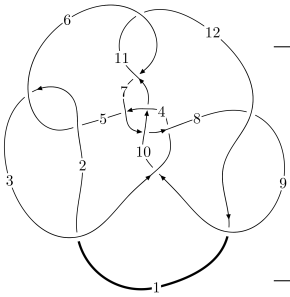
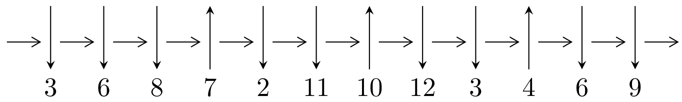
$12n_{0526}$ ($K12n_{0526}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 509724805881808u^{17} + 62725492089096u^{16} + \cdots + 9621552304010 99b - 2566227709173424,$$
$$509724805881808u^{17} + 62725492089096u^{16} + \cdots + 962155230401099a - 1604072478772325,$$
$$u^{18} + 13u^{15} + \cdots - 3u + 1\rangle$$
$$I_2^u = \langle -2u^3 + u^2 + 5b + 7u + 4,\ -2u^3 + u^2 + 5a + 7u + 9,\ u^4 - u^3 - 2u^2 - 4u + 1\rangle$$
$$I_3^u = \langle -27u^5 - 100u^4 - 44u^3 + 97u^2 + 83b - 149u - 351,$$
$$151u^5 + 341u^4 + 160u^3 + 598u^2 + 1909a + 1153u + 552,\ u^6 + 5u^5 + 7u^4 + 2u^2 + 23u + 23\rangle$$
$$I_4^u = \langle 2.26609 \times 10^{20}u^{17} - 1.36596 \times 10^{21}u^{16} + \cdots + 1.11949 \times 10^{23}b - 1.57690 \times 10^{23},$$
$$- 2.09433 \times 10^{24}u^{17} + 1.13703 \times 10^{25}u^{16} + \cdots + 1.33689 \times 10^{27}a + 3.04454 \times 10^{27},$$
$$u^{18} - 6u^{17} + \cdots - 1792u + 448\rangle$$
$$I_5^u = \langle -u^5 - 2u^4 - 6u^3 - 3u^2 + 4b - 5u + 5,\ -u^5 - 2u^4 - 6u^3 - 3u^2 + 4a - 5u + 5,$$
$$u^6 + u^5 + 4u^4 + u^3 + 2u^2 - 2u + 1\rangle$$

$$I_1^v = \langle a,\ 3v^5 - 2v^4 + 15v^3 - 20v^2 + 7b + 12v + 3,\ v^6 - v^5 + 5v^4 - 9v^3 + 5v^2 - v + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 58 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle 5.10\times10^{14}u^{17}+6.27\times10^{13}u^{16}+\cdots+9.62\times10^{14}b-2.57\times10^{15},\ 5.10\times10^{14}u^{17}+ 6.27\times10^{13}u^{16}+\cdots+9.62\times10^{14}a-1.60\times10^{15},\ u^{18}+13u^{15}+\cdots-3u+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.529774u^{17}-0.0651927u^{16}+\cdots-10.5792u+1.66717\\-0.529774u^{17}-0.0651927u^{16}+\cdots-10.5792u+2.66717\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.0770104u^{17}+0.260613u^{16}+\cdots-4.25101u+1.18675\\0.0118177u^{17}+0.255567u^{16}+\cdots-3.17317u+1.71652\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-1.25969u^{17}+0.0649203u^{16}+\cdots-13.8506u+2.19363\\-1.00412u^{17}+0.0243057u^{16}+\cdots-12.0986u+3.18181\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-1\\-0.529774u^{17}-0.0651927u^{16}+\cdots-10.5792u+2.66717\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\0.0651927u^{17}+0.00504605u^{16}+\cdots-0.0778441u-0.529774\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.00504605u^{17}+0.0633402u^{16}+\cdots+0.334196u+1.06519\\-0.260613u^{17}+0.103955u^{16}+\cdots-1.41778u+0.0770104\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.471649u^{17}+0.309437u^{16}+\cdots+1.48208u+1.26622\\0.0769485u^{17}+0.231016u^{16}+\cdots-0.716691u-0.529509\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.526910u^{17}+0.0682034u^{16}+\cdots+4.16343u-0.388870\\0.108885u^{17}+0.0443291u^{16}+\cdots+0.972123u-0.838062\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.386278u^{17}+0.00755787u^{16}+\cdots-9.06550u+1.82450\\-0.335639u^{17}-0.0387286u^{16}+\cdots-9.84582u+2.34782\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{10294514371764425}{962155230401099}u^{17}-\frac{6856664502715686}{962155230401099}u^{16}+\cdots-\frac{995492386607210006}{962155230401099}u-\frac{1140091802147429 49}{962155230401099}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18} + 20u^{17} + \cdots + 9u + 1$
c_2, c_5, c_8 c_{12}	$u^{18} - 10u^{16} + \cdots + u + 1$
c_3, c_6, c_{11}	$u^{18} + 4u^{16} + \cdots - 5u + 1$
c_4, c_7	$u^{18} - 13u^{15} + \cdots + 3u + 1$
c_9	$u^{18} + 4u^{17} + \cdots + 2u + 49$
c_{10}	$u^{18} + 11u^{17} + \cdots + 12u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} - 44y^{17} + \cdots + 123y + 1$
c_2, c_5, c_8 c_{12}	$y^{18} - 20y^{17} + \cdots - 9y + 1$
c_3, c_6, c_{11}	$y^{18} + 8y^{17} + \cdots - 13y + 1$
c_4, c_7	$y^{18} + 10y^{16} + \cdots + 43y + 1$
c_9	$y^{18} - 38y^{17} + \cdots + 23516y + 2401$
c_{10}	$y^{18} - 7y^{17} + \cdots - 578y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.113980 + 1.055280I$ $a = -1.44079 - 0.05034I$ $b = -0.440789 - 0.050343I$	$0.52334 + 2.87308I$	$-12.86704 - 2.02894I$
$u = -0.113980 - 1.055280I$ $a = -1.44079 + 0.05034I$ $b = -0.440789 + 0.050343I$	$0.52334 - 2.87308I$	$-12.86704 + 2.02894I$
$u = 0.954988 + 0.936855I$ $a = -0.110942 + 0.898533I$ $b = 0.889058 + 0.898533I$	$-3.78393 + 7.04028I$	$-11.7360 - 7.9578I$
$u = 0.954988 - 0.936855I$ $a = -0.110942 - 0.898533I$ $b = 0.889058 - 0.898533I$	$-3.78393 - 7.04028I$	$-11.7360 + 7.9578I$
$u = -0.058366 + 0.626910I$ $a = -1.99797 + 0.34561I$ $b = -0.997971 + 0.345611I$	$3.21985 - 4.16919I$	$-1.22804 + 6.95897I$
$u = -0.058366 - 0.626910I$ $a = -1.99797 - 0.34561I$ $b = -0.997971 - 0.345611I$	$3.21985 + 4.16919I$	$-1.22804 - 6.95897I$
$u = 0.705132 + 1.217160I$ $a = -0.230297 - 1.183980I$ $b = 0.769703 - 1.183980I$	$-18.2643 + 6.2926I$	$-8.79577 - 2.62001I$
$u = 0.705132 - 1.217160I$ $a = -0.230297 + 1.183980I$ $b = 0.769703 + 1.183980I$	$-18.2643 - 6.2926I$	$-8.79577 + 2.62001I$
$u = -0.92137 + 1.10060I$ $a = 0.292045 - 0.754405I$ $b = 1.29204 - 0.75441I$	$2.25471 - 6.85293I$	$2.33518 + 2.51828I$
$u = -0.92137 - 1.10060I$ $a = 0.292045 + 0.754405I$ $b = 1.29204 + 0.75441I$	$2.25471 + 6.85293I$	$2.33518 - 2.51828I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.069851 + 0.514524I$ $a = -0.761951 + 0.761302I$ $b = 0.238049 + 0.761302I$	$-0.860650 - 0.772825I$	$-7.78859 + 5.59560I$
$u = 0.069851 - 0.514524I$ $a = -0.761951 - 0.761302I$ $b = 0.238049 - 0.761302I$	$-0.860650 + 0.772825I$	$-7.78859 - 5.59560I$
$u = 0.071122 + 0.227795I$ $a = 0.79662 - 1.30381I$ $b = 1.79662 - 1.30381I$	$-2.88172 + 0.11696I$	$-86.2726 - 33.4077I$
$u = 0.071122 - 0.227795I$ $a = 0.79662 + 1.30381I$ $b = 1.79662 + 1.30381I$	$-2.88172 - 0.11696I$	$-86.2726 + 33.4077I$
$u = -2.05408 + 0.03763I$ $a = -0.195363 + 0.174827I$ $b = 0.804637 + 0.174827I$	$5.48543 + 0.72645I$	$-2.62157 - 10.03199I$
$u = -2.05408 - 0.03763I$ $a = -0.195363 - 0.174827I$ $b = 0.804637 - 0.174827I$	$5.48543 - 0.72645I$	$-2.62157 + 10.03199I$
$u = 1.34670 + 1.70942I$ $a = 0.148649 + 0.885147I$ $b = 1.14865 + 0.88515I$	$-16.9465 + 13.6621I$	$-7.52555 - 5.67041I$
$u = 1.34670 - 1.70942I$ $a = 0.148649 - 0.885147I$ $b = 1.14865 - 0.88515I$	$-16.9465 - 13.6621I$	$-7.52555 + 5.67041I$

II.

$$\boldsymbol{I_2^u = \langle -2u^3+u^2+5b+7u+4,\ -2u^3+u^2+5a+7u+9,\ u^4-u^3-2u^2-4u+1\rangle}$$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} \frac{2}{5}u^3 - \frac{1}{5}u^2 - \frac{7}{5}u - \frac{9}{5} \\ \frac{2}{5}u^3 - \frac{1}{5}u^2 - \frac{7}{5}u - \frac{4}{5} \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} \frac{3}{5}u^3 - \frac{4}{5}u^2 - \frac{8}{5}u - \frac{11}{5} \\ \frac{1}{5}u^3 - \frac{3}{5}u^2 - \frac{1}{5}u - \frac{7}{5} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ \frac{2}{5}u^3 - \frac{1}{5}u^2 - \frac{7}{5}u - \frac{4}{5} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -\frac{1}{5}u^3 + \frac{3}{5}u^2 + \frac{1}{5}u + \frac{2}{5} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{2}{5}u^3 + \frac{1}{5}u^2 + \frac{2}{5}u + \frac{4}{5} \\ -u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ \frac{2}{5}u^3 - \frac{1}{5}u^2 - \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} \frac{3}{5}u^3 + \frac{1}{5}u^2 + \frac{2}{5}u - \frac{11}{5} \\ \frac{2}{5}u^3 + \frac{4}{5}u^2 - \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{13}{5}u^3 - \frac{29}{5}u^2 + \frac{7}{5}u - \frac{91}{5}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^4 - 61y^3 + 30y^2 + 4y + 1$
c_2, c_5, c_8 c_{12}	$y^4 - 9y^3 + 10y^2 - 4y + 1$
c_3, c_6, c_{11}	$y^4 - y^3 - 2y^2 - 4y + 1$
c_4, c_7	$y^4 - 5y^3 - 2y^2 - 20y + 1$
c_9	$y^4 - 11y^3 - 11y^2 + 21y + 25$
c_{10}	$y^4 - 4y^3 + 10y^2 - 9y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.826702 + 1.077850I$ $a = 0.379567 - 0.769480I$ $b = 1.37957 - 0.76948I$	$1.92551 - 7.16341I$	$-10.5607 + 14.3354I$
$u = -0.826702 - 1.077850I$ $a = 0.379567 + 0.769480I$ $b = 1.37957 + 0.76948I$	$1.92551 + 7.16341I$	$-10.5607 - 14.3354I$
$u = 0.222985$ $a = -2.11769$ $b = -1.11769$	-2.81853	-18.1470
$u = 2.43042$ $a = -0.641445$ $b = 0.358555$	-14.1920	-11.7310

III. $I_3^u = \langle -27u^5 - 100u^4 + \cdots + 83b - 351,\ 151u^5 + 341u^4 + \cdots + 1909a + 552,\ u^6 + 5u^5 + 7u^4 + 2u^2 + 23u + 23\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0790990u^5 - 0.178628u^4 + \cdots - 0.603981u - 0.289157 \\ 0.325301u^5 + 1.20482u^4 + \cdots + 1.79518u + 4.22892 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.129387u^5 - 0.418020u^4 + \cdots - 1.45155u - 1.63855 \\ 0.0843373u^5 + 0.349398u^4 + \cdots + 0.650602u + 1.09639 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0314301u^5 - 0.0246202u^4 + \cdots - 1.27973u - 0.843373 \\ -0.216867u^5 - 0.469880u^4 + \cdots - 1.53012u - 1.81928 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.404400u^5 - 1.38345u^4 + \cdots - 2.39916u - 4.51807 \\ 0.325301u^5 + 1.20482u^4 + \cdots + 1.79518u + 4.22892 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.430592u^5 - 1.23730u^4 + \cdots - 1.63227u - 3.55422 \\ 0.216867u^5 + 0.469880u^4 + \cdots + 1.53012u + 0.819277 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.220534u^5 + 0.789419u^4 + \cdots + 1.86276u + 3.08434 \\ 0.204819u^5 + 0.277108u^4 + \cdots + 1.72289u - 0.337349 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.315872u^5 + 1.09743u^4 + \cdots + 1.51126u + 3.97590 \\ -0.397590u^5 - 1.36145u^4 + \cdots - 1.63855u - 7.16867 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.358303u^5 + 1.08067u^4 + \cdots + 0.788895u + 3.61446 \\ -0.0963855u^5 - 0.542169u^4 + \cdots - 0.457831u - 5.25301 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.474070u^5 - 1.45469u^4 + \cdots - 1.71922u - 3.55422 \\ 0.132530u^5 + 0.120482u^4 + \cdots + 0.879518u - 1.27711 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{109}{83}u^5 + \frac{416}{83}u^4 + \frac{193}{83}u^3 - \frac{450}{83}u^2 + \frac{580}{83}u + \frac{1168}{83}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^6 - u^5 - 8u^4 + 2u^3 + 20u^2 + 8u + 1$
c_2, c_8	$u^6 + 3u^5 + 4u^4 + 6u^3 + 6u^2 + 2u + 1$
c_3, c_6	$u^6 + 3u^5 + 4u^4 + 3u^3 + 3u^2 + 2u + 1$
c_4, c_7	$u^6 + 5u^5 + 7u^4 + 2u^2 + 23u + 23$
c_5, c_{12}	$u^6 - 3u^5 + 4u^4 - 6u^3 + 6u^2 - 2u + 1$
c_9	$u^6 + 2u^5 + 4u^4 + 6u^3 + 4u^2 + 5u + 5$
c_{10}	$(u^3 - u^2 + 1)^2$
c_{11}	$u^6 - 3u^5 + 4u^4 - 3u^3 + 3u^2 - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - 17y^5 + 108y^4 - 306y^3 + 352y^2 - 24y + 1$
c_2, c_5, c_8 c_{12}	$y^6 - y^5 - 8y^4 + 2y^3 + 20y^2 + 8y + 1$
c_3, c_6, c_{11}	$y^6 - y^5 + 4y^4 + 5y^3 + 5y^2 + 2y + 1$
c_4, c_7	$y^6 - 11y^5 + 53y^4 - 156y^3 + 326y^2 - 437y + 529$
c_9	$y^6 + 4y^5 - 14y^3 - 4y^2 + 15y + 25$
c_{10}	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.988837 + 0.990669I$ $a = 0.262508 - 1.069710I$ $b = -0.877439 - 0.744862I$	$-2.75839 + 5.65624I$	$-7.72484 - 4.28659I$
$u = 0.988837 - 0.990669I$ $a = 0.262508 + 1.069710I$ $b = -0.877439 + 0.744862I$	$-2.75839 - 5.65624I$	$-7.72484 + 4.28659I$
$u = -1.44904 + 0.80809I$ $a = -0.066092 + 0.513653I$ $b = -0.877439 + 0.744862I$	$-2.75839 - 5.65624I$	$-7.72484 + 4.28659I$
$u = -1.44904 - 0.80809I$ $a = -0.066092 - 0.513653I$ $b = -0.877439 - 0.744862I$	$-2.75839 + 5.65624I$	$-7.72484 - 4.28659I$
$u = -2.03980 + 0.32227I$ $a = -0.196416 - 0.308287I$ $b = 0.754878$	5.51678	$-1.55033 + 0.I$
$u = -2.03980 - 0.32227I$ $a = -0.196416 + 0.308287I$ $b = 0.754878$	5.51678	$-1.55033 + 0.I$

IV. $\boldsymbol{I^u_4 = \langle 2.27 \times 10^{20} u^{17} - 1.37 \times 10^{21} u^{16} + \cdots + 1.12 \times 10^{23} b - 1.58 \times 10^{23},\ -2.09 \times 10^{24} u^{17} + 1.14 \times 10^{25} u^{16} + \cdots + 1.34 \times 10^{27} a + 3.04 \times 10^{27},\ u^{18} - 6u^{17} + \cdots - 1792u + 448 \rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} 0.00156657u^{17} - 0.00850503u^{16} + \cdots + 2.44857u - 2.27733 \\ -0.00202422u^{17} + 0.0122017u^{16} + \cdots - 3.29503u + 1.40859 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.000637368u^{17} + 0.00640601u^{16} + \cdots - 5.05787u + 2.59216 \\ 0.000789287u^{17} - 0.00442185u^{16} + \cdots + 1.05475u - 0.409876 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00561057u^{17} - 0.0351617u^{16} + \cdots + 10.1022u - 4.69092 \\ -0.00341981u^{17} + 0.0194053u^{16} + \cdots - 3.19877u + 1.32313 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00359079u^{17} - 0.0207067u^{16} + \cdots + 5.74360u - 3.68591 \\ -0.00202422u^{17} + 0.0122017u^{16} + \cdots - 3.29503u + 1.40859 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.00281027u^{17} + 0.0171228u^{16} + \cdots - 3.36307u + 2.95981 \\ 0.00138362u^{17} - 0.00629498u^{16} + \cdots - 0.749549u + 0.0422281 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.00357012u^{17} + 0.0247277u^{16} + \cdots - 10.0442u + 4.09627 \\ 0.00217249u^{17} - 0.0135804u^{16} + \cdots + 3.24713u - 0.842978 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00271628u^{17} + 0.0142865u^{16} + \cdots - 2.16712u + 2.24397 \\ -0.0000227747u^{17} - 0.000799890u^{16} + \cdots + 1.37886u - 0.473454 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.00709297u^{17} - 0.0701956u^{16} + \cdots + 37.8937u - 7.60167 \\ -0.00852875u^{17} + 0.0481617u^{16} + \cdots - 1.21841u - 0.548662 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.00489348u^{17} + 0.0417001u^{16} + \cdots - 18.1725u + 3.79994 \\ 0.00382063u^{17} - 0.0210140u^{16} + \cdots - 0.151573u + 0.959736 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{342402535801289484442025}{596826762967479347366357 6}u^{17} + \frac{858353517483104921035359}{2387307051869917389465430 4}u^{16} + \cdots - \frac{319520901192998281429116 55}{298413381483739673683178 8}u - \frac{315919293533464455836207}{746033453709349184207947}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18} + 45u^{17} + \cdots + 2548098u + 35721$
c_2, c_5, c_8 c_{12}	$u^{18} + u^{17} + \cdots - 2016u + 189$
c_3, c_6, c_{11}	$u^{18} + 2u^{17} + \cdots - 140u + 43$
c_4, c_7	$u^{18} + 6u^{17} + \cdots + 1792u + 448$
c_9	$u^{18} + 4u^{17} + \cdots - 4364u - 2008$
c_{10}	$(u^3 - u^2 + 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} - 193y^{17} + \cdots - 6886217865618y + 1275989841$
c_2, c_5, c_8 c_{12}	$y^{18} - 45y^{17} + \cdots - 2548098y + 35721$
c_3, c_6, c_{11}	$y^{18} - 12y^{17} + \cdots - 25190y + 1849$
c_4, c_7	$y^{18} + 12y^{17} + \cdots - 1103872y + 200704$
c_9	$y^{18} - 48y^{17} + \cdots - 29702960y + 4032064$
c_{10}	$(y^3 - y^2 + 2y - 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.932952$ $a = 0.372040$ $b = 0.754878$	-1.94142	-2.78240
$u = -0.932140 + 0.590672I$ $a = 0.327877 - 0.904251I$ $b = 0.754878$	3.69835	$-60.266490 + 0.10I$
$u = -0.932140 - 0.590672I$ $a = 0.327877 + 0.904251I$ $b = 0.754878$	3.69835	$-60.266490 + 0.10I$
$u = 0.416621 + 0.787171I$ $a = 0.712256 - 0.776733I$ $b = -0.877439 - 0.744862I$	$-0.43923 + 2.82812I$	$-6.26278 - 2.97945I$
$u = 0.416621 - 0.787171I$ $a = 0.712256 + 0.776733I$ $b = -0.877439 + 0.744862I$	$-0.43923 - 2.82812I$	$-6.26278 + 2.97945I$
$u = 0.161200 + 1.140610I$ $a = 1.11639 + 1.55047I$ $b = -0.877439 + 0.744862I$	$-17.3586 - 2.8281I$	$-7.95480 + 2.97945I$
$u = 0.161200 - 1.140610I$ $a = 1.11639 - 1.55047I$ $b = -0.877439 - 0.744862I$	$-17.3586 + 2.8281I$	$-7.95480 - 2.97945I$
$u = -0.68739 + 1.23808I$ $a = -0.248640 + 0.732255I$ $b = -0.877439 + 0.744862I$	$-0.43923 - 2.82812I$	$-6.26278 + 2.97945I$
$u = -0.68739 - 1.23808I$ $a = -0.248640 - 0.732255I$ $b = -0.877439 - 0.744862I$	$-0.43923 + 2.82812I$	$-6.26278 - 2.97945I$
$u = 0.357169$ $a = -1.85720$ $b = 0.754878$	-1.94142	-2.78240

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.74158$ $a = -1.24447$ $b = 0.754878$	-13.2210	-1.42550
$u = -0.45245 + 1.70936I$ $a = 0.320272 + 0.802147I$ $b = -0.877439 + 0.744862I$	$-6.07901 - 2.82812I$	$-9.31169 + 2.97945I$
$u = -0.45245 - 1.70936I$ $a = 0.320272 - 0.802147I$ $b = -0.877439 - 0.744862I$	$-6.07901 + 2.82812I$	$-9.31169 - 2.97945I$
$u = 0.63983 + 2.02141I$ $a = -0.044419 - 0.705019I$ $b = -0.877439 - 0.744862I$	$-6.07901 + 2.82812I$	$-9.31169 - 2.97945I$
$u = 0.63983 - 2.02141I$ $a = -0.044419 + 0.705019I$ $b = -0.877439 + 0.744862I$	$-6.07901 - 2.82812I$	$-9.31169 + 2.97945I$
$u = 0.59747 + 2.40404I$ $a = -0.446280 - 0.570652I$ $b = -0.877439 - 0.744862I$	$-17.3586 + 2.8281I$	$-7.95480 - 2.97945I$
$u = 0.59747 - 2.40404I$ $a = -0.446280 + 0.570652I$ $b = -0.877439 + 0.744862I$	$-17.3586 - 2.8281I$	$-7.95480 + 2.97945I$
$u = 3.48202$ $a = 0.254715$ $b = 0.754878$	-13.2210	-1.42550

V. $I_5^u = \langle -u^5 - 2u^4 - 6u^3 - 3u^2 + 4b - 5u + 5,\ -u^5 - 2u^4 - 6u^3 - 3u^2 + 4a - 5u + 5,\ u^6 + u^5 + 4u^4 + u^3 + 2u^2 - 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{1}{4}u^5 + u^4 + 3u^3 + \frac{5}{4}u^2 + \frac{13}{4}u - \frac{35}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^6$
c_3, c_4	$y^6 + 7y^5 + 18y^4 + 21y^3 + 16y^2 + 1$
c_6, c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_7	y^6
c_8, c_9, c_{10} c_{12}	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.592519+0.986732I$ $a=-0.877439+0.744862I$ $b=-0.877439+0.744862I$	$1.37919-2.82812I$	$-8.07960+2.97945I$
$u=-0.592519-0.986732I$ $a=-0.877439-0.744862I$ $b=-0.877439-0.744862I$	$1.37919+2.82812I$	$-8.07960-2.97945I$
$u=\ 0.377439+0.320410I$ $a=-0.877439+0.744862I$ $b=-0.877439+0.744862I$	-2.75839	$-7.72484+1.67231I$
$u=\ 0.377439-0.320410I$ $a=-0.877439-0.744862I$ $b=-0.877439-0.744862I$	-2.75839	$-7.72484-1.67231I$
$u=-0.28492+1.73159I$ $a=\ 0.754878$ $b=\ 0.754878$	$1.37919+2.82812I$	$-1.19557-1.30714I$
$u=-0.28492-1.73159I$ $a=\ 0.754878$ $b=\ 0.754878$	$1.37919-2.82812I$	$-1.19557+1.30714I$

VI.

$\boldsymbol{I_1^v = \langle a,\ 3v^5-2v^4+15v^3-20v^2+7b+12v+3,\ v^6-v^5+5v^4-9v^3+5v^2-v+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{9}{7}v^5 + \frac{4}{7}v^4 - \frac{44}{7}v^3 + 7v^2 - 4v - \frac{46}{7}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y^3 + 3y^2 + 2y - 1)^2$
c_2, c_5, c_{10}	$(y^3 - y^2 + 2y - 1)^2$
c_4	y^6
c_6, c_7, c_{11}	$y^6 + 7y^5 + 18y^4 + 21y^3 + 16y^2 + 1$
c_8, c_{12}	$(y - 1)^6$
c_9	$y^6 - 2y^5 + 5y^4 + 3y^3 + 20y^2 - 32y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.947279 + 0.320410I$ $a = 0$ $b = -0.877439 - 0.744862I$	$1.37919 + 2.82812I$	$-8.07960 - 2.97945I$
$v = 0.947279 - 0.320410I$ $a = 0$ $b = -0.877439 + 0.744862I$	$1.37919 - 2.82812I$	$-8.07960 + 2.97945I$
$v = -0.069840 + 0.424452I$ $a = 0$ $b = -0.877439 - 0.744862I$	-2.75839	$-7.72484 - 1.67231I$
$v = -0.069840 - 0.424452I$ $a = 0$ $b = -0.877439 + 0.744862I$	-2.75839	$-7.72484 + 1.67231I$
$v = -0.37744 + 2.29387I$ $a = 0$ $b = 0.754878$	$1.37919 + 2.82812I$	$-1.19557 - 1.30714I$
$v = -0.37744 - 2.29387I$ $a = 0$ $b = 0.754878$	$1.37919 - 2.82812I$	$-1.19557 + 1.30714I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^6(u^3-u^2+2u-1)^2(u^4-9u^3+10u^2-4u+1)$ $\cdot(u^6-u^5+\cdots+8u+1)(u^{18}+20u^{17}+\cdots+9u+1)$ $\cdot(u^{18}+45u^{17}+\cdots+2548098u+35721)$
c_2, c_8	$(u-1)^6(u^3+u^2-1)^2(u^4+3u^3-2u-1)$ $\cdot(u^6+3u^5+\cdots+2u+1)(u^{18}-10u^{16}+\cdots+u+1)$ $\cdot(u^{18}+u^{17}+\cdots-2016u+189)$
c_3, c_6	$((u^3-u^2+2u-1)^2)(u^4-u^3-2u+1)(u^6+u^5+\cdots-2u+1)$ $\cdot(u^6+3u^5+\cdots+2u+1)(u^{18}+4u^{16}+\cdots-5u+1)$ $\cdot(u^{18}+2u^{17}+\cdots-140u+43)$
c_4, c_7	$u^6(u^4-u^3-2u^2-4u+1)(u^6+u^5+4u^4+u^3+2u^2-2u+1)$ $\cdot(u^6+5u^5+7u^4+2u^2+23u+23)(u^{18}-13u^{15}+\cdots+3u+1)$ $\cdot(u^{18}+6u^{17}+\cdots+1792u+448)$
c_5, c_{12}	$(u+1)^6(u^3-u^2+1)^2(u^4-3u^3+2u-1)$ $\cdot(u^6-3u^5+\cdots-2u+1)(u^{18}-10u^{16}+\cdots+u+1)$ $\cdot(u^{18}+u^{17}+\cdots-2016u+189)$
c_9	$(u^3-u^2+1)^2(u^4-5u^3+7u^2-7u+5)$ $\cdot(u^6-4u^5+7u^4-9u^3+14u^2-16u+8)$ $\cdot(u^6+2u^5+\cdots+5u+5)(u^{18}+4u^{17}+\cdots-4364u-2008)$ $\cdot(u^{18}+4u^{17}+\cdots+2u+49)$
c_{10}	$((u^3-u^2+1)^{12})(u^4+2u^3-3u-1)(u^{18}+11u^{17}+\cdots+12u+7)$
c_{11}	$(u^3+u^2+2u+1)^2(u^4+u^3+2u+1)$ $\cdot(u^6-3u^5+\cdots-2u+1)(u^6-u^5+4u^4-u^3+2u^2+2u+1)$ $\cdot(u^{18}+4u^{16}+\cdots-5u+1)(u^{18}+2u^{17}+\cdots-140u+43)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^6(y^3+3y^2+2y-1)^2(y^4-61y^3+30y^2+4y+1)$ $\cdot(y^6-17y^5+108y^4-306y^3+352y^2-24y+1)$ $\cdot(y^{18}-193y^{17}+\cdots-6886217865618y+1275989841)$ $\cdot(y^{18}-44y^{17}+\cdots+123y+1)$
c_2, c_5, c_8 c_{12}	$(y-1)^6(y^3-y^2+2y-1)^2(y^4-9y^3+10y^2-4y+1)$ $\cdot(y^6-y^5-8y^4+2y^3+20y^2+8y+1)$ $\cdot(y^{18}-45y^{17}+\cdots-2548098y+35721)(y^{18}-20y^{17}+\cdots-9y+1)$
c_3, c_6, c_{11}	$(y^3+3y^2+2y-1)^2(y^4-y^3-2y^2-4y+1)$ $\cdot(y^6-y^5+4y^4+5y^3+5y^2+2y+1)(y^6+7y^5+18y^4+21y^3+16y^2+1)$ $\cdot(y^{18}-12y^{17}+\cdots-25190y+1849)(y^{18}+8y^{17}+\cdots-13y+1)$
c_4, c_7	$y^6(y^4-5y^3-2y^2-20y+1)$ $\cdot(y^6-11y^5+53y^4-156y^3+326y^2-437y+529)$ $\cdot(y^6+7y^5+18y^4+21y^3+16y^2+1)(y^{18}+10y^{16}+\cdots+43y+1)$ $\cdot(y^{18}+12y^{17}+\cdots-1103872y+200704)$
c_9	$(y^3-y^2+2y-1)^2(y^4-11y^3-11y^2+21y+25)$ $\cdot(y^6-2y^5+5y^4+3y^3+20y^2-32y+64)$ $\cdot(y^6+4y^5-14y^3-4y^2+15y+25)$ $\cdot(y^{18}-48y^{17}+\cdots-29702960y+4032064)$ $\cdot(y^{18}-38y^{17}+\cdots+23516y+2401)$
c_{10}	$(y^3-y^2+2y-1)^{12}(y^4-4y^3+10y^2-9y+1)$ $\cdot(y^{18}-7y^{17}+\cdots-578y+49)$