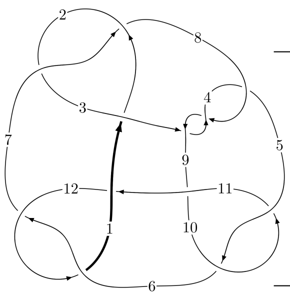
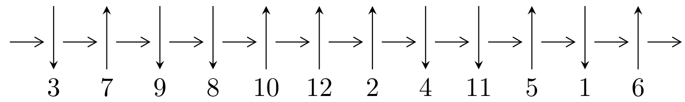
$12a_{0554}$ ($K12a_{0554}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

[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`).

$$
\begin{aligned}
I_1^u = \langle & -u^{10}+u^9-4u^8+4u^7-4u^6+6u^5+5u^3-3u^2+2d+2u-2,\\
& -u^{11}+u^{10}-4u^9+4u^8-5u^7+7u^6-u^5+7u^4-u^3+u^2+4c,\\
& -u^9+u^8-4u^7+3u^6-5u^5+3u^4-2u^3+3u^2+2b-2u+2,\\
& -u^{11}-u^{10}-2u^9-6u^8+3u^7-9u^6+9u^5-u^4+3u^3-3u^2+4a-4,\\
& u^{12}-u^{11}+6u^{10}-6u^9+13u^8-13u^7+11u^6-13u^5+5u^4-7u^3+8u^2-4u+4\rangle\\
I_2^u = \langle & u^4+2u^2+d,\ -u^9+2u^8-6u^7+10u^6-13u^5+18u^4-11u^3+11u^2+2c-u-1,\\
& -u^9-6u^7+2u^6-13u^5+8u^4-11u^3+9u^2+2b-u+1,\ -u^6-3u^4-2u^2+a+1,\\
& u^{10}-u^9+6u^8-6u^7+13u^6-13u^5+11u^4-10u^3+2u^2+1\rangle\\
I_3^u = \langle & u^4+2u^2+d,\ -u^9+2u^8-6u^7+10u^6-13u^5+18u^4-11u^3+11u^2+2c-u-1,\\
& u^9+6u^7-2u^6+13u^5-8u^4+11u^3-9u^2+2b+3u-1,\\
& 3u^9-4u^8+20u^7-22u^6+49u^5-46u^4+49u^3-37u^2+2a+11u-3,\\
& u^{10}-u^9+6u^8-6u^7+13u^6-13u^5+11u^4-10u^3+2u^2+1\rangle\\
I_4^u = \langle & -u^9-4u^7-3u^5-2u^4+7u^3-5u^2+2d+9u-1,\\
& -3u^9+2u^8-18u^7+14u^6-39u^5+34u^4-33u^3+29u^2+2c-5u+1,\\
& -u^9-6u^7+2u^6-13u^5+8u^4-11u^3+9u^2+2b-u+1,\ -u^6-3u^4-2u^2+a+1,\\
& u^{10}-u^9+6u^8-6u^7+13u^6-13u^5+11u^4-10u^3+2u^2+1\rangle\\
I_5^u = \langle & -u^3+d-u,\ c-u,\ -u^5-2u^3-u^2+b-1,\ -u^7+2u^6-u^5+2u^4+2u^3+2a-u+1,\\
& u^8+3u^6+2u^5+2u^4+4u^3+u^2+u+2\rangle\\
I_6^u = \langle & u^6+u^5+u^4+3u^3+d+u+1,\ -u^7-u^5-2u^4+2u^3-2u^2+2c+u+1,\ b-u,\ a,\\
& u^8+3u^6+2u^5+2u^4+4u^3+u^2+u+2\rangle\\
I_7^u = \langle & u^6+u^5+u^4+3u^3+d+u+1,\ -u^7-u^5-2u^4+2u^3-2u^2+2c+u+1,\ -u^5-2u^3-u^2+b-1,\\
& -u^7+2u^6-u^5+2u^4+2u^3+2a-u+1,\ u^8+3u^6+2u^5+2u^4+4u^3+u^2+u+2\rangle\\
I_8^u = \langle & -u^3+d-u,\ c-u,\ b-u,\ a,\ u^4+u^2+u+1\rangle\\
I_9^u = \langle & u^2+d+u+1,\ c-u,\ -u^2a-u^2+2b-a-2,\ 2u^2a+a^2+4u^2+2a+3u+5,\ u^3+u^2+2u+1\rangle\\
I_{10}^u = \langle & u^2c+2cu-u^2+d+c-u-2,\ -2u^2c+c^2-cu+3u^2-4c+u+5,\ b-u,\ a,\ u^3+u^2+2u+1\rangle
\end{aligned}
$$

$$
\begin{aligned}
I^u_{11} = \langle & -u^2a - au + 2d - u - 3,\ -u^2a - 3u^2 + 2c - a - 2u - 6,\ -u^2a - u^2 + 2b - a - 2, \\
& 2u^2a + a^2 + 4u^2 + 2a + 3u + 5,\ u^3 + u^2 + 2u + 1\rangle \\
I^u_{12} = \langle & -u^3 + d - u,\ c - u,\ b - u,\ a,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle \\
I^u_{13} = \langle & -u^3 + d - u,\ c - u,\ -u^5 - 2u^3 + u^2 + b - u + 1,\ u^5 - u^4 - 2u^2 + a,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle \\
I^u_{14} = \langle & 2u^5 - u^4 + 2u^3 - 2u^2 + d + 2u,\ u^4 + u^2 + c + 1,\ b - u,\ a,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle \\
I^u_{15} = \langle & d + 1,\ c - u,\ b,\ a - u,\ u^2 + 1\rangle \\
I^u_{16} = \langle & d + 1,\ c - u,\ b - u,\ a - 1,\ u^2 + 1\rangle \\
I^u_{17} = \langle & d - u,\ c,\ b - u,\ a - 1,\ u^2 + 1\rangle \\
I^u_{18} = \langle & da + u + 1,\ c - u,\ b - u,\ u^2 + 1\rangle
\end{aligned}
$$

$$
I^v_1 = \langle a,\ d + v,\ c + a + 1,\ b - v,\ v^2 + 1\rangle
$$

* 18 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 114 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

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

I. $\boldsymbol{I^u_1 = \langle -u^{10} + u^9 + \cdots + 2d - 2,\ -u^{11} + u^{10} + \cdots + u^2 + 4c,\ -u^9 + u^8 + \cdots + 2b + 2,\ -u^{11} - u^{10} + \cdots + 4a - 4,\ u^{12} - u^{11} + \cdots - 4u + 4\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{4}u^{11} - \frac{1}{4}u^{10} + \cdots + \frac{1}{4}u^3 - \frac{1}{4}u^2 \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots - u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{4}u^{11} + \frac{1}{4}u^{10} + \cdots + \frac{3}{4}u^2 + 1 \\ \frac{1}{2}u^9 - \frac{1}{2}u^8 + \cdots + u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{4}u^{11} + \frac{1}{4}u^{10} + \cdots - u + 1 \\ -\frac{1}{2}u^9 - \frac{5}{2}u^7 + \cdots + u + 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{4}u^{11} + \frac{3}{4}u^{10} + \cdots - \frac{3}{2}u + 1 \\ -\frac{1}{2}u^{10} + \frac{1}{2}u^9 + \cdots + u - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{4}u^{11} + \frac{1}{4}u^{10} + \cdots - \frac{3}{4}u^2 - \frac{1}{2}u \\ -\frac{1}{2}u^{10} + \frac{1}{2}u^9 + \cdots + u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u^{11} - \frac{1}{2}u^{10} + \cdots + \frac{1}{2}u - 1 \\ \frac{1}{2}u^{10} + 2u^8 + \cdots + \frac{1}{2}u^2 - u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{4}u^{11} + \frac{1}{4}u^{10} + \cdots - \frac{1}{2}u + 1 \\ -\frac{1}{2}u^{10} + \frac{1}{2}u^9 + \cdots + u - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{11} + u^{10} + 6u^9 + 2u^8 + 13u^7 - u^6 + 5u^5 - 5u^4 - 11u^3 - u^2 + 2u + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^{12} + 9y^{11} + \cdots + 18y + 1$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$y^{12} + 5y^{11} + \cdots + 6y + 1$
c_3, c_4, c_8	$y^{12} + 11y^{11} + \cdots + 48y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.930547 + 0.179955I$ $a = 0.670259 + 1.162990I$ $b = -0.563501 + 1.188620I$ $c = -1.40294 - 1.16824I$ $d = -1.51082 - 1.44889I$	$-5.48513 - 12.85560I$	$-4.74505 + 9.29863I$
$u = 0.930547 - 0.179955I$ $a = 0.670259 - 1.162990I$ $b = -0.563501 - 1.188620I$ $c = -1.40294 + 1.16824I$ $d = -1.51082 + 1.44889I$	$-5.48513 + 12.85560I$	$-4.74505 - 9.29863I$
$u = -0.686814 + 0.551480I$ $a = -0.796508 + 0.745631I$ $b = 0.603454 + 0.816648I$ $c = 0.968608 - 0.657314I$ $d = -0.163512 - 0.755585I$	$0.72149 + 5.92893I$	$1.32923 - 9.67861I$
$u = -0.686814 - 0.551480I$ $a = -0.796508 - 0.745631I$ $b = 0.603454 - 0.816648I$ $c = 0.968608 + 0.657314I$ $d = -0.163512 + 0.755585I$	$0.72149 - 5.92893I$	$1.32923 + 9.67861I$
$u = 0.185101 + 0.743746I$ $a = 0.370768 + 0.449966I$ $b = -0.222861 + 0.420471I$ $c = -0.277347 + 0.101905I$ $d = 0.209277 + 0.422629I$	$0.425064 - 1.127160I$	$4.87896 + 6.40596I$
$u = 0.185101 - 0.743746I$ $a = 0.370768 - 0.449966I$ $b = -0.222861 - 0.420471I$ $c = -0.277347 - 0.101905I$ $d = 0.209277 - 0.422629I$	$0.425064 + 1.127160I$	$4.87896 - 6.40596I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.18488 + 1.42300I$ $a = -1.041110 + 0.719276I$ $b = 0.842304 - 0.448362I$ $c = -0.567633 - 0.283558I$ $d = -0.62794 + 1.29888I$	$7.14373 + 1.01626I$	$7.50962 + 1.51234I$
$u = -0.18488 - 1.42300I$ $a = -1.041110 - 0.719276I$ $b = 0.842304 + 0.448362I$ $c = -0.567633 + 0.283558I$ $d = -0.62794 - 1.29888I$	$7.14373 - 1.01626I$	$7.50962 - 1.51234I$
$u = 0.40234 + 1.40049I$ $a = -1.76208 - 0.32910I$ $b = 0.593901 - 1.231770I$ $c = -1.185730 + 0.490884I$ $d = -1.36730 - 2.05780I$	$-0.4877 - 17.6327I$	$-1.23582 + 10.46043I$
$u = 0.40234 - 1.40049I$ $a = -1.76208 + 0.32910I$ $b = 0.593901 + 1.231770I$ $c = -1.185730 - 0.490884I$ $d = -1.36730 + 2.05780I$	$-0.4877 + 17.6327I$	$-1.23582 - 10.46043I$
$u = -0.14629 + 1.48775I$ $a = 1.55868 + 0.32070I$ $b = -0.753298 - 0.941385I$ $c = 0.965047 + 0.119356I$ $d = 0.460302 - 0.241641I$	$7.55213 + 8.70787I$	$4.26306 - 7.95599I$
$u = -0.14629 - 1.48775I$ $a = 1.55868 - 0.32070I$ $b = -0.753298 + 0.941385I$ $c = 0.965047 - 0.119356I$ $d = 0.460302 + 0.241641I$	$7.55213 - 8.70787I$	$4.26306 + 7.95599I$

II. $\boldsymbol{I_2^u = \langle u^4 + 2u^2 + d,\ -u^9 + 2u^8 + \cdots + 2c - 1,\ -u^9 - 6u^7 + \cdots + 2b + 1,\ -u^6 - 3u^4 - 2u^2 + a + 1,\ u^{10} - u^9 + \cdots + 2u^2 + 1\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} \frac{1}{2}u^9 - u^8 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^6 + 3u^4 + 2u^2 - 1 \\ \frac{1}{2}u^9 + 3u^7 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^9 - 3u^7 + \cdots + \frac{1}{2}u + \frac{3}{2} \\ -\frac{1}{2}u^9 - 3u^7 + \cdots + \frac{3}{2}u + \frac{1}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{5}{2}u + \frac{1}{2} \\ -\frac{1}{2}u^9 - 2u^7 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ -\frac{1}{2}u^9 - 2u^7 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^8 - 5u^6 + u^5 - 8u^4 + 4u^3 - 3u^2 + 4u + 1 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{5}{2}u + \frac{1}{2} \\ -u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^8 - 2u^7 + 20u^6 - 10u^5 + 32u^4 - 20u^3 + 12u^2 - 14u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^{10} + 4u^9 + 10u^8 + 14u^7 + 15u^6 + 10u^5 + 7u^4 + 5u^3 + 11u^2 + 11u + 4$
c_2, c_5, c_7 c_{10}	$u^{10} - 2u^9 + 4u^8 - 4u^7 + 5u^6 - 6u^5 + 7u^4 - 7u^3 + 5u^2 - 3u + 2$
c_3, c_4, c_8	$u^{10} + u^9 + 6u^8 + 6u^7 + 13u^6 + 13u^5 + 11u^4 + 10u^3 + 2u^2 + 1$
c_6, c_{12}	$u^{10} + u^9 + 3u^8 + 3u^7 + 4u^6 + 4u^5 + 3u^4 + 5u^3 + 4u^2 + 4u + 4$
c_{11}	$u^{10} + 5u^9 + 11u^8 + 13u^7 + 8u^6 + 2u^5 + u^4 - u^3 + 16u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^{10} + 4y^9 + \cdots - 33y + 16$
c_2, c_5, c_7 c_{10}	$y^{10} + 4y^9 + 10y^8 + 14y^7 + 15y^6 + 10y^5 + 7y^4 + 5y^3 + 11y^2 + 11y + 4$
c_3, c_4, c_8	$y^{10} + 11y^9 + \cdots + 4y + 1$
c_6, c_{12}	$y^{10} + 5y^9 + 11y^8 + 13y^7 + 8y^6 + 2y^5 + y^4 - y^3 + 16y + 16$
c_{11}	$y^{10} - 3y^9 + \cdots - 256y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.748770 + 0.138462I$ $a = 0.92253 + 1.26185I$ $b = -0.439859 + 1.118370I$ $c = -1.60028 - 1.01804I$ $d = -1.33318 - 0.63926I$	$-7.31978 - 3.81695I$	$-7.33347 + 4.73761I$
$u = 0.748770 - 0.138462I$ $a = 0.92253 - 1.26185I$ $b = -0.439859 - 1.118370I$ $c = -1.60028 + 1.01804I$ $d = -1.33318 + 0.63926I$	$-7.31978 + 3.81695I$	$-7.33347 - 4.73761I$
$u = 0.28433 + 1.41260I$ $a = 0.919982 + 0.694170I$ $b = -0.910142 - 0.314063I$ $c = 0.488875 - 0.418182I$ $d = 0.80878 + 1.46934I$	$5.18879 - 6.45670I$	$5.02275 + 3.64794I$
$u = 0.28433 - 1.41260I$ $a = 0.919982 - 0.694170I$ $b = -0.910142 + 0.314063I$ $c = 0.488875 + 0.418182I$ $d = 0.80878 - 1.46934I$	$5.18879 + 6.45670I$	$5.02275 - 3.64794I$
$u = -0.35489 + 1.40814I$ $a = 1.79571 - 0.20376I$ $b = -0.609606 - 1.180280I$ $c = 1.132790 + 0.439888I$ $d = 1.26468 - 1.71290I$	$2.57186 + 12.00600I$	$1.91374 - 7.39232I$
$u = -0.35489 - 1.40814I$ $a = 1.79571 + 0.20376I$ $b = -0.609606 + 1.180280I$ $c = 1.132790 - 0.439888I$ $d = 1.26468 + 1.71290I$	$2.57186 - 12.00600I$	$1.91374 + 7.39232I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.05139 + 1.48296I$ $a = -1.43312 + 0.49863I$ $b = 0.782018 - 0.812236I$ $c = -0.856742 + 0.002799I$ $d = -0.408434 + 0.364710I$	$8.34709 - 2.88363I$	$6.09026 + 2.85464I$
$u = 0.05139 - 1.48296I$ $a = -1.43312 - 0.49863I$ $b = 0.782018 + 0.812236I$ $c = -0.856742 - 0.002799I$ $d = -0.408434 - 0.364710I$	$8.34709 + 2.88363I$	$6.09026 - 2.85464I$
$u = -0.229588 + 0.355227I$ $a = -1.205100 - 0.252617I$ $b = 0.177588 + 0.796469I$ $c = 1.33535 + 0.83396I$ $d = 0.168159 + 0.302254I$	$-3.85316 + 1.05773I$	$-3.69328 - 6.23330I$
$u = -0.229588 - 0.355227I$ $a = -1.205100 + 0.252617I$ $b = 0.177588 - 0.796469I$ $c = 1.33535 - 0.83396I$ $d = 0.168159 - 0.302254I$	$-3.85316 - 1.05773I$	$-3.69328 + 6.23330I$

III. $I^u_3 = \langle u^4 + 2u^2 + d,\ -u^9 + 2u^8 + \cdots + 2c - 1,\ u^9 + 6u^7 + \cdots + 2b - 1,\ 3u^9 - 4u^8 + \cdots + 2a - 3,\ u^{10} - u^9 + \cdots + 2u^2 + 1\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} \frac{1}{2}u^9 - u^8 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{3}{2}u^9 + 2u^8 + \cdots - \frac{11}{2}u + \frac{3}{2} \\ -\frac{1}{2}u^9 - 3u^7 + \cdots - \frac{3}{2}u + \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^9 - 3u^7 + \cdots + \frac{1}{2}u + \frac{3}{2} \\ -\frac{1}{2}u^9 - 3u^7 + \cdots + \frac{3}{2}u + \frac{1}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^9 + u^8 - 5u^7 + 5u^6 - 9u^5 + 8u^4 - 5u^3 + 2u^2 + 2u - 3 \\ \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{1}{2}u - \frac{3}{2} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{1}{2}u^9 + u^8 + \cdots + \frac{3}{2}u - \frac{9}{2} \\ \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{1}{2}u - \frac{3}{2} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^9 - u^8 + 6u^7 - 5u^6 + 12u^5 - 8u^4 + 7u^3 - 2u^2 - 3u + 3 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{5}{2}u + \frac{1}{2} \\ -u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^8 - 2u^7 + 20u^6 - 10u^5 + 32u^4 - 20u^3 + 12u^2 - 14u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10}+5u^9+11u^8+13u^7+8u^6+2u^5+u^4-u^3+16u+16$
c_2, c_7	$u^{10}+u^9+3u^8+3u^7+4u^6+4u^5+3u^4+5u^3+4u^2+4u+4$
c_3, c_4, c_8	$u^{10}+u^9+6u^8+6u^7+13u^6+13u^5+11u^4+10u^3+2u^2+1$
c_5, c_6, c_{10} c_{12}	$u^{10}-2u^9+4u^8-4u^7+5u^6-6u^5+7u^4-7u^3+5u^2-3u+2$
c_9, c_{11}	$u^{10}+4u^9+10u^8+14u^7+15u^6+10u^5+7u^4+5u^3+11u^2+11u+4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{10} - 3y^9 + \cdots - 256y + 256$
c_2, c_7	$y^{10} + 5y^9 + 11y^8 + 13y^7 + 8y^6 + 2y^5 + y^4 - y^3 + 16y + 16$
c_3, c_4, c_8	$y^{10} + 11y^9 + \cdots + 4y + 1$
c_5, c_6, c_{10} c_{12}	$y^{10} + 4y^9 + 10y^8 + 14y^7 + 15y^6 + 10y^5 + 7y^4 + 5y^3 + 11y^2 + 11y + 4$
c_9, c_{11}	$y^{10} + 4y^9 + \cdots - 33y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.748770 + 0.138462I$ $a = 0.68224 - 1.78754I$ $b = -0.308911 - 1.256830I$ $c = -1.60028 - 1.01804I$ $d = -1.33318 - 0.63926I$	$-7.31978 - 3.81695I$	$-7.33347 + 4.73761I$
$u = 0.748770 - 0.138462I$ $a = 0.68224 + 1.78754I$ $b = -0.308911 + 1.256830I$ $c = -1.60028 + 1.01804I$ $d = -1.33318 + 0.63926I$	$-7.31978 + 3.81695I$	$-7.33347 - 4.73761I$
$u = 0.28433 + 1.41260I$ $a = -1.82670 - 0.00276I$ $b = 0.625816 - 1.098530I$ $c = 0.488875 - 0.418182I$ $d = 0.80878 + 1.46934I$	$5.18879 - 6.45670I$	$5.02275 + 3.64794I$
$u = 0.28433 - 1.41260I$ $a = -1.82670 + 0.00276I$ $b = 0.625816 + 1.098530I$ $c = 0.488875 + 0.418182I$ $d = 0.80878 - 1.46934I$	$5.18879 + 6.45670I$	$5.02275 - 3.64794I$
$u = -0.35489 + 1.40814I$ $a = -0.859188 + 0.669926I$ $b = 0.964500 - 0.227856I$ $c = 1.132790 + 0.439888I$ $d = 1.26468 - 1.71290I$	$2.57186 + 12.00600I$	$1.91374 - 7.39232I$
$u = -0.35489 - 1.40814I$ $a = -0.859188 - 0.669926I$ $b = 0.964500 + 0.227856I$ $c = 1.132790 - 0.439888I$ $d = 1.26468 + 1.71290I$	$2.57186 - 12.00600I$	$1.91374 + 7.39232I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.05139 + 1.48296I$ $a = 1.253620 + 0.604304I$ $b = -0.833404 - 0.670721I$ $c = -0.856742 + 0.002799I$ $d = -0.408434 + 0.364710I$	$8.34709 - 2.88363I$	$6.09026 + 2.85464I$
$u = 0.05139 - 1.48296I$ $a = 1.253620 - 0.604304I$ $b = -0.833404 + 0.670721I$ $c = -0.856742 - 0.002799I$ $d = -0.408434 - 0.364710I$	$8.34709 + 2.88363I$	$6.09026 - 2.85464I$
$u = -0.229588 + 0.355227I$ $a = -0.74997 - 4.37781I$ $b = 0.051999 - 1.151700I$ $c = 1.33535 + 0.83396I$ $d = 0.168159 + 0.302254I$	$-3.85316 + 1.05773I$	$-3.69328 - 6.23330I$
$u = -0.229588 - 0.355227I$ $a = -0.74997 + 4.37781I$ $b = 0.051999 + 1.151700I$ $c = 1.33535 - 0.83396I$ $d = 0.168159 - 0.302254I$	$-3.85316 - 1.05773I$	$-3.69328 + 6.23330I$

IV. $\boldsymbol{I_4^u = \langle -u^9 - 4u^7 + \cdots + 2d - 1,\ -3u^9 + 2u^8 + \cdots + 2c + 1,\ -u^9 - 6u^7 + \cdots + 2b + 1,\ -u^6 - 3u^4 - 2u^2 + a + 1,\ u^{10} - u^9 + \cdots + 2u^2 + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{3}{2}u^9 - u^8 + \cdots + \frac{5}{2}u - \frac{1}{2} \\ \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{9}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^6 + 3u^4 + 2u^2 - 1 \\ \frac{1}{2}u^9 + 3u^7 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{5}{2}u^9 - 2u^8 + \cdots + \frac{7}{2}u - \frac{3}{2} \\ u^9 + 5u^7 + 8u^5 + u^3 - 6u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{2}u^9 + 2u^7 + \cdots - \frac{5}{2}u + \frac{1}{2} \\ -\frac{1}{2}u^9 - 2u^7 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3 - 2u \\ -\frac{1}{2}u^9 - 2u^7 + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2u^9 - u^8 + 12u^7 - 7u^6 + 26u^5 - 18u^4 + 22u^3 - 17u^2 + 3u - 1 \\ u^9 + 5u^7 + 8u^5 + u^3 + u^2 - 6u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{2}u^9 - 2u^7 + \cdots + \frac{5}{2}u - \frac{7}{2} \\ \frac{1}{2}u^9 - u^8 + \cdots + \frac{3}{2}u + \frac{3}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^8 - 2u^7 + 20u^6 - 10u^5 + 32u^4 - 20u^3 + 12u^2 - 14u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{10} + 4u^9 + 10u^8 + 14u^7 + 15u^6 + 10u^5 + 7u^4 + 5u^3 + 11u^2 + 11u + 4$
c_2, c_6, c_7 c_{12}	$u^{10} - 2u^9 + 4u^8 - 4u^7 + 5u^6 - 6u^5 + 7u^4 - 7u^3 + 5u^2 - 3u + 2$
c_3, c_4, c_8	$u^{10} + u^9 + 6u^8 + 6u^7 + 13u^6 + 13u^5 + 11u^4 + 10u^3 + 2u^2 + 1$
c_5, c_{10}	$u^{10} + u^9 + 3u^8 + 3u^7 + 4u^6 + 4u^5 + 3u^4 + 5u^3 + 4u^2 + 4u + 4$
c_9	$u^{10} + 5u^9 + 11u^8 + 13u^7 + 8u^6 + 2u^5 + u^4 - u^3 + 16u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{10} + 4y^9 + \cdots - 33y + 16$
c_2, c_6, c_7 c_{12}	$y^{10} + 4y^9 + 10y^8 + 14y^7 + 15y^6 + 10y^5 + 7y^4 + 5y^3 + 11y^2 + 11y + 4$
c_3, c_4, c_8	$y^{10} + 11y^9 + \cdots + 4y + 1$
c_5, c_{10}	$y^{10} + 5y^9 + 11y^8 + 13y^7 + 8y^6 + 2y^5 + y^4 - y^3 + 16y + 16$
c_9	$y^{10} - 3y^9 + \cdots - 256y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.748770 + 0.138462I$ $a = 0.92253 + 1.26185I$ $b = -0.439859 + 1.118370I$ $c = -1.73122 + 1.35717I$ $d = -2.26783 - 0.05446I$	$-7.31978 - 3.81695I$	$-7.33347 + 4.73761I$
$u = 0.748770 - 0.138462I$ $a = 0.92253 - 1.26185I$ $b = -0.439859 - 1.118370I$ $c = -1.73122 - 1.35717I$ $d = -2.26783 + 0.05446I$	$-7.31978 + 3.81695I$	$-7.33347 - 4.73761I$
$u = 0.28433 + 1.41260I$ $a = 0.919982 + 0.694170I$ $b = -0.910142 - 0.314063I$ $c = -1.047080 + 0.366289I$ $d = -1.16328 - 1.17886I$	$5.18879 - 6.45670I$	$5.02275 + 3.64794I$
$u = 0.28433 - 1.41260I$ $a = 0.919982 - 0.694170I$ $b = -0.910142 + 0.314063I$ $c = -1.047080 - 0.366289I$ $d = -1.16328 + 1.17886I$	$5.18879 + 6.45670I$	$5.02275 - 3.64794I$
$u = -0.35489 + 1.40814I$ $a = 1.79571 - 0.20376I$ $b = -0.609606 - 1.180280I$ $c = -0.441314 - 0.512537I$ $d = -0.99330 + 1.55020I$	$2.57186 + 12.00600I$	$1.91374 - 7.39232I$
$u = -0.35489 - 1.40814I$ $a = 1.79571 + 0.20376I$ $b = -0.609606 + 1.180280I$ $c = -0.441314 + 0.512537I$ $d = -0.99330 - 1.55020I$	$2.57186 - 12.00600I$	$1.91374 + 7.39232I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.05139 + 1.48296I$ $a = -1.43312 + 0.49863I$ $b = 0.782018 - 0.812236I$ $c = 0.758680 - 0.138716I$ $d = 0.366987 + 0.885907I$	$8.34709 - 2.88363I$	$6.09026 + 2.85464I$
$u = 0.05139 - 1.48296I$ $a = -1.43312 - 0.49863I$ $b = 0.782018 + 0.812236I$ $c = 0.758680 + 0.138716I$ $d = 0.366987 - 0.885907I$	$8.34709 + 2.88363I$	$6.09026 - 2.85464I$
$u = -0.229588 + 0.355227I$ $a = -1.205100 - 0.252617I$ $b = 0.177588 + 0.796469I$ $c = 1.46094 + 2.78212I$ $d = 1.05742 - 2.03840I$	$-3.85316 + 1.05773I$	$-3.69328 - 6.23330I$
$u = -0.229588 - 0.355227I$ $a = -1.205100 + 0.252617I$ $b = 0.177588 - 0.796469I$ $c = 1.46094 - 2.78212I$ $d = 1.05742 + 2.03840I$	$-3.85316 - 1.05773I$	$-3.69328 + 6.23330I$

V. $\boldsymbol{I^u_5 = \langle -u^3 + d - u,\ c - u,\ -u^5 - 2u^3 - u^2 + b - 1,\ -u^7 + 2u^6 + \cdots + 2a + 1,\ u^8 + 3u^6 + \cdots + u + 2\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ u^5 + 2u^3 + u^2 + 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots + \frac{3}{2}u + \frac{1}{2} \\ -u^6 - 2u^4 - u^3 - u^2 - u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}u^7 + \frac{1}{2}u^5 - u^2 + \frac{1}{2}u - \frac{1}{2} \\ -u^6 - 2u^4 - u^3 - u^2 - u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^7 + u^6 + \cdots + \frac{3}{2}u - \frac{1}{2} \\ u^6 - u^5 + 2u^4 + 2u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^4 + 2y^3 + 7y^2 + 5y + 1)^2$
c_2, c_6, c_7 c_{12}	$(y^4 + 2y^3 + 3y^2 + y + 1)^2$
c_3, c_4, c_5 c_8, c_{10}	$y^8 + 6y^7 + 13y^6 + 10y^5 - 2y^4 - 4y^3 + y^2 + 3y + 4$
c_9	$y^8 - 10y^7 + 45y^6 - 102y^5 + 82y^4 + 24y^3 + 9y^2 - y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.856926 + 0.228629I$ $a = -0.766503 + 1.117310I$ $b = 0.547424 + 1.120870I$ $c = -0.856926 + 0.228629I$ $d = -1.35181 + 0.72034I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = -0.856926 - 0.228629I$ $a = -0.766503 - 1.117310I$ $b = 0.547424 - 1.120870I$ $c = -0.856926 - 0.228629I$ $d = -1.35181 - 0.72034I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = 0.511330 + 0.719091I$ $a = 0.699144 + 0.608069I$ $b = -0.547424 + 0.585652I$ $c = 0.511330 + 0.719091I$ $d = -0.148192 + 0.911292I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$
$u = 0.511330 - 0.719091I$ $a = 0.699144 - 0.608069I$ $b = -0.547424 - 0.585652I$ $c = 0.511330 - 0.719091I$ $d = -0.148192 - 0.911292I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.036094 + 1.304740I$ $a = 1.33473 + 1.08141I$ $b = -0.547424 - 0.585652I$ $c = 0.036094 + 1.304740I$ $d = -0.148192 - 0.911292I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.036094 - 1.304740I$ $a = 1.33473 - 1.08141I$ $b = -0.547424 + 0.585652I$ $c = 0.036094 - 1.304740I$ $d = -0.148192 + 0.911292I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.309502 + 1.349500I$ $a = -2.01737 - 0.12267I$ $b = \quad 0.547424 - 1.120870I$ $c = \quad 0.309502 + 1.349500I$ $d = -1.35181 - 0.72034I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = \quad 0.309502 - 1.349500I$ $a = -2.01737 + 0.12267I$ $b = \quad 0.547424 + 1.120870I$ $c = \quad 0.309502 - 1.349500I$ $d = -1.35181 + 0.72034I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$

VI.

$$I^u_6 = \langle u^6+u^5+\cdots+d+1,\ -u^7-u^5+\cdots+2c+1,\ b-u,\ a,\ u^8+3u^6+\cdots+u+2\rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{1}{2}u^7+\frac{1}{2}u^5+\cdots-\frac{1}{2}u-\frac{1}{2}\\-u^6-u^5-u^4-3u^3-u-1\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-\frac{1}{2}u^7-\frac{5}{2}u^5+\cdots-\frac{1}{2}u-\frac{3}{2}\\-u^7-3u^5-2u^3-u^2+u-1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{1}{2}u^7+\frac{3}{2}u^5+u^3-\frac{1}{2}u+\frac{1}{2}\\1\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-\frac{1}{2}u^7-\frac{1}{2}u^5+\cdots+\frac{1}{2}u+\frac{1}{2}\\u^5+2u^3+u^2+u+1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^8 - 10y^7 + 45y^6 - 102y^5 + 82y^4 + 24y^3 + 9y^2 - y + 16$
c_2, c_3, c_4 c_7, c_8	$y^8 + 6y^7 + 13y^6 + 10y^5 - 2y^4 - 4y^3 + y^2 + 3y + 4$
c_5, c_6, c_{10} c_{12}	$(y^4 + 2y^3 + 3y^2 + y + 1)^2$
c_9, c_{11}	$(y^4 + 2y^3 + 7y^2 + 5y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.856926 + 0.228629I$ $a = 0$ $b = -0.856926 + 0.228629I$ $c = 1.39892 - 1.05885I$ $d = 1.17165 - 1.21187I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = -0.856926 - 0.228629I$ $a = 0$ $b = -0.856926 - 0.228629I$ $c = 1.39892 + 1.05885I$ $d = 1.17165 + 1.21187I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = 0.511330 + 0.719091I$ $a = 0$ $b = 0.511330 + 0.719091I$ $c = -0.620678 - 0.381115I$ $d = 0.517398 - 0.132058I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$
$u = 0.511330 - 0.719091I$ $a = 0$ $b = 0.511330 - 0.719091I$ $c = -0.620678 + 0.381115I$ $d = 0.517398 + 0.132058I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.036094 + 1.304740I$ $a = 0$ $b = 0.036094 + 1.304740I$ $c = 0.490144 + 0.046758I$ $d = 0.98671 + 1.09479I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.036094 - 1.304740I$ $a = 0$ $b = 0.036094 - 1.304740I$ $c = 0.490144 - 0.046758I$ $d = 0.98671 - 1.09479I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.309502 + 1.349500I$ $a = 0$ $b = 0.309502 + 1.349500I$ $c = -1.018380 + 0.475355I$ $d = -1.67576 - 1.31818I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = 0.309502 - 1.349500I$ $a = 0$ $b = 0.309502 - 1.349500I$ $c = -1.018380 - 0.475355I$ $d = -1.67576 + 1.31818I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$

VII. $\boldsymbol{I^u_7 = \langle u^6 + u^5 + \cdots + d + 1,\ -u^7 - u^5 + \cdots + 2c + 1,\ -u^5 - 2u^3 - u^2 + b - 1,\ -u^7 + 2u^6 + \cdots + 2a + 1,\ u^8 + 3u^6 + \cdots + u + 2\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} \frac{1}{2}u^7 - u^6 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ u^5 + 2u^3 + u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^7 - \frac{5}{2}u^5 + \cdots - \frac{1}{2}u - \frac{3}{2} \\ -u^7 - 3u^5 - 2u^3 - u^2 + u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots + \frac{3}{2}u + \frac{1}{2} \\ -u^6 - 2u^4 - u^3 - u^2 - u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}u^7 + \frac{1}{2}u^5 - u^2 + \frac{1}{2}u - \frac{1}{2} \\ -u^6 - 2u^4 - u^3 - u^2 - u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^7 - u^6 + \cdots - \frac{3}{2}u - \frac{1}{2} \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^7 - \frac{1}{2}u^5 + \cdots + \frac{1}{2}u + \frac{1}{2} \\ u^5 + 2u^3 + u^2 + u + 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$(y^4 + 2y^3 + 7y^2 + 5y + 1)^2$
c_2, c_5, c_7 c_{10}	$(y^4 + 2y^3 + 3y^2 + y + 1)^2$
c_3, c_4, c_6 c_8, c_{12}	$y^8 + 6y^7 + 13y^6 + 10y^5 - 2y^4 - 4y^3 + y^2 + 3y + 4$
c_{11}	$y^8 - 10y^7 + 45y^6 - 102y^5 + 82y^4 + 24y^3 + 9y^2 - y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.856926 + 0.228629I$ $a = -0.766503 + 1.117310I$ $b = 0.547424 + 1.120870I$ $c = 1.39892 - 1.05885I$ $d = 1.17165 - 1.21187I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = -0.856926 - 0.228629I$ $a = -0.766503 - 1.117310I$ $b = 0.547424 - 1.120870I$ $c = 1.39892 + 1.05885I$ $d = 1.17165 + 1.21187I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = 0.511330 + 0.719091I$ $a = 0.699144 + 0.608069I$ $b = -0.547424 + 0.585652I$ $c = -0.620678 - 0.381115I$ $d = 0.517398 - 0.132058I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$
$u = 0.511330 - 0.719091I$ $a = 0.699144 - 0.608069I$ $b = -0.547424 - 0.585652I$ $c = -0.620678 + 0.381115I$ $d = 0.517398 + 0.132058I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.036094 + 1.304740I$ $a = 1.33473 + 1.08141I$ $b = -0.547424 - 0.585652I$ $c = 0.490144 + 0.046758I$ $d = 0.98671 + 1.09479I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.036094 - 1.304740I$ $a = 1.33473 - 1.08141I$ $b = -0.547424 + 0.585652I$ $c = 0.490144 - 0.046758I$ $d = 0.98671 - 1.09479I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.309502 + 1.349500I$ $a = -2.01737 - 0.12267I$ $b = \quad 0.547424 - 1.120870I$ $c = -1.018380 + 0.475355I$ $d = -1.67576 - 1.31818I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = \quad 0.309502 - 1.349500I$ $a = -2.01737 + 0.12267I$ $b = \quad 0.547424 + 1.120870I$ $c = -1.018380 - 0.475355I$ $d = -1.67576 + 1.31818I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$

VIII. $\boldsymbol{I^u_8 = \langle -u^3 + d - u,\ c - u,\ b - u,\ a,\ u^4 + u^2 + u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.547424 + 0.585652I$ $a = 0$ $b = -0.547424 + 0.585652I$ $c = -0.547424 + 0.585652I$ $d = -0.148192 + 0.911292I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$
$u = -0.547424 - 0.585652I$ $a = 0$ $b = -0.547424 - 0.585652I$ $c = -0.547424 - 0.585652I$ $d = -0.148192 - 0.911292I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.547424 + 1.120870I$ $a = 0$ $b = 0.547424 + 1.120870I$ $c = 0.547424 + 1.120870I$ $d = -1.35181 + 0.72034I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = 0.547424 - 1.120870I$ $a = 0$ $b = 0.547424 - 1.120870I$ $c = 0.547424 - 1.120870I$ $d = -1.35181 - 0.72034I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$

IX. $\boldsymbol{I^u_9 = \langle u^2 + d + u + 1,\ c - u,\ -u^2a - u^2 + 2b - a - 2,\ 2u^2a + 4u^2 + \cdots + 2a + 5,\ u^3 + u^2 + 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=-0.919774+0.855379I$ $b=\ \ 0.713912-0.305839I$ $c=-0.215080+1.307140I$ $d=\ \ 0.877439-0.744862I$	$-0.26574+2.82812I$	$1.50976-2.97945I$
$u=-0.215080+1.307140I$ $a=\ \ 2.24449+0.26918I$ $b=-0.498832-1.001300I$ $c=-0.215080+1.307140I$ $d=\ \ 0.877439-0.744862I$	$-0.26574+2.82812I$	$1.50976-2.97945I$
$u=-0.215080-1.307140I$ $a=-0.919774-0.855379I$ $b=\ \ 0.713912+0.305839I$ $c=-0.215080-1.307140I$ $d=\ \ 0.877439+0.744862I$	$-0.26574-2.82812I$	$1.50976+2.97945I$
$u=-0.215080-1.307140I$ $a=\ \ 2.24449-0.26918I$ $b=-0.498832+1.001300I$ $c=-0.215080-1.307140I$ $d=\ \ 0.877439+0.744862I$	$-0.26574-2.82812I$	$1.50976+2.97945I$
$u=-0.569840$ $a=-1.32472+1.68359I$ $b=\ \ 0.284920+1.115140I$ $c=-0.569840$ $d=-0.754878$	-4.40332	-5.01950
$u=-0.569840$ $a=-1.32472-1.68359I$ $b=\ \ 0.284920-1.115140I$ $c=-0.569840$ $d=-0.754878$	-4.40332	-5.01950

X.

$$\boldsymbol{I^u_{10} = \langle u^2c-u^2+\cdots+c-2,\ -2u^2c+3u^2+\cdots-4c+5,\ b-u,\ a,\ u^3+u^2+2u+1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{10}^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0$ $b = -0.215080 + 1.307140I$ $c = 0.836473 + 0.439023I$ $d = 1.93730 - 0.49194I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = -0.215080 + 1.307140I$ $a = 0$ $b = -0.215080 + 1.307140I$ $c = -0.376271 - 0.256441I$ $d = -0.81474 + 1.23680I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0$ $b = -0.215080 - 1.307140I$ $c = 0.836473 - 0.439023I$ $d = 1.93730 + 0.49194I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0$ $b = -0.215080 - 1.307140I$ $c = -0.376271 + 0.256441I$ $d = -0.81474 - 1.23680I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.569840$ $a = 0$ $b = -0.569840$ $c = 2.03980 + 1.11514I$ $d = 1.377440 - 0.206343I$	-4.40332	-5.01950
$u = -0.569840$ $a = 0$ $b = -0.569840$ $c = 2.03980 - 1.11514I$ $d = 1.377440 + 0.206343I$	-4.40332	-5.01950

XI. $\boldsymbol{I^u_{11} = \langle -u^2a - au + 2d - u - 3,\ -u^2a - 3u^2 + \cdots - a - 6,\ -u^2a - u^2 + 2b - a - 2,\ 2u^2a + 4u^2 + \cdots + 2a + 5,\ u^3 + u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^2a + \frac{3}{2}u^2 + \frac{1}{2}a + u + 3 \\ \frac{1}{2}u^2a + \frac{1}{2}au + \frac{1}{2}u + \frac{3}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a \\ \frac{1}{2}u^2a + \frac{1}{2}u^2 + \frac{1}{2}a + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2a + \frac{3}{2}u^2 + \cdots + \frac{3}{2}a + \frac{7}{2} \\ \frac{1}{2}u^2a + \frac{1}{2}u^2 + \cdots + \frac{1}{2}a + \frac{3}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^2a - au - u^2 - a - \frac{1}{2}u - 2 \\ \frac{1}{2}u^2a - \frac{1}{2}u^2 + \cdots + \frac{1}{2}a - \frac{1}{2} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{2}au - \frac{3}{2}u^2 + \cdots - \frac{1}{2}a - \frac{5}{2} \\ \frac{1}{2}u^2a - \frac{1}{2}u^2 + \cdots + \frac{1}{2}a - \frac{1}{2} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u^2a + au + u^2 + a + \frac{1}{2}u + 2 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^2a - \frac{1}{2}u^2 + \frac{1}{2}a - 1 \\ \frac{1}{2}u^2a + \frac{1}{2}u^2 + \frac{1}{2}a + u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ -u^2 - u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^2 + u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{11}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=-0.919774+0.855379I$ $b=0.713912-0.305839I$ $c=0.836473+0.439023I$ $d=1.93730-0.49194I$	$-0.26574+2.82812I$	$1.50976-2.97945I$
$u=-0.215080+1.307140I$ $a=2.24449+0.26918I$ $b=-0.498832-1.001300I$ $c=-0.376271-0.256441I$ $d=-0.81474+1.23680I$	$-0.26574+2.82812I$	$1.50976-2.97945I$
$u=-0.215080-1.307140I$ $a=-0.919774-0.855379I$ $b=0.713912+0.305839I$ $c=0.836473-0.439023I$ $d=1.93730+0.49194I$	$-0.26574-2.82812I$	$1.50976+2.97945I$
$u=-0.215080-1.307140I$ $a=2.24449-0.26918I$ $b=-0.498832+1.001300I$ $c=-0.376271+0.256441I$ $d=-0.81474-1.23680I$	$-0.26574-2.82812I$	$1.50976+2.97945I$
$u=-0.569840$ $a=-1.32472+1.68359I$ $b=0.284920+1.115140I$ $c=2.03980+1.11514I$ $d=1.377440-0.206343I$	-4.40332	-5.01950
$u=-0.569840$ $a=-1.32472-1.68359I$ $b=0.284920-1.115140I$ $c=2.03980-1.11514I$ $d=1.377440+0.206343I$	-4.40332	-5.01950

XII. $I^u_{12} = \langle -u^3 + d - u,\ c - u,\ b - u,\ a,\ u^6 - u^5 + \cdots - 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{12}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.498832 + 1.001300I$ $a = 0$ $b = -0.498832 + 1.001300I$ $c = -0.498832 + 1.001300I$ $d = 0.877439 + 0.744862I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.498832 - 1.001300I$ $a = 0$ $b = -0.498832 - 1.001300I$ $c = -0.498832 - 1.001300I$ $d = 0.877439 - 0.744862I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.284920 + 1.115140I$ $a = 0$ $b = 0.284920 + 1.115140I$ $c = 0.284920 + 1.115140I$ $d = -0.754878$	-4.40332	$-5.01951 + 0.I$
$u = 0.284920 - 1.115140I$ $a = 0$ $b = 0.284920 - 1.115140I$ $c = 0.284920 - 1.115140I$ $d = -0.754878$	-4.40332	$-5.01951 + 0.I$
$u = 0.713912 + 0.305839I$ $a = 0$ $b = 0.713912 + 0.305839I$ $c = 0.713912 + 0.305839I$ $d = 0.877439 + 0.744862I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 0$ $b = 0.713912 - 0.305839I$ $c = 0.713912 - 0.305839I$ $d = 0.877439 - 0.744862I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$

XIII. $\boldsymbol{I^u_{13}} =$
$\langle -u^3+d-u,\ c-u,\ -u^5-2u^3+\cdots+b+1,\ u^5-u^4-2u^2+a,\ u^6-u^5+\cdots-2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{13}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.498832 + 1.001300I$ $a = -0.643729 + 0.689603I$ $b = 0.713912 + 0.305839I$ $c = -0.498832 + 1.001300I$ $d = 0.877439 + 0.744862I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.498832 - 1.001300I$ $a = -0.643729 - 0.689603I$ $b = 0.713912 - 0.305839I$ $c = -0.498832 - 1.001300I$ $d = 0.877439 - 0.744862I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.284920 + 1.115140I$ $a = -3.29468 - 0.84179I$ $b = 0.284920 - 1.115140I$ $c = 0.284920 + 1.115140I$ $d = -0.754878$	-4.40332	$-5.01951 + 0.I$
$u = 0.284920 - 1.115140I$ $a = -3.29468 + 0.84179I$ $b = 0.284920 + 1.115140I$ $c = 0.284920 - 1.115140I$ $d = -0.754878$	-4.40332	$-5.01951 + 0.I$
$u = 0.713912 + 0.305839I$ $a = 0.938404 + 0.982703I$ $b = -0.498832 + 1.001300I$ $c = 0.713912 + 0.305839I$ $d = 0.877439 + 0.744862I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 0.938404 - 0.982703I$ $b = -0.498832 - 1.001300I$ $c = 0.713912 - 0.305839I$ $d = 0.877439 - 0.744862I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$

XIV.

$\boldsymbol{I^u_{14} = \langle 2u^5 - u^4 + \cdots + d + 2u,\ u^4 + u^2 + c + 1,\ b - u,\ a,\ u^6 - u^5 + \cdots - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{14}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.498832 + 1.001300I$ $a = 0$ $b = -0.498832 + 1.001300I$ $c = 0.183526 - 0.507021I$ $d = -1.105040 + 0.381425I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.498832 - 1.001300I$ $a = 0$ $b = -0.498832 - 1.001300I$ $c = 0.183526 + 0.507021I$ $d = -1.105040 - 0.381425I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.284920 + 1.115140I$ $a = 0$ $b = 0.284920 + 1.115140I$ $c = -0.784920 + 0.841795I$ $d = -3.70216 - 1.47725I$	-4.40332	$-5.01951 + 0.I$
$u = 0.284920 - 1.115140I$ $a = 0$ $b = 0.284920 - 1.115140I$ $c = -0.784920 - 0.841795I$ $d = -3.70216 + 1.47725I$	-4.40332	$-5.01951 + 0.I$
$u = 0.713912 + 0.305839I$ $a = 0$ $b = 0.713912 + 0.305839I$ $c = -1.39861 - 0.80012I$ $d = -0.692808 - 0.761122I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 0$ $b = 0.713912 - 0.305839I$ $c = -1.39861 + 0.80012I$ $d = -0.692808 + 0.761122I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$

XV. $I^u_{15} = \langle d+1,\ c-u,\ b,\ a-u,\ u^2+1\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

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

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

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

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{15}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.000000I$ $b = 0$ $c = 1.000000I$ $d = -1.00000$	-1.64493	0
$u = -1.000000I$ $a = -1.000000I$ $b = 0$ $c = -1.000000I$ $d = -1.00000$	-1.64493	0

XVI. $I_{16}^{u} = \langle d+1,\ c-u,\ b-u,\ a-1,\ u^2+1 \rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

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

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

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

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

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

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

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

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

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{16}	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.000000I$ $a = 1.00000$ $b = \quad 1.000000I$ $c = \quad 1.000000I$ $d = -1.00000$	-1.64493	0
$u = \quad -1.000000I$ $a = 1.00000$ $b = \quad -1.000000I$ $c = \quad -1.000000I$ $d = -1.00000$	-1.64493	0

XVII. $I^u_{17} = \langle d - u,\ c,\ b - u,\ a - 1,\ u^2 + 1 \rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

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

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

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

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

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

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

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

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

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{17}		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.000000I$		
$a=$	1.00000		
$b=$	$1.000000I$	-1.64493	0
$c=$	0		
$d=$	$1.000000I$		
$u=$	$-1.000000I$		
$a=$	1.00000		
$b=$	$-1.000000I$	-1.64493	0
$c=$	0		
$d=$	$-1.000000I$		

XVIII. $I^u_{18} = \langle da + u + 1,\ c - u,\ b - u,\ u^2 + 1\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} a \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ d + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} au + 1 \\ -1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -au + u \\ d + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -du \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_{18}^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$		
$a = \cdots$		
$b = \cdots$	-3.28987	-6.00000
$c = \cdots$		
$d = \cdots$		

XIX. $I_1^v = \langle a,\ d+v,\ c+a+1,\ b-v,\ v^2+1 \rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_2 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} -v \\ 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.000000I$		
$a = 0$		
$b = 1.000000I$	-4.93480	-12.0000
$c = -1.00000$		
$d = -1.000000I$		
$v = -1.000000I$		
$a = 0$		
$b = -1.000000I$	-4.93480	-12.0000
$c = -1.00000$		
$d = 1.000000I$		

XX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9, c_{11}	$u^2(u-1)^6(u^3+3u^2+2u-1)^2(u^4+2u^3+3u^2+u+1)^5$ $\cdot(u^6+3u^5+4u^4+2u^3+1)^5$ $\cdot(u^8+6u^7+13u^6+10u^5-2u^4-4u^3+u^2+3u+4)$ $\cdot(u^{10}+4u^9+10u^8+14u^7+15u^6+10u^5+7u^4+5u^3+11u^2+11u+4)^2$ $\cdot(u^{10}+5u^9+11u^8+13u^7+8u^6+2u^5+u^4-u^3+16u+16)$ $\cdot(u^{12}+5u^{11}+\cdots+6u+1)$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$u^2(u^2+1)^3(u^3-u^2+2u-1)^2(u^4+u^2-u+1)^5$ $\cdot(u^6+u^5+2u^4+2u^3+2u^2+2u+1)^5$ $\cdot(u^8+3u^6-2u^5+2u^4-4u^3+u^2-u+2)$ $\cdot(u^{10}-2u^9+4u^8-4u^7+5u^6-6u^5+7u^4-7u^3+5u^2-3u+2)^2$ $\cdot(u^{10}+u^9+3u^8+3u^7+4u^6+4u^5+3u^4+5u^3+4u^2+4u+4)$ $\cdot(u^{12}+u^{11}+3u^{10}+3u^9+7u^8+7u^7+8u^6+7u^5+9u^4+6u^3+3u^2+1)$
c_3, c_4, c_8	$u^2(u^2+1)^3(u^3-u^2+2u-1)^6(u^4+u^2-u+1)$ $\cdot(u^6+u^5+2u^4+2u^3+2u^2+2u+1)^3$ $\cdot(u^8+3u^6-2u^5+2u^4-4u^3+u^2-u+2)^3$ $\cdot(u^{10}+u^9+6u^8+6u^7+13u^6+13u^5+11u^4+10u^3+2u^2+1)^3$ $\cdot(u^{12}+u^{11}+\cdots+4u+4)$

XXI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_9, c_{11}	$y^2(y-1)^6(y^3-5y^2+10y-1)^2(y^4+2y^3+7y^2+5y+1)^5$ $\cdot(y^6-y^5+4y^4-2y^3+8y^2+1)^5$ $\cdot(y^8-10y^7+45y^6-102y^5+82y^4+24y^3+9y^2-y+16)$ $\cdot(y^{10}-3y^9+\cdots-256y+256)(y^{10}+4y^9+\cdots-33y+16)^2$ $\cdot(y^{12}+9y^{11}+\cdots+18y+1)$
c_2, c_5, c_6 c_7, c_{10}, c_{12}	$y^2(y+1)^6(y^3+3y^2+2y-1)^2(y^4+2y^3+3y^2+y+1)^5$ $\cdot(y^6+3y^5+4y^4+2y^3+1)^5$ $\cdot(y^8+6y^7+13y^6+10y^5-2y^4-4y^3+y^2+3y+4)$ $\cdot(y^{10}+4y^9+10y^8+14y^7+15y^6+10y^5+7y^4+5y^3+11y^2+11y+4)^2$ $\cdot(y^{10}+5y^9+11y^8+13y^7+8y^6+2y^5+y^4-y^3+16y+16)$ $\cdot(y^{12}+5y^{11}+\cdots+6y+1)$
c_3, c_4, c_8	$y^2(y+1)^6(y^3+3y^2+2y-1)^6(y^4+2y^3+3y^2+y+1)$ $\cdot(y^6+3y^5+4y^4+2y^3+1)^3$ $\cdot(y^8+6y^7+13y^6+10y^5-2y^4-4y^3+y^2+3y+4)^3$ $\cdot((y^{10}+11y^9+\cdots+4y+1)^3)(y^{12}+11y^{11}+\cdots+48y+16)$