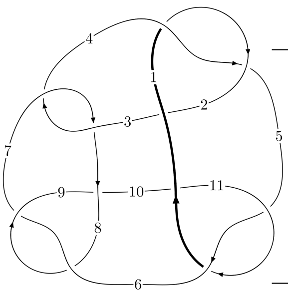
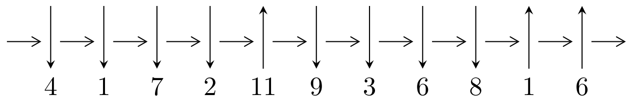
$11n_{71}$ ($K11n_{71}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 481u^{12} - 3744u^{11} + \cdots + 245268d - 61940,\ -4057u^{12} - 5862u^{11} + \cdots + 163512c - 19528, \\
& - 664u^{12} - 4959u^{11} + \cdots + 122634b + 22418,\ 15485u^{12} + 31932u^{11} + \cdots + 490536a - 416896, \\
& u^{13} + 2u^{12} + 5u^{11} + 6u^{10} + 6u^9 + 6u^8 - u^7 - 4u^6 - 10u^5 - 12u^4 + 24u^3 - 4u^2 + 8\rangle \\
I_2^u = \langle & -u^3 + au + 2u^2 + d - 4u + 3,\ 2u^4a - 4u^3a - u^4 + 8u^2a + 3u^3 - 6au - 6u^2 + 2c + 2a + 7u - 4, \\
& - u^4a + 2u^3a - 5u^2a + 3au + u^2 + b - 2a - u + 2, \\
& 3u^4a - 9u^3a - u^4 + 16u^2a + 3u^3 + 2a^2 - 17au - 6u^2 + 4a + 7u - 2,\ u^5 - 3u^4 + 6u^3 - 7u^2 + 4u - 2\rangle \\
I_3^u = \langle & u^2 + d,\ -u^2 + c - 1,\ 2au - u^2 + b + a - u,\ 4u^2a + a^2 + au - 3u^2 + 6a - u - 5,\ u^3 + u^2 + 2u + 1\rangle \\
I_4^u = \langle & u^2c + cu - u^2 + d + 2c - u - 1,\ u^2c + c^2 - u^2 + c - 1,\ b - u,\ a + u,\ u^3 + u^2 + 2u + 1\rangle \\
I_5^u = \langle & u^2 + d,\ -u^2 + c - 1,\ b - u,\ a + u,\ u^3 + u^2 + 2u + 1\rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ d + 1,\ c - a + 1,\ b + 1,\ v + 1\rangle \\
I_2^v &= \langle a,\ d,\ c - 1,\ b + 1,\ v - 1\rangle \\
I_3^v &= \langle c,\ d - 1,\ b,\ a - 1,\ v - 1\rangle \\
I_4^v &= \langle a,\ da + c - v - 1,\ dv - 1,\ cv - v^2 + a - v,\ b + 1\rangle
\end{aligned}$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 41 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $\boldsymbol{I_1^u =}$
$\langle 481u^{12} - 3744u^{11} + \cdots + 2.45 \times 10^5 d - 6.19 \times 10^4,\ -4057u^{12} - 5862u^{11} + \cdots + 1.64 \times 10^5 c - 1.95 \times 10^4,\ -664u^{12} - 4959u^{11} + \cdots + 1.23 \times 10^5 b + 2.24 \times 10^4,\ 1.55 \times 10^4 u^{12} + 3.19 \times 10^4 u^{11} + \cdots + 4.91 \times 10^5 a - 4.17 \times 10^5,\ u^{13} + 2u^{12} + \cdots - 4u^2 + 8\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0248116u^{12} + 0.0358506u^{11} + \cdots - 1.16261u + 0.119429 \\ -0.00196112u^{12} + 0.0152649u^{11} + \cdots + 0.849879u + 0.252540 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0315675u^{12} - 0.0650961u^{11} + \cdots - 0.166977u + 0.849879 \\ 0.00541449u^{12} + 0.0404374u^{11} + \cdots + 0.371969u - 0.182804 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00479679u^{12} - 0.0550051u^{11} + \cdots - 0.979802u + 0.162744 \\ 0.0276473u^{12} + 0.106121u^{11} + \cdots + 0.667074u + 0.209224 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0177948u^{12} - 0.0521797u^{11} + \cdots - 0.286405u + 1.04837 \\ 0.00289479u^{12} + 0.0135036u^{11} + \cdots + 0.261787u - 0.0657730 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0261530u^{12} - 0.0246587u^{11} + \cdots + 0.204992u + 0.667074 \\ 0.0454115u^{12} + 0.0564362u^{11} + \cdots - 0.162744u - 0.0383743 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0228505u^{12} - 0.0511155u^{11} + \cdots + 0.312727u - 0.371969 \\ -0.00196112u^{12} + 0.0152649u^{11} + \cdots + 0.849879u + 0.252540 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.00615449u^{12} - 0.0166593u^{11} + \cdots - 0.562364u + 0.739289 \\ 0.0254497u^{12} + 0.0984515u^{11} + \cdots + 0.788525u + 0.0840387 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.00615449u^{12} - 0.0166593u^{11} + \cdots - 0.562364u + 0.739289 \\ 0.0254497u^{12} + 0.0984515u^{11} + \cdots + 0.788525u + 0.0840387 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3739}{13626}u^{12} - \frac{4675}{13626}u^{11} - \frac{4243}{4542}u^{10} - \frac{6761}{13626}u^9 - \frac{812}{6813}u^8 - \frac{59}{757}u^7 + \frac{14825}{13626}u^6 - \frac{1951}{13626}u^5 - \frac{811}{757}u^4 - \frac{10702}{6813}u^3 - \frac{80432}{6813}u^2 + \frac{22922}{6813}u - \frac{4756}{2271}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_8	$u^{13} - 2u^{12} + 4u^{10} - 8u^8 + 7u^7 + 7u^6 - 8u^5 - 3u^4 + 9u^3 + u^2 - u + 1$
c_2, c_9	$u^{13} + 4u^{12} + \cdots - u + 1$
c_3, c_7	$u^{13} + 2u^{12} + \cdots - 4u^2 + 8$
c_5, c_{11}	$u^{13} + 2u^{12} + \cdots + 8u + 4$
c_{10}	$u^{13} - 14u^{12} + \cdots + 88u - 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_8	$y^{13} - 4y^{12} + \cdots - y - 1$
c_2, c_9	$y^{13} + 16y^{12} + \cdots - 25y - 1$
c_3, c_7	$y^{13} + 6y^{12} + \cdots + 64y - 64$
c_5, c_{11}	$y^{13} - 14y^{12} + \cdots + 88y - 16$
c_{10}	$y^{13} - 30y^{12} + \cdots + 2848y - 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.917056 + 0.260692I$ $a = 0.504975 + 0.125247I$ $b = -0.535060 + 0.800968I$ $c = -0.740548 + 0.715066I$ $d = 0.430439 + 0.246501I$	$-1.87851 + 3.16005I$	$-8.32269 - 6.37622I$
$u = 0.917056 - 0.260692I$ $a = 0.504975 - 0.125247I$ $b = -0.535060 - 0.800968I$ $c = -0.740548 - 0.715066I$ $d = 0.430439 - 0.246501I$	$-1.87851 - 3.16005I$	$-8.32269 + 6.37622I$
$u = 0.300918 + 0.625488I$ $a = 1.038000 - 0.500200I$ $b = 0.094351 + 0.164390I$ $c = -0.352870 - 0.518553I$ $d = 0.625222 + 0.498737I$	$1.70980 + 0.77307I$	$3.13297 - 1.88722I$
$u = 0.300918 - 0.625488I$ $a = 1.038000 + 0.500200I$ $b = 0.094351 - 0.164390I$ $c = -0.352870 + 0.518553I$ $d = 0.625222 - 0.498737I$	$1.70980 - 0.77307I$	$3.13297 + 1.88722I$
$u = -0.613875$ $a = 0.608171$ $b = -0.415090$ $c = 1.04952$ $d = -0.373341$	-1.13096	-8.32650
$u = -1.37082 + 0.38920I$ $a = 0.437589 - 0.166249I$ $b = -0.41839 - 1.51286I$ $c = 0.527632 + 0.703269I$ $d = -0.535153 + 0.398209I$	$4.46546 - 5.94244I$	$-3.19547 + 4.81410I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.37082 - 0.38920I$ $a = 0.437589 + 0.166249I$ $b = -0.41839 + 1.51286I$ $c = 0.527632 - 0.703269I$ $d = -0.535153 - 0.398209I$	$4.46546 + 5.94244I$	$-3.19547 - 4.81410I$
$u = 0.54282 + 1.32018I$ $a = -0.163933 + 1.389820I$ $b = -0.67082 - 1.53809I$ $c = 0.748510 - 0.513111I$ $d = -1.92380 + 0.53800I$	$1.53986 - 8.66555I$	$-5.43123 + 7.16460I$
$u = 0.54282 - 1.32018I$ $a = -0.163933 - 1.389820I$ $b = -0.67082 + 1.53809I$ $c = 0.748510 + 0.513111I$ $d = -1.92380 - 0.53800I$	$1.53986 + 8.66555I$	$-5.43123 - 7.16460I$
$u = -0.79330 + 1.40153I$ $a = -0.397741 - 1.239110I$ $b = -0.98955 + 1.80695I$ $c = -0.773067 - 0.443499I$ $d = 2.05217 + 0.42554I$	$7.6949 + 13.5931I$	$-3.46569 - 7.45820I$
$u = -0.79330 - 1.40153I$ $a = -0.397741 + 1.239110I$ $b = -0.98955 - 1.80695I$ $c = -0.773067 + 0.443499I$ $d = 2.05217 - 0.42554I$	$7.6949 - 13.5931I$	$-3.46569 + 7.45820I$
$u = -0.28973 + 1.63988I$ $a = 0.277026 + 0.842714I$ $b = 0.72701 - 1.38782I$ $c = 0.565582 - 0.495050I$ $d = -1.46221 + 0.21013I$	$11.70800 + 0.17366I$	$0.445368 + 1.147630I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.28973 - 1.63988I$ $a = 0.277026 - 0.842714I$ $b = 0.72701 + 1.38782I$ $c = 0.565582 + 0.495050I$ $d = -1.46221 - 0.21013I$	$11.70800 - 0.17366I$	$0.445368 - 1.147630I$

II. $\boldsymbol{I_2^u = \langle -u^3+2u^2+\cdots+d+3,\ 2u^4a-u^4+\cdots+2a-4,\ -u^4a+2u^3a+\cdots-2a+2,\ 3u^4a-u^4+\cdots+4a-2,\ u^5-3u^4+\cdots+4u-2\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^3-6u^2+12u-12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_8	$u^{10} - u^9 - u^8 + 3u^7 - 2u^5 + u^4 + 4u^3 - 3u^2 - 4u + 4$
c_2, c_9	$u^{10} + 3u^9 + \cdots + 40u + 16$
c_3, c_7	$(u^5 - 3u^4 + 6u^3 - 7u^2 + 4u - 2)^2$
c_5, c_{11}	$(u^5 + u^4 - 3u^3 - 2u^2 + 2u - 1)^2$
c_{10}	$(u^5 - 7u^4 + 17u^3 - 14u^2 - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_8	$y^{10} - 3y^9 + \cdots - 40y + 16$
c_2, c_9	$y^{10} + 5y^9 + \cdots - 32y + 256$
c_3, c_7	$(y^5 + 3y^4 + 2y^3 - 13y^2 - 12y - 4)^2$
c_5, c_{11}	$(y^5 - 7y^4 + 17y^3 - 14y^2 - 1)^2$
c_{10}	$(y^5 - 15y^4 + 93y^3 - 210y^2 - 28y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.225231 + 0.702914I$ $a = 0.456786 + 0.020682I$ $b = -1.393800 + 0.234385I$ $c = 0.723513 - 0.982142I$ $d = -1.62313 + 1.61232I$	$-2.91669 - 1.13882I$	$-7.28192 + 6.05450I$
$u = 0.225231 + 0.702914I$ $a = 1.40917 + 2.76067I$ $b = -0.645580 - 0.490417I$ $c = -0.36215 + 1.56941I$ $d = 0.088345 + 0.325740I$	$-2.91669 - 1.13882I$	$-7.28192 + 6.05450I$
$u = 0.225231 - 0.702914I$ $a = 0.456786 - 0.020682I$ $b = -1.393800 - 0.234385I$ $c = 0.723513 + 0.982142I$ $d = -1.62313 - 1.61232I$	$-2.91669 + 1.13882I$	$-7.28192 - 6.05450I$
$u = 0.225231 - 0.702914I$ $a = 1.40917 - 2.76067I$ $b = -0.645580 + 0.490417I$ $c = -0.36215 - 1.56941I$ $d = 0.088345 - 0.325740I$	$-2.91669 + 1.13882I$	$-7.28192 - 6.05450I$
$u = 1.36478$ $a = 0.467454 + 0.220835I$ $b = 0.121768 + 1.237560I$ $c = -0.548749 - 0.605393I$ $d = 0.637971 - 0.301391I$	5.22495	-1.71420
$u = 1.36478$ $a = 0.467454 - 0.220835I$ $b = 0.121768 - 1.237560I$ $c = -0.548749 + 0.605393I$ $d = 0.637971 + 0.301391I$	5.22495	-1.71420

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.59238 + 1.52933I$ $a = 0.362296 - 0.720965I$ $b = 1.02960 + 0.98230I$ $c = 0.719342 - 0.464705I$ $d = -1.92040 + 0.39965I$	$10.17380 - 6.99719I$	$-0.86096 + 3.54683I$
$u = 0.59238 + 1.52933I$ $a = -0.195707 + 1.179910I$ $b = -0.61199 - 1.87536I$ $c = -0.531954 - 0.496057I$ $d = 1.317210 + 0.126988I$	$10.17380 - 6.99719I$	$-0.86096 + 3.54683I$
$u = 0.59238 - 1.52933I$ $a = 0.362296 + 0.720965I$ $b = 1.02960 - 0.98230I$ $c = 0.719342 + 0.464705I$ $d = -1.92040 - 0.39965I$	$10.17380 + 6.99719I$	$-0.86096 - 3.54683I$
$u = 0.59238 - 1.52933I$ $a = -0.195707 - 1.179910I$ $b = -0.61199 + 1.87536I$ $c = -0.531954 + 0.496057I$ $d = 1.317210 - 0.126988I$	$10.17380 + 6.99719I$	$-0.86096 - 3.54683I$

III. $I_3^u =$
$\langle u^2+d,\ -u^2+c-1,\ 2au-u^2+b+a-u,\ 4u^2a-3u^2+\cdots+6a-5,\ u^3+u^2+2u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2-4u-10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_{11}	$y^6 - 5y^5 + 8y^4 - 6y^3 + 8y^2 - 8y + 1$
c_2, c_{10}	$y^6 - 9y^5 + 20y^4 + 14y^3 - 16y^2 - 48y + 1$
c_3, c_7, c_9	$(y^3 + 3y^2 + 2y - 1)^2$
c_6, c_8	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0.460426 + 0.958773I$ $b = 0.366694 - 1.005170I$ $c = -0.662359 - 0.562280I$ $d = 1.66236 + 0.56228I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = -0.215080 + 1.307140I$ $a = 0.404090 - 0.016796I$ $b = -2.15161 - 0.30197I$ $c = -0.662359 - 0.562280I$ $d = 1.66236 + 0.56228I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0.460426 - 0.958773I$ $b = 0.366694 + 1.005170I$ $c = -0.662359 + 0.562280I$ $d = 1.66236 - 0.56228I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0.404090 + 0.016796I$ $b = -2.15161 + 0.30197I$ $c = -0.662359 + 0.562280I$ $d = 1.66236 - 0.56228I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.569840$ $a = 0.725017$ $b = -0.143852$ $c = 1.32472$ $d = -0.324718$	-1.11345	-9.01950
$u = -0.569840$ $a = -7.45405$ $b = -1.28631$ $c = 1.32472$ $d = -0.324718$	-1.11345	-9.01950

IV.

$$\boldsymbol{I^u_4 = \langle u^2c - u^2 + \cdots + 2c - 1,\ u^2c + c^2 - u^2 + c - 1,\ b - u,\ a + u,\ u^3 + u^2 + 2u + 1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2 - 4u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^3 - y^2 + 2y - 1)^2$
c_2, c_3, c_7	$(y^3 + 3y^2 + 2y - 1)^2$
c_5, c_6, c_8 c_{11}	$y^6 - 5y^5 + 8y^4 - 6y^3 + 8y^2 - 8y + 1$
c_9, c_{10}	$y^6 - 9y^5 + 20y^4 + 14y^3 - 16y^2 - 48y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=\ \ 0.215080-1.307140I$ $b=-0.215080+1.307140I$ $c=\ \ 0.103733+1.107850I$ $d=-0.064957+0.531815I$	$3.02413+2.82812I$	$-2.49024-2.97945I$
$u=-0.215080+1.307140I$ $a=\ \ 0.215080-1.307140I$ $b=-0.215080+1.307140I$ $c=\ \ 0.558626-0.545571I$ $d=-1.352280+0.395629I$	$3.02413+2.82812I$	$-2.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=\ \ 0.215080+1.307140I$ $b=-0.215080-1.307140I$ $c=\ \ 0.103733-1.107850I$ $d=-0.064957-0.531815I$	$3.02413-2.82812I$	$-2.49024+2.97945I$
$u=-0.215080-1.307140I$ $a=\ \ 0.215080+1.307140I$ $b=-0.215080-1.307140I$ $c=\ \ 0.558626+0.545571I$ $d=-1.352280-0.395629I$	$3.02413-2.82812I$	$-2.49024+2.97945I$
$u=-0.569840$ $a=\ \ 0.569840$ $b=-0.569840$ $c=\ \ 0.665586$ $d=-0.413144$	-1.11345	-9.01950
$u=-0.569840$ $a=\ \ 0.569840$ $b=-0.569840$ $c=-1.99030$ $d=\ \ 4.24762$	-1.11345	-9.01950

V. $I_5^u = \langle u^2 + d,\ -u^2 + c - 1,\ b - u,\ a + u,\ u^3 + u^2 + 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2 - 4u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0.215080 - 1.307140I$ $b = -0.215080 + 1.307140I$ $c = -0.662359 - 0.562280I$ $d = 1.66236 + 0.56228I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0.215080 + 1.307140I$ $b = -0.215080 - 1.307140I$ $c = -0.662359 + 0.562280I$ $d = 1.66236 - 0.56228I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.569840$ $a = 0.569840$ $b = -0.569840$ $c = 1.32472$ $d = -0.324718$	-1.11345	-9.01950

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(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_3 c_4, c_7	u
c_5, c_6	$u - 1$
c_8, c_9, 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_7	y
c_5, c_6, c_8 c_9, c_{10}, c_{11}	$y - 1$

(vi) Complex Volumes and Cusp Shapes

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

IX. $\boldsymbol{I_4^v = \langle a,\ da + c - v - 1,\ dv - 1,\ cv - v^2 + a - v,\ b + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} v + 1 \\ d \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ d \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ -d \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ d - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ d - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= d^2 + v^2 - 8$

(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
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	-1.64493	$-7.39277 - 0.54214I$
$c = \cdots$		
$d = \cdots$		

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$u(u-1)^2(u^3-u^2+1)^3(u^6+u^5-2u^4+2u^2-2u-1)$ $\cdot(u^{10}-u^9-u^8+3u^7-2u^5+u^4+4u^3-3u^2-4u+4)$ $\cdot(u^{13}-2u^{12}+4u^{10}-8u^8+7u^7+7u^6-8u^5-3u^4+9u^3+u^2-u+1)$
c_2, c_9	$u(u+1)^2(u^3+u^2+2u+1)^3(u^6+5u^5+8u^4+6u^3+8u^2+8u+1)$ $\cdot(u^{10}+3u^9+\cdots+40u+16)(u^{13}+4u^{12}+\cdots-u+1)$
c_3, c_7	$u^3(u^3+u^2+2u+1)^5(u^5-3u^4+6u^3-7u^2+4u-2)^2$ $\cdot(u^{13}+2u^{12}+\cdots-4u^2+8)$
c_4, c_8	$u(u+1)^2(u^3-u^2+1)^3(u^6+u^5-2u^4+2u^2-2u-1)$ $\cdot(u^{10}-u^9-u^8+3u^7-2u^5+u^4+4u^3-3u^2-4u+4)$ $\cdot(u^{13}-2u^{12}+4u^{10}-8u^8+7u^7+7u^6-8u^5-3u^4+9u^3+u^2-u+1)$
c_5, c_{11}	$u(u-1)(u+1)(u^3-u^2+1)(u^5+u^4-3u^3-2u^2+2u-1)^2$ $\cdot((u^6+u^5-2u^4+2u^2-2u-1)^2)(u^{13}+2u^{12}+\cdots+8u+4)$
c_{10}	$u(u+1)^2(u^3-u^2+2u-1)(u^5-7u^4+17u^3-14u^2-1)^2$ $\cdot((u^6-5u^5+\cdots-8u+1)^2)(u^{13}-14u^{12}+\cdots+88u-16)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_8	$y(y-1)^2(y^3-y^2+2y-1)^3(y^6-5y^5+8y^4-6y^3+8y^2-8y+1)$ $\cdot(y^{10}-3y^9+\cdots-40y+16)(y^{13}-4y^{12}+\cdots-y-1)$
c_2, c_9	$y(y-1)^2(y^3+3y^2+2y-1)^3$ $\cdot(y^6-9y^5+20y^4+14y^3-16y^2-48y+1)$ $\cdot(y^{10}+5y^9+\cdots-32y+256)(y^{13}+16y^{12}+\cdots-25y-1)$
c_3, c_7	$y^3(y^3+3y^2+2y-1)^5(y^5+3y^4+2y^3-13y^2-12y-4)^2$ $\cdot(y^{13}+6y^{12}+\cdots+64y-64)$
c_5, c_{11}	$y(y-1)^2(y^3-y^2+2y-1)(y^5-7y^4+17y^3-14y^2-1)^2$ $\cdot((y^6-5y^5+\cdots-8y+1)^2)(y^{13}-14y^{12}+\cdots+88y-16)$
c_{10}	$y(y-1)^2(y^3+3y^2+2y-1)(y^5-15y^4+\cdots-28y-1)^2$ $\cdot(y^6-9y^5+20y^4+14y^3-16y^2-48y+1)^2$ $\cdot(y^{13}-30y^{12}+\cdots+2848y-256)$