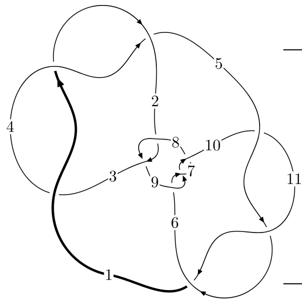
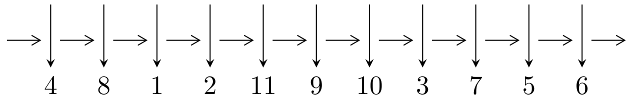
$11a_{263}$ ($K11a_{263}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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`).

$$
\begin{aligned}
I^u_1 = \langle &-9u^7+12u^6+5u^5-62u^4+26u^3-24u^2+92d-64u+16,\\
&5u^7+u^6-13u^5+37u^4+6u^3-48u^2+92c+56u+32,\\
&-3u^7+4u^6-6u^5-13u^4+24u^3-8u^2+46b-6u-10,\\
&4u^7-13u^6+8u^5+25u^4-78u^3+26u^2+92a+8u-48,\ u^8-u^7-u^6+5u^5-4u^4+8u^2+4u-4\rangle\\
I^u_2 = \langle &-2u^{10}+3u^9+2u^8-2u^7-2u^6-u^5-10u^4+21u^3-16u^2+4d+10u,\\
&-u^7+2u^5+u^4-u^3-u^2+2c-4u+2,\\
&-2u^{10}+2u^9+3u^8-2u^7-2u^6+2u^5-9u^4+12u^3-7u^2+4b+2,\\
&2u^{10}-3u^9-3u^8+4u^7+2u^6-3u^5+9u^4-15u^3+11u^2+4a-6,\\
&u^{11}-2u^{10}-u^9+3u^8+u^7-2u^6+4u^5-11u^4+9u^3-u^2-2u+2\rangle\\
I^u_3 = \langle &u^{10}-u^9-2u^8+u^6+u^5+7u^4-7u^3+2u^2+4d-2u-4,\ u^{10}-3u^8+3u^6+2u^4-2u^3-3u^2+4c+6u\ -\\
&u^8-2u^6-u^5+u^4+u^3+4u^2+2b-2u,\\
&-2u^9+3u^8+2u^7-2u^6-2u^5-u^4-10u^3+21u^2+4a-16u+10,\\
&u^{11}-2u^{10}-u^9+3u^8+u^7-2u^6+4u^5-11u^4+9u^3-u^2-2u+2\rangle\\
I^u_4 = \langle &u^{10}-u^9-2u^8+u^6+u^5+7u^4-7u^3+2u^2+4d-2u-4,\ u^{10}-3u^8+3u^6+2u^4-2u^3-3u^2+4c+6u\ -\\
&-2u^{10}+2u^9+3u^8-2u^7-2u^6+2u^5-9u^4+12u^3-7u^2+4b+2,\\
&2u^{10}-3u^9-3u^8+4u^7+2u^6-3u^5+9u^4-15u^3+11u^2+4a-6,\\
&u^{11}-2u^{10}-u^9+3u^8+u^7-2u^6+4u^5-11u^4+9u^3-u^2-2u+2\rangle\\
I^u_5 = \langle &-a^2c-ca+d-a-1,\ -a^2c+c^2-ca-a-1,\ a^2+b+a,\ a^3+2a^2+a+1,\ u+1\rangle
\end{aligned}
$$

$$
\begin{aligned}
I^v_1 &= \langle a,\ d,\ c+1,\ b-1,\ v+1\rangle\\
I^v_2 &= \langle c,\ d+1,\ b,\ a-1,\ v+1\rangle\\
I^v_3 &= \langle a,\ d+1,\ c+a,\ b-1,\ v+1\rangle\\
I^v_4 &= \langle a,\ da-c+1,\ dv-1,\ cv-a-v,\ b-1\rangle
\end{aligned}
$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 50 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. $\boldsymbol{I_1^u = \langle -9u^7 + 12u^6 + \cdots + 92d + 16,\ 5u^7 + u^6 + \cdots + 92c + 32,\ -3u^7 + 4u^6 + \cdots + 46b - 10,\ 4u^7 - 13u^6 + \cdots + 92a - 48,\ u^8 - u^7 + \cdots + 4u - 4\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0434783u^7 + 0.141304u^6 + \cdots - 0.0869565u + 0.521739 \\ 0.0652174u^7 - 0.0869565u^6 + \cdots + 0.130435u + 0.217391 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0543478u^7 - 0.0108696u^6 + \cdots - 0.608696u - 0.347826 \\ 0.0978261u^7 - 0.130435u^6 + \cdots + 0.695652u - 0.173913 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.108696u^7 - 0.0217391u^6 + \cdots - 0.217391u - 0.695652 \\ 0.173913u^7 - 0.0652174u^6 + \cdots + 0.347826u - 0.0869565 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0217391u^7 + 0.0543478u^6 + \cdots + 0.0434783u + 0.739130 \\ 0.0652174u^7 - 0.0869565u^6 + \cdots + 0.130435u + 0.217391 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0217391u^7 + 0.0543478u^6 + \cdots + 0.0434783u + 0.739130 \\ 0.0760870u^7 + 0.0652174u^6 + \cdots - 0.347826u + 0.0869565 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0217391u^7 - 0.0543478u^6 + \cdots - 0.0434783u + 0.260870 \\ -0.0652174u^7 + 0.0869565u^6 + \cdots + 0.869565u - 0.217391 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0434783u^7 + 0.141304u^6 + \cdots - 0.0869565u + 0.521739 \\ 0.0652174u^7 - 0.0869565u^6 + \cdots + 0.130435u + 0.217391 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0434783u^7 + 0.141304u^6 + \cdots - 0.0869565u + 0.521739 \\ 0.0652174u^7 - 0.0869565u^6 + \cdots + 0.130435u + 0.217391 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1}{23}u^7 - \frac{9}{23}u^6 + \frac{25}{23}u^5 - \frac{11}{23}u^4 - \frac{8}{23}u^3 + \frac{110}{23}u^2 - \frac{136}{23}u - \frac{334}{23}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_5, c_6, c_7 c_9, c_{10}, c_{11}	$y^8 - 11y^7 + 49y^6 - 108y^5 + 108y^4 - 15y^3 - 31y^2 - 10y + 1$
c_2, c_8	$y^8 - 3y^7 + 3y^6 - y^5 - 96y^3 + 96y^2 - 80y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.763708 + 0.464906I$ $a = 0.494536 + 0.909342I$ $b = 0.186694 - 0.577706I$ $c = 0.514343 - 0.443344I$ $d = -0.800440 - 0.464559I$	$1.02858 + 1.92389I$	$-7.30727 - 5.93806I$
$u = -0.763708 - 0.464906I$ $a = 0.494536 - 0.909342I$ $b = 0.186694 + 0.577706I$ $c = 0.514343 + 0.443344I$ $d = -0.800440 + 0.464559I$	$1.02858 - 1.92389I$	$-7.30727 + 5.93806I$
$u = 0.50215 + 1.40047I$ $a = -1.123050 + 0.278329I$ $b = 1.51678 - 0.24068I$ $c = -0.191820 + 1.014270I$ $d = -0.95373 - 1.43303I$	$-13.1698 + 5.8977I$	$-19.7832 - 3.0693I$
$u = 0.50215 - 1.40047I$ $a = -1.123050 - 0.278329I$ $b = 1.51678 + 0.24068I$ $c = -0.191820 - 1.014270I$ $d = -0.95373 + 1.43303I$	$-13.1698 - 5.8977I$	$-19.7832 + 3.0693I$
$u = 0.509938$ $a = 0.497054$ $b = 0.282608$ $c = -0.554200$ $d = 0.253467$	-0.633408	-16.3410
$u = 1.37290 + 0.82084I$ $a = 0.288086 + 1.350870I$ $b = -1.50879 - 0.39741I$ $c = 0.937075 - 0.270804I$ $d = -0.71334 + 2.09107I$	$-16.0437 - 13.7204I$	$-19.7312 + 6.7283I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.37290 - 0.82084I$ $a = 0.288086 - 1.350870I$ $b = -1.50879 + 0.39741I$ $c = 0.937075 + 0.270804I$ $d = -0.71334 - 2.09107I$	$-16.0437 + 13.7204I$	$-19.7312 - 6.7283I$
$u = -1.73262$ $a = 0.183795$ $b = -1.67197$ $c = -0.964994$ $d = -0.318446$	17.5248	-22.0160

II. $\boldsymbol{I_2^u = \langle -2u^{10} + 3u^9 + \cdots + 4d + 10u,\ -u^7 + 2u^5 + \cdots + 2c + 2,\ -2u^{10} + 2u^9 + \cdots + 4b + 2,\ 2u^{10} - 3u^9 + \cdots + 4a - 6,\ u^{11} - 2u^{10} + \cdots - 2u + 2\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{3}{4}u^9 + \cdots - \frac{11}{4}u^2 + \frac{3}{2} \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + \frac{7}{4}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^7 - u^5 + \cdots + 2u - 1 \\ \frac{1}{2}u^{10} - \frac{3}{4}u^9 + \cdots + 4u^2 - \frac{5}{2}u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}u^7 - u^5 + \frac{1}{2}u^3 + \frac{3}{2}u - 1 \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + \frac{7}{2}u^2 - 2u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^7 + \cdots - u^2 + 1 \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + \frac{7}{4}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^7 + \cdots - u^2 + 1 \\ \frac{1}{4}u^9 - \frac{1}{2}u^7 + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{5}{4}u^9 + \cdots + \frac{1}{2}u + 1 \\ u^{10} - \frac{3}{2}u^9 + \cdots - u - \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{3}{4}u^9 + \cdots + \frac{1}{2}u + 1 \\ -\frac{1}{2}u^9 + \frac{1}{4}u^8 + \cdots - 2u + \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{3}{4}u^9 + \cdots + \frac{1}{2}u + 1 \\ -\frac{1}{2}u^9 + \frac{1}{4}u^8 + \cdots - 2u + \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{10} - 6u^8 - 2u^7 + 6u^6 + 4u^5 + 8u^4 - 8u^3 - 10u^2 + 8u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_5, c_{10}, c_{11}	$y^{11} - 12y^{10} + \cdots - 5y - 1$
c_2, c_8	$y^{11} - 6y^{10} + \cdots + 8y - 4$
c_6, c_7, c_9	$y^{11} - 6y^{10} + \cdots + 24y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.217339 + 1.116860I$ $a = -0.959694 - 0.121609I$ $b = 1.379210 + 0.103381I$ $c = 0.530848 - 0.577122I$ $d = -2.14358 + 0.93612I$	$-6.49548 - 2.41892I$	$-16.9282 + 2.8895I$
$u = -0.217339 - 1.116860I$ $a = -0.959694 + 0.121609I$ $b = 1.379210 - 0.103381I$ $c = 0.530848 + 0.577122I$ $d = -2.14358 - 0.93612I$	$-6.49548 + 2.41892I$	$-16.9282 - 2.8895I$
$u = 1.116820 + 0.404951I$ $a = 0.142488 - 1.095710I$ $b = 0.399448 + 0.789847I$ $c = 1.146260 - 0.241815I$ $d = -1.31237 + 1.12740I$	$-3.96110 - 4.69742I$	$-14.9188 + 5.8832I$
$u = 1.116820 - 0.404951I$ $a = 0.142488 + 1.095710I$ $b = 0.399448 - 0.789847I$ $c = 1.146260 + 0.241815I$ $d = -1.31237 - 1.12740I$	$-3.96110 + 4.69742I$	$-14.9188 - 5.8832I$
$u = 0.323694 + 0.583510I$ $a = 1.18678 - 0.80697I$ $b = -0.172742 + 0.362556I$ $c = -0.63939 + 1.57288I$ $d = -0.309250 - 0.329055I$	$-1.55892 + 0.74196I$	$-8.46073 - 1.11909I$
$u = 0.323694 - 0.583510I$ $a = 1.18678 + 0.80697I$ $b = -0.172742 - 0.362556I$ $c = -0.63939 - 1.57288I$ $d = -0.309250 + 0.329055I$	$-1.55892 - 0.74196I$	$-8.46073 + 1.11909I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.38823 + 0.36743I$ $a = -0.243517 + 0.779738I$ $b = -1.50982 - 0.17565I$ $c = -0.526224 + 0.695676I$ $d = -1.10814 + 1.10674I$	$-11.90560 - 2.58451I$	$-20.1919 + 1.0166I$
$u = 1.38823 - 0.36743I$ $a = -0.243517 - 0.779738I$ $b = -1.50982 + 0.17565I$ $c = -0.526224 - 0.695676I$ $d = -1.10814 - 1.10674I$	$-11.90560 + 2.58451I$	$-20.1919 - 1.0166I$
$u = -0.552641$ $a = -0.218260$ $b = 0.780044$ $c = -2.03993$ $d = 3.71662$	-4.41605	-21.4290
$u = -1.33508 + 0.61220I$ $a = -0.016930 - 1.207730I$ $b = -1.48612 + 0.29515I$ $c = 0.508471 - 0.520729I$ $d = -0.98497 - 1.74274I$	$-10.05940 + 8.65115I$	$-17.7857 - 5.5789I$
$u = -1.33508 - 0.61220I$ $a = -0.016930 + 1.207730I$ $b = -1.48612 - 0.29515I$ $c = 0.508471 + 0.520729I$ $d = -0.98497 + 1.74274I$	$-10.05940 - 8.65115I$	$-17.7857 + 5.5789I$

III. $\boldsymbol{I_3^u = \langle u^{10} - u^9 + \cdots + 4d - 4,\ u^{10} - 3u^8 + \cdots + 4c - 2,\ u^8 - 2u^6 + \cdots + 2b - 2u,\ -2u^9 + 3u^8 + \cdots + 4a + 10,\ u^{11} - 2u^{10} + \cdots - 2u + 2\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{2}u^9 - \frac{3}{4}u^8 + \cdots + 4u - \frac{5}{2} \\ -\frac{1}{2}u^8 + u^6 + \cdots - 2u^2 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{4}u^{10} + \frac{3}{4}u^8 + \cdots - \frac{3}{2}u + \frac{1}{2} \\ -\frac{1}{4}u^{10} + \frac{1}{4}u^9 + \cdots + \frac{1}{2}u + 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} \frac{1}{2}u^9 - \frac{5}{4}u^8 + \cdots + 5u - \frac{5}{2} \\ -\frac{1}{2}u^8 + u^6 + \cdots - 2u^2 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}u^9 - \frac{5}{4}u^8 + \cdots + 5u - \frac{5}{2} \\ -\frac{1}{4}u^{10} + \frac{1}{2}u^8 + \cdots + u^3 - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{1}{4}u^8 + \frac{1}{2}u^6 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ \frac{1}{2}u^5 - \frac{1}{2}u^3 - \frac{1}{2}u^2 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{10} - \frac{1}{4}u^9 + \cdots + u - \frac{3}{2} \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + u - \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{10} - \frac{1}{4}u^9 + \cdots + u - \frac{3}{2} \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + u - \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{10} - 6u^8 - 2u^7 + 6u^6 + 4u^5 + 8u^4 - 8u^3 - 10u^2 + 8u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4	$y^{11} - 6y^{10} + \cdots + 24y - 16$
c_2, c_8	$y^{11} - 6y^{10} + \cdots + 8y - 4$
c_5, c_6, c_7 c_9, c_{10}, c_{11}	$y^{11} - 12y^{10} + \cdots - 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.217339 + 1.116860I$ $a = 1.16746 + 1.69211I$ $b = -0.529187 - 0.718311I$ $c = 0.142356 + 1.207200I$ $d = 0.344399 - 1.045410I$	$-6.49548 - 2.41892I$	$-16.9282 + 2.8895I$
$u = -0.217339 - 1.116860I$ $a = 1.16746 - 1.69211I$ $b = -0.529187 + 0.718311I$ $c = 0.142356 - 1.207200I$ $d = 0.344399 + 1.045410I$	$-6.49548 + 2.41892I$	$-16.9282 - 2.8895I$
$u = 1.116820 + 0.404951I$ $a = -0.71505 + 1.26875I$ $b = -1.378090 - 0.194114I$ $c = -0.542743 - 0.510432I$ $d = 0.602844 - 1.166020I$	$-3.96110 - 4.69742I$	$-14.9188 + 5.8832I$
$u = 1.116820 - 0.404951I$ $a = -0.71505 - 1.26875I$ $b = -1.378090 + 0.194114I$ $c = -0.542743 + 0.510432I$ $d = 0.602844 + 1.166020I$	$-3.96110 + 4.69742I$	$-14.9188 - 5.8832I$
$u = 0.323694 + 0.583510I$ $a = -0.656040 + 0.166054I$ $b = 1.124760 - 0.136043I$ $c = -0.349546 - 0.489945I$ $d = 0.855030 + 0.431288I$	$-1.55892 + 0.74196I$	$-8.46073 - 1.11909I$
$u = 0.323694 - 0.583510I$ $a = -0.656040 - 0.166054I$ $b = 1.124760 + 0.136043I$ $c = -0.349546 + 0.489945I$ $d = 0.855030 - 0.431288I$	$-1.55892 - 0.74196I$	$-8.46073 + 1.11909I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.38823 + 0.36743I$ $a = -0.548785 + 0.942487I$ $b = 0.986131 - 0.772404I$ $c = 1.047690 - 0.150769I$ $d = -0.624556 + 0.992977I$	$-11.90560 - 2.58451I$	$-20.1919 + 1.0166I$
$u = 1.38823 - 0.36743I$ $a = -0.548785 - 0.942487I$ $b = 0.986131 + 0.772404I$ $c = 1.047690 + 0.150769I$ $d = -0.624556 - 0.992977I$	$-11.90560 + 2.58451I$	$-20.1919 - 1.0166I$
$u = -0.552641$ $a = -6.72520$ $b = -1.12735$ $c = 1.41149$ $d = 0.120619$	-4.41605	-21.4290
$u = -1.33508 + 0.61220I$ $a = 0.115017 + 1.358080I$ $b = 0.360061 - 1.006500I$ $c = -1.003500 - 0.239081I$ $d = 0.76197 + 1.60205I$	$-10.05940 + 8.65115I$	$-17.7857 - 5.5789I$
$u = -1.33508 - 0.61220I$ $a = 0.115017 - 1.358080I$ $b = 0.360061 + 1.006500I$ $c = -1.003500 + 0.239081I$ $d = 0.76197 - 1.60205I$	$-10.05940 - 8.65115I$	$-17.7857 + 5.5789I$

IV. $\boldsymbol{I_4^u = \langle u^{10} - u^9 + \cdots + 4d - 4,\ u^{10} - 3u^8 + \cdots + 4c - 2,\ -2u^{10} + 2u^9 + \cdots + 4b + 2,\ 2u^{10} - 3u^9 + \cdots + 4a - 6,\ u^{11} - 2u^{10} + \cdots - 2u + 2\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{3}{4}u^9 + \cdots - \frac{11}{4}u^2 + \frac{3}{2} \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + \frac{7}{4}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{4}u^{10} + \frac{3}{4}u^8 + \cdots - \frac{3}{2}u + \frac{1}{2} \\ -\frac{1}{4}u^{10} + \frac{1}{4}u^9 + \cdots + \frac{1}{2}u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{3}{2}u^8 + \cdots + \frac{5}{2}u^2 - \frac{3}{2}u \\ 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^7 + \cdots - u^2 + 1 \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + \frac{7}{4}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{4}u^9 - \frac{1}{2}u^7 + \cdots - u^2 + 1 \\ \frac{1}{4}u^9 - \frac{1}{2}u^7 + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{1}{4}u^8 + \frac{1}{2}u^6 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ \frac{1}{2}u^5 - \frac{1}{2}u^3 - \frac{1}{2}u^2 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{10} - \frac{1}{4}u^9 + \cdots + u - \frac{3}{2} \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + u - \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{10} - \frac{1}{4}u^9 + \cdots + u - \frac{3}{2} \\ \frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots + u - \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{10} - 6u^8 - 2u^7 + 6u^6 + 4u^5 + 8u^4 - 8u^3 - 10u^2 + 8u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7, c_9	$y^{11} - 12y^{10} + \cdots - 5y - 1$
c_2, c_8	$y^{11} - 6y^{10} + \cdots + 8y - 4$
c_5, c_{10}, c_{11}	$y^{11} - 6y^{10} + \cdots + 24y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.217339 + 1.116860I$ $a = -0.959694 - 0.121609I$ $b = 1.379210 + 0.103381I$ $c = 0.142356 + 1.207200I$ $d = 0.344399 - 1.045410I$	$-6.49548 - 2.41892I$	$-16.9282 + 2.8895I$
$u = -0.217339 - 1.116860I$ $a = -0.959694 + 0.121609I$ $b = 1.379210 - 0.103381I$ $c = 0.142356 - 1.207200I$ $d = 0.344399 + 1.045410I$	$-6.49548 + 2.41892I$	$-16.9282 - 2.8895I$
$u = 1.116820 + 0.404951I$ $a = 0.142488 - 1.095710I$ $b = 0.399448 + 0.789847I$ $c = -0.542743 - 0.510432I$ $d = 0.602844 - 1.166020I$	$-3.96110 - 4.69742I$	$-14.9188 + 5.8832I$
$u = 1.116820 - 0.404951I$ $a = 0.142488 + 1.095710I$ $b = 0.399448 - 0.789847I$ $c = -0.542743 + 0.510432I$ $d = 0.602844 + 1.166020I$	$-3.96110 + 4.69742I$	$-14.9188 - 5.8832I$
$u = 0.323694 + 0.583510I$ $a = 1.18678 - 0.80697I$ $b = -0.172742 + 0.362556I$ $c = -0.349546 - 0.489945I$ $d = 0.855030 + 0.431288I$	$-1.55892 + 0.74196I$	$-8.46073 - 1.11909I$
$u = 0.323694 - 0.583510I$ $a = 1.18678 + 0.80697I$ $b = -0.172742 - 0.362556I$ $c = -0.349546 + 0.489945I$ $d = 0.855030 - 0.431288I$	$-1.55892 - 0.74196I$	$-8.46073 + 1.11909I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.38823 + 0.36743I$ $a = -0.243517 + 0.779738I$ $b = -1.50982 - 0.17565I$ $c = 1.047690 - 0.150769I$ $d = -0.624556 + 0.992977I$	$-11.90560 - 2.58451I$	$-20.1919 + 1.0166I$
$u = 1.38823 - 0.36743I$ $a = -0.243517 - 0.779738I$ $b = -1.50982 + 0.17565I$ $c = 1.047690 + 0.150769I$ $d = -0.624556 - 0.992977I$	$-11.90560 + 2.58451I$	$-20.1919 - 1.0166I$
$u = -0.552641$ $a = -0.218260$ $b = 0.780044$ $c = 1.41149$ $d = 0.120619$	-4.41605	-21.4290
$u = -1.33508 + 0.61220I$ $a = -0.016930 - 1.207730I$ $b = -1.48612 + 0.29515I$ $c = -1.003500 - 0.239081I$ $d = 0.76197 + 1.60205I$	$-10.05940 + 8.65115I$	$-17.7857 - 5.5789I$
$u = -1.33508 - 0.61220I$ $a = -0.016930 + 1.207730I$ $b = -1.48612 - 0.29515I$ $c = -1.003500 + 0.239081I$ $d = 0.76197 - 1.60205I$	$-10.05940 - 8.65115I$	$-17.7857 + 5.5789I$

V. $I^u_5 =$
$\langle -a^2c - ca + d - a - 1,\ -a^2c + c^2 - ca - a - 1,\ a^2 + b + a,\ a^3 + 2a^2 + a + 1,\ u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=-0.122561+0.744862I$ $b=\ \ 0.662359-0.562280I$ $c=\ \ 0.662359+0.562280I$ $d=\ \ 0.122561+0.744862I$	-4.93480	-18.0000
$u=-1.00000$ $a=-0.122561+0.744862I$ $b=\ \ 0.662359-0.562280I$ $c=-1.32472$ $d=\ \ 1.75488$	-4.93480	-18.0000
$u=-1.00000$ $a=-0.122561-0.744862I$ $b=\ \ 0.662359+0.562280I$ $c=\ \ 0.662359-0.562280I$ $d=\ \ 0.122561-0.744862I$	-4.93480	-18.0000
$u=-1.00000$ $a=-0.122561-0.744862I$ $b=\ \ 0.662359+0.562280I$ $c=-1.32472$ $d=\ \ 1.75488$	-4.93480	-18.0000
$u=-1.00000$ $a=-1.75488$ $b=-1.32472$ $c=\ \ 0.662359+0.562280I$ $d=\ \ 0.122561+0.744862I$	-4.93480	-18.0000
$u=-1.00000$ $a=-1.75488$ $b=-1.32472$ $c=\ \ 0.662359-0.562280I$ $d=\ \ 0.122561-0.744862I$	-4.93480	-18.0000

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

(i) Arc colorings

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

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

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

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

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$ $c = -1.00000$ $d = 0$	-3.28987	-12.0000

VII. $\boldsymbol{I_2^v = \langle c,\ d+1,\ b,\ a-1,\ v+1 \rangle}$

(i) Arc colorings

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

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

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

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

$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 1.00000$ $b = 0$ $c = 0$ $d = -1.00000$	-3.28987	-12.0000

VIII. $I_3^v = \langle a,\ d+1,\ c+a,\ b-1,\ v+1\rangle$

(i) Arc colorings

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

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

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

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

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$ $c = 0$ $d = -1.00000$	-3.28987	-12.0000

IX. $I_4^v = \langle a,\ da - c + 1,\ dv - 1,\ cv - a - v,\ b - 1\rangle$

(i) Arc colorings

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

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

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

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

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

$$a_{10} = \begin{pmatrix} 1 \\ d \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ d+1 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} v-1 \\ -d \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= d^2 + v^2 - 20$

(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_4^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	-4.93480	$-21.2841 + 0.0228I$

X. u-Polynomials

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

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_5, c_6, c_7 c_9, c_{10}, c_{11}	$y(y-1)^2(y^3-2y^2+y-1)^2$ $\cdot\,(y^8-11y^7+49y^6-108y^5+108y^4-15y^3-31y^2-10y+1)$ $\cdot\,((y^{11}-12y^{10}+\cdots-5y-1)^2)(y^{11}-6y^{10}+\cdots+24y-16)$
c_2, c_8	$y^3(y-1)^6(y^8-3y^7+3y^6-y^5-96y^3+96y^2-80y+16)$ $\cdot\,(y^{11}-6y^{10}+\cdots+8y-4)^3$