$	0
$u = 1.07616 - 1.52432I$ $a = -0.618148 - 0.747510I$ $b = -0.22384 - 3.07549I$	$-17.7767 - 1.7959I$	0
$u = 1.14268 + 1.63665I$ $a = 0.559572 - 0.668950I$ $b = 0.32782 - 2.75595I$	$-17.5824 - 5.0951I$	0
$u = 1.14268 - 1.63665I$ $a = 0.559572 + 0.668950I$ $b = 0.32782 + 2.75595I$	$-17.5824 + 5.0951I$	0

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

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} a \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

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

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

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

$$a_1 = \begin{pmatrix} -u^4 + u^2 - 1 \\ u^5 - u^4 - 2u^3 + u^2 + u - 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} au + 2a \\ -2u^5a + 2u^3a - 2u^2a - au + 2a \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -u^5a + 5u^4a + u^5 + u^3a - 7u^4 - 5u^2a + 3u^3 - au + 4u^2 + a - 6u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_2	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.002190 + 0.295542I$ $a = -0.82520 + 2.42341I$ $b = 0$	$1.89061 - 2.95419I$	$11.02954 + 8.16480I$
$u = -1.002190 + 0.295542I$ $a = 2.51133 - 0.49706I$ $b = 0$	$1.89061 + 1.10558I$	$-0.484082 - 0.231437I$
$u = -1.002190 - 0.295542I$ $a = -0.82520 - 2.42341I$ $b = 0$	$1.89061 + 2.95419I$	$11.02954 - 8.16480I$
$u = -1.002190 - 0.295542I$ $a = 2.51133 + 0.49706I$ $b = 0$	$1.89061 - 1.10558I$	$-0.484082 + 0.231437I$
$u = 0.428243 + 0.664531I$ $a = 0.489858 + 0.681154I$ $b = 0$	$-1.89061 + 1.10558I$	$-1.04064 - 1.99047I$
$u = 0.428243 + 0.664531I$ $a = -0.834826 + 0.083652I$ $b = 0$	$-1.89061 - 2.95419I$	$-3.79900 + 4.11613I$
$u = 0.428243 - 0.664531I$ $a = 0.489858 - 0.681154I$ $b = 0$	$-1.89061 - 1.10558I$	$-1.04064 + 1.99047I$
$u = 0.428243 - 0.664531I$ $a = -0.834826 - 0.083652I$ $b = 0$	$-1.89061 + 2.95419I$	$-3.79900 - 4.11613I$
$u = 1.073950 + 0.558752I$ $a = 0.458424 - 0.081263I$ $b = 0$	$7.72290I$	$2.83009 - 4.64337I$
$u = 1.073950 + 0.558752I$ $a = -0.299588 - 0.356375I$ $b = 0$	$3.66314I$	$-2.53591 - 3.55776I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.073950 - 0.558752I$		
$a =$	$0.458424 + 0.081263I$	$-7.72290I$	$2.83009 + 4.64337I$
$b =$	0		
$u =$	$1.073950 - 0.558752I$		
$a =$	$-0.299588 + 0.356375I$	$-3.66314I$	$-2.53591 + 3.55776I$
$b =$	0		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7a^2 - 2a - 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0.395123 + 0.506844I$ $b = -0.547424 - 1.120870I$	$-0.98010 + 7.64338I$	$-3.08487 - 3.81741I$
$u = -1.00000$ $a = \quad 0.395123 - 0.506844I$ $b = -0.547424 + 1.120870I$	$-0.98010 - 7.64338I$	$-3.08487 + 3.81741I$
$u = -1.00000$ $a = \quad 0.10488 + 1.55249I$ $b = \quad 0.547424 + 0.585652I$	$2.62503 + 1.39709I$	$13.5849 - 5.3845I$
$u = -1.00000$ $a = \quad 0.10488 - 1.55249I$ $b = \quad 0.547424 - 0.585652I$	$2.62503 - 1.39709I$	$13.5849 + 5.3845I$

IV.

$\boldsymbol{I_4^u = \langle 39a^5 + 295b + \cdots + 748a - 63,\ a^6 - 5a^5 + 11a^4 + 7a^2 + 2a + 1,\ u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} a \\ -0.132203a^5 + 0.722034a^4 + \cdots - 2.53559a + 0.213559 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0610169a^5 - 0.410169a^4 + \cdots + 0.477966a + 1.13220 \\ -0.369492a^5 + 2.09492a^4 + \cdots - 2.06102a - 0.633898 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.115254a^5 - 0.552542a^4 + \cdots - 1.43051a + 0.583051 \\ -0.593220a^5 + 2.93220a^4 + \cdots - 2.81356a - 1.11864 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.379661a^5 - 1.99661a^4 + \cdots + 1.64068a + 0.155932 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -0.308475a^5 + 1.68475a^4 + \cdots - 1.58305a + 0.498305 \\ -0.369492a^5 + 2.09492a^4 + \cdots - 2.06102a - 0.633898 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.213559a^5 + 0.935593a^4 + \cdots + 0.827119a - 0.962712 \\ 0.522034a^5 - 2.62034a^4 + \cdots + 1.75593a + 0.464407 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0813559a^5 - 0.213559a^4 + \cdots + 1.63729a + 0.176271 \\ 0.176271a^5 - 0.962712a^4 + \cdots - 0.952542a - 0.284746 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{119}{59}a^5 - \frac{600}{59}a^4 + \frac{1300}{59}a^3 + \frac{108}{59}a^2 + \frac{411}{59}a + \frac{189}{59}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \ \ 0.052721 + 0.753034I$ $b = -0.284920 - 1.115140I$	-2.75839	$-2.43992 - 2.50363I$
$u = -1.00000$ $a = \ \ 0.052721 - 0.753034I$ $b = -0.284920 + 1.115140I$	-2.75839	$-2.43992 + 2.50363I$
$u = -1.00000$ $a = -0.195217 + 0.332027I$ $b = \ \ 0.498832 - 1.001300I$	$1.37919 - 2.82812I$	$3.08014 + 1.90022I$
$u = -1.00000$ $a = -0.195217 - 0.332027I$ $b = \ \ 0.498832 + 1.001300I$	$1.37919 + 2.82812I$	$3.08014 - 1.90022I$
$u = -1.00000$ $a = \ \ 2.64250 + 2.20145I$ $b = -0.713912 + 0.305839I$	$1.37919 + 2.82812I$	$-2.14022 - 3.69351I$
$u = -1.00000$ $a = \ \ 2.64250 - 2.20145I$ $b = -0.713912 - 0.305839I$	$1.37919 - 2.82812I$	$-2.14022 + 3.69351I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^6(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^{38}+28u^{37}+\cdots+159u+1)$
c_2	$(u^2+u+1)^6(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{38}+8u^{37}+\cdots+11u+1)$
c_3	$(u^2-u+1)^6(u^3-u^2+1)^2(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{38}-8u^{37}+\cdots+17360u+1732)$
c_4	$u^{12}(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{38}+2u^{37}+\cdots-12288u+4096)$
c_5	$(u^2-u+1)^6(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{38}+8u^{37}+\cdots+11u+1)$
c_6	$(u^4+2u^3+3u^2+u+1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^6+3u^5+4u^4+2u^3+1)(u^{38}-4u^{37}+\cdots-3u+1)$
c_7	$u^{12}(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{38}+2u^{37}+\cdots-12288u+4096)$
c_8	$((u+1)^{10})(u^6-u^5+\cdots-u+1)^2(u^{38}+13u^{37}+\cdots+8u+1)$
c_9	$(u^4-u^3+3u^2-2u+1)(u^6-2u^3+4u^2-3u+1)$ $\cdot(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^{38}+8u^{37}+\cdots-149993u+47809)$
c_{10}	$(u^4-u^3+3u^2-2u+1)(u^6-2u^3+4u^2-3u+1)$ $\cdot((u^6-u^5-u^4+2u^3-u+1)^2)(u^{38}+2u^{37}+\cdots+575973u+248449)$
c_{11}	$((u-1)^{10})(u^6+u^5+\cdots+u+1)^2(u^{38}+13u^{37}+\cdots+8u+1)$
c_{12}	$u^{10}(u^6-u^5+\cdots-u+1)^2(u^{38}-3u^{37}+\cdots-11264u+1024)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^4+2y^3+\cdots+5y+1)(y^6-y^5+\cdots+8y^2+1)$ $\cdot (y^{38}-28y^{37}+\cdots-10893y+1)$
c_2, c_5	$(y^2+y+1)^6(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot (y^{38}+28y^{37}+\cdots+159y+1)$
c_3	$(y^2+y+1)^6(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot (y^{38}-84y^{37}+\cdots+436784552y+2999824)$
c_4, c_7	$y^{12}(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot (y^{38}+70y^{37}+\cdots+134217728y+16777216)$
c_6	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot ((y^6+y^5+5y^4+6y^2+3y+1)^2)(y^{38}+4y^{37}+\cdots+19y+1)$
c_8, c_{11}	$(y-1)^{10}(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot (y^{38}+y^{37}+\cdots-84y+1)$
c_9	$(y^4+5y^3+7y^2+2y+1)(y^6+8y^4-2y^3+4y^2-y+1)$ $\cdot (y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot (y^{38}+48y^{37}+\cdots+51838210455y+2285700481)$
c_{10}	$(y^4+5y^3+7y^2+2y+1)(y^6+8y^4-2y^3+4y^2-y+1)$ $\cdot (y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot (y^{38}-84y^{37}+\cdots+1086486467931y+61726905601)$
c_{12}	$y^{10}(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot (y^{38}-69y^{37}+\cdots-7864320y+1048576)$