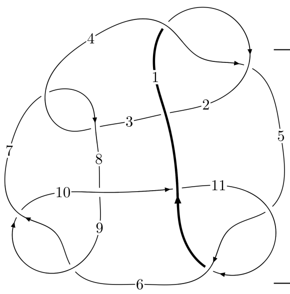
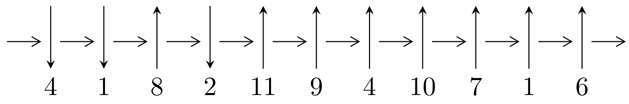
$11n_{75}$ ($K11n_{75}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 563u^{12} + 528u^{11} + \cdots + 40878d + 8114,\ 15485u^{12} + 31932u^{11} + \cdots + 490536c - 416896, \\
& 19430u^{12} + 31239u^{11} + \cdots + 245268b + 104720,\ 1958u^{12} + 5628u^{11} + \cdots + 81756a - 64396, \\
& u^{13} + 2u^{12} + 5u^{11} + 6u^{10} + 6u^9 + 6u^8 - u^7 - 4u^6 - 10u^5 - 12u^4 + 24u^3 - 4u^2 + 8\rangle \\
I_2^u = \langle & -u^4c + 2u^3c - 4u^2c + 3cu + u^2 + d - 2c - u + 2, \\
& 3u^4c - 9u^3c - u^4 + 16u^2c + 3u^3 + 2c^2 - 17cu - 6u^2 + 4c + 7u - 2,\ u^2 + b - u + 1, \\
& -u^4 + 3u^3 - 6u^2 + 2a + 5u - 2,\ u^5 - 3u^4 + 6u^3 - 7u^2 + 4u - 2\rangle \\
I_3^u = \langle & u^2 + d + u + 1,\ c + u,\ -au + u^2 + b + u + 1,\ u^2a + a^2 - u^2 + a - 1,\ u^3 + u^2 + 2u + 1\rangle \\
I_4^u = \langle & -au + d,\ -2u^2a - au + u^2 + c - 3a + 1,\ -au + u^2 + b + u + 1,\ u^2a + a^2 - u^2 + a - 1,\ u^3 + u^2 + 2u + 1\rangle \\
I_5^u = \langle & u^2 + d + u + 1,\ c + u,\ u^2 + b + u + 3,\ -u^2 + a - 1,\ u^3 + u^2 + 2u + 1\rangle
\end{aligned}$$

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

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

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[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. $I_1^u = \langle 563u^{12}+528u^{11}+\cdots+4.09\times10^4 d+8114,\ 1.55\times10^4u^{12}+3.19\times10^4u^{11}+\cdots+4.91\times10^5c-4.17\times10^5,\ 1.94\times10^4u^{12}+3.12\times10^4u^{11}+\cdots+2.45\times10^5b+1.05\times10^5,\ 1958u^{12}+5628u^{11}+\cdots+8.18\times10^4a-6.44\times10^4,\ u^{13}+2u^{12}+\cdots-4u^2+8\rangle$

(i) Arc colorings

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

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

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0239493u^{12} - 0.0688390u^{11} + \cdots - 0.848770u + 0.787661 \\ -0.0792195u^{12} - 0.127367u^{11} + \cdots + 0.865616u - 0.426962 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0239493u^{12} - 0.0688390u^{11} + \cdots - 0.848770u + 0.787661 \\ -0.0327519u^{12} - 0.0235946u^{11} + \cdots + 1.05721u - 0.259439 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0567012u^{12} + 0.0924336u^{11} + \cdots - 0.208441u - 0.528222 \\ -0.0327519u^{12} - 0.0235946u^{11} + \cdots + 1.05721u - 0.259439 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0315675u^{12} - 0.0650961u^{11} + \cdots - 0.166977u + 0.849879 \\ -0.0137727u^{12} - 0.0129165u^{11} + \cdots + 0.119429u - 0.198493 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0177948u^{12} - 0.0521797u^{11} + \cdots - 0.286405u + 1.04837 \\ -0.0137727u^{12} - 0.0129165u^{11} + \cdots + 0.119429u - 0.198493 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0261530u^{12} - 0.0246587u^{11} + \cdots + 0.204992u + 0.667074 \\ -0.00541449u^{12} - 0.0404374u^{11} + \cdots - 0.371969u + 0.182804 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00615449u^{12} - 0.0166593u^{11} + \cdots - 0.562364u + 0.739289 \\ -0.0654468u^{12} - 0.114450u^{11} + \cdots + 0.746188u - 0.228468 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00615449u^{12} - 0.0166593u^{11} + \cdots - 0.562364u + 0.739289 \\ -0.0654468u^{12} - 0.114450u^{11} + \cdots + 0.746188u - 0.228468 \end{pmatrix}$$

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.917056 + 0.260692I$ $a = -0.589132 - 0.469887I$ $b = 0.79135 + 1.65546I$ $c = 0.504975 + 0.125247I$ $d = -0.865536 + 0.462701I$	$1.87851 - 3.16005I$	$8.32269 + 6.37622I$
$u = 0.917056 - 0.260692I$ $a = -0.589132 + 0.469887I$ $b = 0.79135 - 1.65546I$ $c = 0.504975 - 0.125247I$ $d = -0.865536 - 0.462701I$	$1.87851 + 3.16005I$	$8.32269 - 6.37622I$
$u = 0.300918 + 0.625488I$ $a = 0.901027 - 1.049210I$ $b = 0.070598 - 0.355169I$ $c = 1.038000 - 0.500200I$ $d = 0.218164 - 0.376758I$	$-1.70980 - 0.77307I$	$-3.13297 + 1.88722I$
$u = 0.300918 - 0.625488I$ $a = 0.901027 + 1.049210I$ $b = 0.070598 + 0.355169I$ $c = 1.038000 + 0.500200I$ $d = 0.218164 + 0.376758I$	$-1.70980 + 0.77307I$	$-3.13297 - 1.88722I$
$u = -0.613875$ $a = 0.827092$ $b = -1.55872$ $c = 0.608171$ $d = -0.644275$	1.13096	8.32650
$u = -1.37082 + 0.38920I$ $a = -1.049350 - 0.162066I$ $b = 1.42939 - 0.72557I$ $c = 0.437589 - 0.166249I$ $d = -0.997004 - 0.758703I$	$-4.46546 + 5.94244I$	$3.19547 - 4.81410I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.37082 - 0.38920I$ $a = -1.049350 + 0.162066I$ $b = 1.42939 + 0.72557I$ $c = 0.437589 + 0.166249I$ $d = -0.997004 + 0.758703I$	$-4.46546 - 5.94244I$	$3.19547 + 4.81410I$
$u = 0.54282 + 1.32018I$ $a = -0.524033 - 0.514167I$ $b = -1.67767 + 0.82663I$ $c = -0.163933 + 1.389820I$ $d = 1.083710 + 0.709645I$	$-1.53986 + 8.66555I$	$5.43123 - 7.16460I$
$u = 0.54282 - 1.32018I$ $a = -0.524033 + 0.514167I$ $b = -1.67767 - 0.82663I$ $c = -0.163933 - 1.389820I$ $d = 1.083710 - 0.709645I$	$-1.53986 - 8.66555I$	$5.43123 + 7.16460I$
$u = -0.79330 + 1.40153I$ $a = 0.258600 + 0.939751I$ $b = -2.03673 - 0.63977I$ $c = -0.397741 - 1.239110I$ $d = 1.23485 - 0.73165I$	$-7.6949 - 13.5931I$	$3.46569 + 7.45820I$
$u = -0.79330 - 1.40153I$ $a = 0.258600 - 0.939751I$ $b = -2.03673 + 0.63977I$ $c = -0.397741 + 1.239110I$ $d = 1.23485 + 0.73165I$	$-7.6949 + 13.5931I$	$3.46569 - 7.45820I$
$u = -0.28973 + 1.63988I$ $a = 0.089343 + 0.977840I$ $b = -0.797574 + 0.049049I$ $c = 0.277026 + 0.842714I$ $d = 0.647958 + 1.070920I$	$-11.70800 - 0.17366I$	$-0.445368 - 1.147630I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.28973 - 1.63988I$		
$a = 0.089343 - 0.977840I$		
$b = -0.797574 - 0.049049I$	$-11.70800 + 0.17366I$	$-0.445368 + 1.147630I$
$c = 0.277026 - 0.842714I$		
$d = 0.647958 - 1.070920I$		

II. $\boldsymbol{I^u_2 = \langle -u^4c+2u^3c+\cdots-2c+2,\ 3u^4c-u^4+\cdots+4c-2,\ u^2+b-u+1,\ -u^4+3u^3+\cdots+2a-2,\ u^5-3u^4+\cdots+4u-2\rangle}$

(i) Arc colorings

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

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.225231 + 0.702914I$ $a = -0.361361 - 0.587269I$ $b = -0.331409 + 0.386277I$ $c = 0.456786 + 0.020682I$ $d = -1.184730 + 0.098919I$	$2.91669 + 1.13882I$	$7.28192 - 6.05450I$
$u = 0.225231 + 0.702914I$ $a = -0.361361 - 0.587269I$ $b = -0.331409 + 0.386277I$ $c = 1.40917 + 2.76067I$ $d = 0.853320 + 0.287358I$	$2.91669 + 1.13882I$	$7.28192 - 6.05450I$
$u = 0.225231 - 0.702914I$ $a = -0.361361 + 0.587269I$ $b = -0.331409 - 0.386277I$ $c = 0.456786 - 0.020682I$ $d = -1.184730 - 0.098919I$	$2.91669 - 1.13882I$	$7.28192 + 6.05450I$
$u = 0.225231 - 0.702914I$ $a = -0.361361 + 0.587269I$ $b = -0.331409 - 0.386277I$ $c = 1.40917 - 2.76067I$ $d = 0.853320 - 0.287358I$	$2.91669 - 1.13882I$	$7.28192 + 6.05450I$
$u = 1.36478$ $a = 1.09750$ $b = -1.49784$ $c = 0.467454 + 0.220835I$ $d = -0.748922 + 0.826228I$	-5.22495	1.71420
$u = 1.36478$ $a = 1.09750$ $b = -1.49784$ $c = 0.467454 - 0.220835I$ $d = -0.748922 - 0.826228I$	-5.22495	1.71420

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.59238 + 1.52933I$ $a = -0.187388 + 0.960762I$ $b = 1.58033 - 0.28256I$ $c = 0.362296 - 0.720965I$ $d = 0.443519 - 1.107390I$	$-10.17380 + 6.99719I$	$0.86096 - 3.54683I$
$u = 0.59238 + 1.52933I$ $a = -0.187388 + 0.960762I$ $b = 1.58033 - 0.28256I$ $c = -0.195707 + 1.179910I$ $d = 1.136810 + 0.824833I$	$-10.17380 + 6.99719I$	$0.86096 - 3.54683I$
$u = 0.59238 - 1.52933I$ $a = -0.187388 - 0.960762I$ $b = 1.58033 + 0.28256I$ $c = 0.362296 + 0.720965I$ $d = 0.443519 + 1.107390I$	$-10.17380 - 6.99719I$	$0.86096 + 3.54683I$
$u = 0.59238 - 1.52933I$ $a = -0.187388 - 0.960762I$ $b = 1.58033 + 0.28256I$ $c = -0.195707 - 1.179910I$ $d = 1.136810 - 0.824833I$	$-10.17380 - 6.99719I$	$0.86096 + 3.54683I$

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

(i) Arc colorings

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

(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, 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_8	$(u^3 - u^2 + 2u - 1)^2$
c_6, c_9	$(u^3 + u^2 - 1)^2$
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_8	$(y^3 + 3y^2 + 2y - 1)^2$
c_6, c_9	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=\ \ 0.103733+1.107850I$ $b=-0.592989-0.847544I$ $c=\ \ 0.215080-1.307140I$ $d=\ \ 0.877439-0.744862I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080+1.307140I$ $a=\ \ 0.558626-0.545571I$ $b=\ \ 1.47043+0.10268I$ $c=\ \ 0.215080-1.307140I$ $d=\ \ 0.877439-0.744862I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080-1.307140I$ $a=\ \ 0.103733-1.107850I$ $b=-0.592989+0.847544I$ $c=\ \ 0.215080+1.307140I$ $d=\ \ 0.877439+0.744862I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=\ \ 0.558626+0.545571I$ $b=\ \ 1.47043-0.10268I$ $c=\ \ 0.215080+1.307140I$ $d=\ \ 0.877439+0.744862I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.569840$ $a=\ \ 0.665586$ $b=-1.13416$ $c=\ \ 0.569840$ $d=-0.754878$	1.11345	9.01950
$u=-0.569840$ $a=-1.99030$ $b=\ \ 0.379278$ $c=\ \ 0.569840$ $d=-0.754878$	1.11345	9.01950

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

(i) Arc colorings

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

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

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} a \\ au - u^2 - u - 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} a \\ u^2a + au - u^2 - u - 1 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 2u^2a + au - u^2 + 3a - 1 \\ au \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2u^2a - u^2 + 3a - 1 \\ au \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 2u^2a - u^2 + 3a - 1 \\ -u^2a + au - u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2u^2a - u^2 + 3a - 1 \\ -u^2a + au - u - 1 \end{pmatrix}$$

(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, c_6 c_9	$u^6 - u^5 - 2u^4 + 2u^2 + 2u - 1$
c_2	$u^6 + 5u^5 + 8u^4 + 6u^3 + 8u^2 + 8u + 1$
c_3, c_7, c_{10}	$(u^3 - u^2 + 2u - 1)^2$
c_5, c_{11}	$(u^3 + u^2 - 1)^2$
c_8	$u^6 - 5u^5 + 8u^4 - 6u^3 + 8u^2 - 8u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0.103733 + 1.107850I$ $b = -0.592989 - 0.847544I$ $c = 0.404090 - 0.016796I$ $d = -1.47043 - 0.10268I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = -0.215080 + 1.307140I$ $a = 0.558626 - 0.545571I$ $b = 1.47043 + 0.10268I$ $c = 0.460426 + 0.958773I$ $d = 0.592989 + 0.847544I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0.103733 - 1.107850I$ $b = -0.592989 + 0.847544I$ $c = 0.404090 + 0.016796I$ $d = -1.47043 + 0.10268I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 0.558626 + 0.545571I$ $b = 1.47043 - 0.10268I$ $c = 0.460426 - 0.958773I$ $d = 0.592989 - 0.847544I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$u = -0.569840$ $a = 0.665586$ $b = -1.13416$ $c = 0.725017$ $d = -0.379278$	1.11345	9.01950
$u = -0.569840$ $a = -1.99030$ $b = 0.379278$ $c = -7.45405$ $d = 1.13416$	1.11345	9.01950

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

(i) Arc colorings

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

(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_9, c_{11}	$u^3 + u^2 - 1$
c_2	$u^3 + u^2 + 2u + 1$
c_3, c_7, c_8 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_9, c_{11}	$y^3 - y^2 + 2y - 1$
c_2, c_3, c_7 c_8, 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
$u=-0.215080+1.307140I$ $a=-0.662359-0.562280I$ $b=-1.122560-0.744862I$ $c=\ \ 0.215080-1.307140I$ $d=\ \ 0.877439-0.744862I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080-1.307140I$ $a=-0.662359+0.562280I$ $b=-1.122560+0.744862I$ $c=\ \ 0.215080+1.307140I$ $d=\ \ 0.877439+0.744862I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.569840$ $a=\ \ 1.32472$ $b=-2.75488$ $c=\ \ 0.569840$ $d=-0.754878$	1.11345	9.01950

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(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_9	$u-1$
c_6, c_8, 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_1^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

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(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
$v = 1.00000$ $a = 0$ $b = -1.00000$ $c = 1.00000$ $d = 0$	0	0

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u - 1$
c_2, c_4, c_6 c_8	$u + 1$
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_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$		
$a = 0$		
$b = -1.00000$	0	0
$c = 0$		
$d = -1.00000$		

IX. $I_4^v = \langle c,\ d+1,\ -av+c-v,\ bv+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	1.64493	$7.74988 + 0.34499I$

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u-1)^2(u^3+u^2-1)(u^5-u^4-3u^3+2u^2+2u+1)^2$ $\cdot((u^6-u^5-2u^4+2u^2+2u-1)^2)(u^{13}-2u^{12}+\cdots+8u-4)$
c_2	$u(u+1)^2(u^3+u^2+2u+1)(u^5+7u^4+17u^3+14u^2+1)^2$ $\cdot((u^6+5u^5+\cdots+8u+1)^2)(u^{13}+14u^{12}+\cdots+88u+16)$
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	$u(u+1)^2(u^3+u^2-1)(u^5-u^4-3u^3+2u^2+2u+1)^2$ $\cdot((u^6-u^5-2u^4+2u^2+2u-1)^2)(u^{13}-2u^{12}+\cdots+8u-4)$
c_5, c_{11}	$u(u-1)(u+1)(u^3+u^2-1)^3(u^6-u^5-2u^4+2u^2+2u-1)$ $\cdot(u^{10}+u^9-u^8-3u^7+2u^5+u^4-4u^3-3u^2+4u+4)$ $\cdot(u^{13}+2u^{12}-4u^{10}+8u^8+7u^7-7u^6-8u^5+3u^4+9u^3-u^2-u-1)$
c_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_8, c_{10}	$u(u+1)^2(u^3-u^2+2u-1)^3(u^6-5u^5+8u^4-6u^3+8u^2-8u+1)$ $\cdot(u^{10}-3u^9+\cdots-40u+16)(u^{13}-4u^{12}+\cdots-u-1)$
c_9	$u(u-1)^2(u^3+u^2-1)^3(u^6-u^5-2u^4+2u^2+2u-1)$ $\cdot(u^{10}+u^9-u^8-3u^7+2u^5+u^4-4u^3-3u^2+4u+4)$ $\cdot(u^{13}+2u^{12}-4u^{10}+8u^8+7u^7-7u^6-8u^5+3u^4+9u^3-u^2-u-1)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y(y-1)^2(y^3-y^2+2y-1)(y^5-7y^4+17y^3-14y^2-1)^2$ $\cdot((y^6-5y^5+\cdots-8y+1)^2)(y^{13}-14y^{12}+\cdots+88y-16)$
c_2	$y(y-1)^2(y^3+3y^2+2y-1)(y^5-15y^4+\cdots-28y-1)^2$ $\cdot(y^6-9y^5+20y^4+14y^3-16y^2-48y+1)^2$ $\cdot(y^{13}-30y^{12}+\cdots+2848y-256)$
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_6, c_9 c_{11}	$y(y-1)^2(y^3-y^2+2y-1)^3(y^6-5y^5+8y^4-6y^3+8y^2-8y+1)$ $\cdot(y^{10}-3y^9+\cdots-40y+16)(y^{13}-4y^{12}+\cdots-y-1)$
c_8, c_{10}	$y(y-1)^2(y^3+3y^2+2y-1)^3$ $\cdot(y^6-9y^5+20y^4+14y^3-16y^2-48y+1)$ $\cdot(y^{10}+5y^9+\cdots-32y+256)(y^{13}+16y^{12}+\cdots-25y-1)$