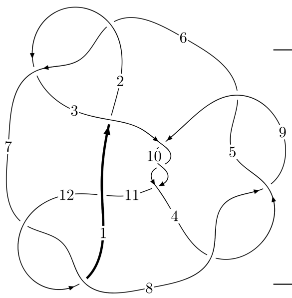
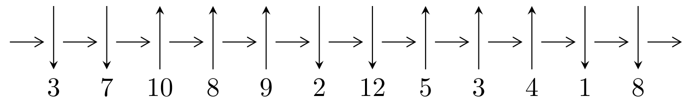
$12n_{0605}$ ($K12n_{0605}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle u^7 - 3u^6 - u^5 + 9u^4 - 6u^3 - 2u^2 + 4b + 2,\ u^7 - 2u^6 - u^5 + 6u^4 - 6u^3 + 2u^2 + 4a + 2u,\\
&\quad u^8 - 2u^7 - 2u^6 + 8u^5 - 3u^4 - 4u^3 + 2u^2 + 2u + 2\rangle\\
I_2^u &= \langle b - 1,\ u^2 + 2a - u,\ u^4 - u^2 + 2\rangle\\
I_3^u &= \langle -63u^7 + 285u^6 - 207u^5 + 132u^4 - 665u^3 - 273u^2 + 1121b + 1277u - 919,\\
&\quad 6601u^7 - 21641u^6 + 23931u^5 - 33635u^4 + 55727u^3 + 23373u^2 + 24662a - 106399u + 92305,\\
&\quad u^8 - 4u^7 + 6u^6 - 8u^5 + 12u^4 - 2u^3 - 18u^2 + 26u - 11\rangle\\
I_4^u &= \langle au + b - a + 1,\ 2a^2 - 2au - 4a - u - 1,\ u^2 + 2u - 1\rangle\\
I_5^u &= \langle b - 2a + 1,\ 2a^2 - 2a - 1,\ u + 1\rangle\\
I_6^u &= \langle b + 1,\ -u^3 - u^2 + 2a + u - 1,\ u^4 + 1\rangle\\
I_7^u &= \langle b,\ a + 1,\ u + 1\rangle\\
I_8^u &= \langle -2au + 2b + 2a + u - 3,\ 4a^2 - 4a + 9,\ u^2 - 2u + 1\rangle\\
I_9^u &= \langle b - 1,\ u - 1\rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b + 1,\ v + 1\rangle$$

* 9 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 36 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. $\boldsymbol{I^u_1 = \langle u^7 - 3u^6 - u^5 + 9u^4 - 6u^3 - 2u^2 + 4b + 2,\ u^7 - 2u^6 - u^5 + 6u^4 - 6u^3 + 2u^2 + 4a + 2u,\ u^8 - 2u^7 + \cdots + 2u + 2\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^8 + 8u^7 + 30u^6 + 64u^5 + 77u^4 + 68u^3 + 8u^2 - 4u + 4$
c_2, c_6, c_7 c_{12}	$u^8 - 2u^7 - 2u^6 + 8u^5 - 3u^4 - 4u^3 + 2u^2 + 2u + 2$
c_3, c_4, c_5 c_8, c_9, c_{10}	$u^8 - 2u^7 - 5u^6 + 16u^5 - 3u^4 - 14u^3 + u^2 - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^8 - 4y^7 + 30y^6 - 548y^5 - 2223y^4 - 2640y^3 + 1224y^2 + 48y + 16$
c_2, c_6, c_7 c_{12}	$y^8 - 8y^7 + 30y^6 - 64y^5 + 77y^4 - 68y^3 + 8y^2 + 4y + 4$
c_3, c_4, c_5 c_8, c_9, c_{10}	$y^8 - 14y^7 + 83y^6 - 280y^5 + 443y^4 - 182y^3 + 13y^2 - 4y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.795087$ $a = -1.17483$ $b = -1.67677$	10.6824	12.2800
$u = 0.973229 + 0.738508I$ $a = -0.555279 - 0.483622I$ $b = 0.655349 - 0.111756I$	$2.80118 - 5.76470I$	$-0.66223 + 7.42338I$
$u = 0.973229 - 0.738508I$ $a = -0.555279 + 0.483622I$ $b = 0.655349 + 0.111756I$	$2.80118 + 5.76470I$	$-0.66223 - 7.42338I$
$u = -0.253073 + 0.513412I$ $a = 0.548752 - 0.359255I$ $b = -0.248429 - 0.443565I$	$0.076761 + 1.027570I$	$1.43267 - 6.49756I$
$u = -0.253073 - 0.513412I$ $a = 0.548752 + 0.359255I$ $b = -0.248429 + 0.443565I$	$0.076761 - 1.027570I$	$1.43267 + 6.49756I$
$u = 1.55774 + 0.70350I$ $a = 0.340083 + 1.296596I$ $b = -1.80248 + 0.99093I$	$-13.5641 - 12.7719I$	$1.06054 + 5.06853I$
$u = 1.55774 - 0.70350I$ $a = 0.340083 - 1.296596I$ $b = -1.80248 - 0.99093I$	$-13.5641 + 12.7719I$	$1.06054 - 5.06853I$
$u = -1.76070$ $a = 0.507716$ $b = 2.46790$	7.40006	0.0581740

II. $I_2^u = \langle b-1,\ u^2+2a-u,\ u^4-u^2+2 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.978318 + 0.676097I$ $a = 0.239159 - 0.323389I$ $b = 1.00000$	$4.11234 - 5.33349I$	$6.00000 + 5.29150I$
$u = 0.978318 - 0.676097I$ $a = 0.239159 + 0.323389I$ $b = 1.00000$	$4.11234 + 5.33349I$	$6.00000 - 5.29150I$
$u = -0.978318 + 0.676097I$ $a = -0.739159 + 0.999486I$ $b = 1.00000$	$4.11234 + 5.33349I$	$6.00000 - 5.29150I$
$u = -0.978318 - 0.676097I$ $a = -0.739159 - 0.999486I$ $b = 1.00000$	$4.11234 - 5.33349I$	$6.00000 + 5.29150I$

III. $\boldsymbol{I_3^u = \langle -63u^7 + 285u^6 + \cdots + 1121b - 919,\ 6601u^7 - 21641u^6 + \cdots + 24662a + 92305,\ u^8 - 4u^7 + \cdots + 26u - 11\rangle}$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -0.267659u^7 + 0.877504u^6 + \cdots + 4.31429u - 3.74280 \\ 0.0561998u^7 - 0.254237u^6 + \cdots - 1.13916u + 0.819804 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.238221u^7 + 1.03005u^6 + \cdots + 4.95568u - 4.36100 \\ 0.599465u^7 - 1.71186u^6 + \cdots - 8.48439u + 4.41124 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0185305u^7 - 0.0362096u^6 + \cdots - 0.502595u + 0.792677 \\ 0.0374665u^7 - 0.169492u^6 + \cdots - 0.0927743u + 0.213202 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.407591u^7 + 1.17720u^6 + \cdots + 6.03958u - 4.71332 \\ -0.312221u^7 + 0.745763u^6 + \cdots + 3.43979u - 1.44335 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0381559u^7 - 0.0654854u^6 + \cdots - 1.25833u + 0.619455 \\ -0.399643u^7 + 0.474576u^6 + \cdots + 6.32293u - 2.60749 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.321953u^7 - 1.07550u^6 + \cdots - 4.54181u + 4.51172 \\ -0.00892061u^7 + 0.135593u^6 + \cdots + 0.926851u + 0.187333 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.181169u^7 - 0.228043u^6 + \cdots + 1.13259u + 1.07728 \\ -1.87957u^7 + 6.16949u^6 + \cdots + 21.9875u - 11.5290 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{518}{1121}u^7 - \frac{84}{59}u^6 + \frac{1702}{1121}u^5 - \frac{2580}{1121}u^4 + \frac{196}{59}u^3 + \frac{2992}{1121}u^2 - \frac{8756}{1121}u + \frac{9300}{1121}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^8 + 4u^7 - 4u^6 - 28u^5 + 82u^4 + 152u^3 + 164u^2 + 280u + 121$
c_2, c_6, c_7 c_{12}	$u^8 - 4u^7 + 6u^6 - 8u^5 + 12u^4 - 2u^3 - 18u^2 + 26u - 11$
c_3, c_4, c_5 c_8, c_9, c_{10}	$(u^4 + 2u^3 + 4u^2 - 2u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^8 - 24y^7 + \cdots - 38712y + 14641$
c_2, c_6, c_7 c_{12}	$y^8 - 4y^7 - 4y^6 + 28y^5 + 82y^4 - 152y^3 + 164y^2 - 280y + 121$
c_3, c_4, c_5 c_8, c_9, c_{10}	$(y^4 + 4y^3 + 22y^2 - 12y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.737313 + 0.794288I$ $a = 0.634238 + 0.289969I$ $b = -0.632293$	3.51425	$-61.050747 + 0.10I$
$u = 0.737313 - 0.794288I$ $a = 0.634238 - 0.289969I$ $b = -0.632293$	3.51425	$-61.050747 + 0.10I$
$u = -1.13723$ $a = 0.132208$ $b = 0.321336$	-2.70122	4.79070
$u = 0.741896$ $a = -1.67811$ $b = 0.321336$	-2.70122	4.79070
$u = -0.47349 + 1.60637I$ $a = -0.607711 + 0.003620I$ $b = 1.15548 + 1.89385I$	$-7.80872 + 4.85117I$	$1.07929 - 2.27864I$
$u = -0.47349 - 1.60637I$ $a = -0.607711 - 0.003620I$ $b = 1.15548 - 1.89385I$	$-7.80872 - 4.85117I$	$1.07929 + 2.27864I$
$u = 1.93385 + 0.46705I$ $a = -0.162665 - 1.055547I$ $b = 1.15548 - 1.89385I$	$-7.80872 - 4.85117I$	$1.07929 + 2.27864I$
$u = 1.93385 - 0.46705I$ $a = -0.162665 + 1.055547I$ $b = 1.15548 + 1.89385I$	$-7.80872 + 4.85117I$	$1.07929 - 2.27864I$

IV. $I_4^u = \langle au + b - a + 1,\ 2a^2 - 2au - 4a - u - 1,\ u^2 + 2u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -2u + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -4u + 2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ -au + a - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 3au + 2u - 1 \\ 13au - 5a + 10u - 5 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 5u - 2 \\ 25u - 10 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} au + u + 1 \\ 4au - 2a + 3u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 3u \\ 13u - 5 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 10au - 3a - 2u + 1 \\ 48au - 20a - 10u + 5 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u + 1 \\ -6u + 3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -30u + 13 \\ -151u + 63 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^2 - 34y + 1)^2$
c_2, c_6, c_7 c_{12}	$(y^2 - 6y + 1)^2$
c_3, c_4, c_5 c_8, c_9, c_{10}	$y^4 + 8y^3 + 98y^2 - 184y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.414214$ $a = -0.264020$ $b = -1.15466$	2.46740	0
$u = 0.414214$ $a = 2.67823$ $b = 0.568873$	2.46740	0
$u = -2.41421$ $a = -0.207107 + 0.814993I$ $b = -1.70711 + 2.78256I$	−17.2718	0
$u = -2.41421$ $a = -0.207107 - 0.814993I$ $b = -1.70711 - 2.78256I$	−17.2718	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \ \ 1.36603$ $b = \ \ 1.73205$	9.86960	0
$u = -1.00000$ $a = -0.366025$ $b = -1.73205$	9.86960	0

VI. $I_6^u = \langle b+1,\ -u^3-u^2+2a+u-1,\ u^4+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = -0.207107 + 0.500000I$ $b = -1.00000$	4.93480	8.00000
$u = 0.707107 - 0.707107I$ $a = -0.207107 - 0.500000I$ $b = -1.00000$	4.93480	8.00000
$u = -0.707107 + 0.707107I$ $a = 1.207107 - 0.500000I$ $b = -1.00000$	4.93480	8.00000
$u = -0.707107 - 0.707107I$ $a = 1.207107 + 0.500000I$ $b = -1.00000$	4.93480	8.00000

VII. $I^u_7 = \langle b,\ a+1,\ u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_7	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000

VIII. $I_8^u = \langle -2au + 2b + 2a + u - 3,\ 4a^2 - 4a + 9,\ u^2 - 2u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 2u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -2u + 2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ au - a - \frac{1}{2}u + \frac{3}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -au + 2a + \frac{3}{2}u - \frac{1}{2} \\ au - a + \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 3u - 2 \\ 3u - 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a - \frac{9}{4}u + \frac{13}{4} \\ 2au - 2a - u + 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -2au + 2a + 5u - 6 \\ -2au + 2a + u - 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{5}{2}au + \frac{7}{2}a + \frac{13}{4}u - \frac{13}{4} \\ 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2au - 2a - 3u + 5 \\ 2au - 2a + 2u - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2au - 2a - 4u + 5 \\ 2au - 2a + u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u		$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	$0.50000 + 1.41421I$	0	0
$b =$	1.00000		
$u =$	1.00000		
$a =$	$0.50000 + 1.41421I$	0	0
$b =$	1.00000		
$u =$	1.00000		
$a =$	$0.50000 - 1.41421I$	0	0
$b =$	1.00000		
$u =$	1.00000		
$a =$	$0.50000 - 1.41421I$	0	0
$b =$	1.00000		

IX. $I_9^u = \langle b-1,\ u-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(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_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	0	0

X. $I_1^v = \langle a,\ b+1,\ v+1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

$a_{12} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

XI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u(u-1)^7(u^2+1)^2(u^2-u+2)^2(u^2+6u+1)^2$ $\cdot\,(u^8+4u^7-4u^6-28u^5+82u^4+152u^3+164u^2+280u+121)$ $\cdot\,(u^8+8u^7+30u^6+64u^5+77u^4+68u^3+8u^2-4u+4)$
c_2, c_7	$u(u-1)^3(u+1)^4(u^2+2u-1)^2(u^4+1)(u^4-u^2+2)$ $\cdot\,(u^8-4u^7+6u^6-8u^5+12u^4-2u^3-18u^2+26u-11)$ $\cdot\,(u^8-2u^7-2u^6+8u^5-3u^4-4u^3+2u^2+2u+2)$
c_3, c_8	$u(u-1)^5(u+1)^8(u^2-3)(u^4-4u^3+12u^2-4u-7)$ $\cdot\,(u^4+2u^3+4u^2-2u-1)^2$ $\cdot\,(u^8-2u^7-5u^6+16u^5-3u^4-14u^3+u^2-2)$
c_4, c_5, c_9 c_{10}	$u(u-1)^8(u+1)^5(u^2-3)(u^4-4u^3+12u^2-4u-7)$ $\cdot\,(u^4+2u^3+4u^2-2u-1)^2$ $\cdot\,(u^8-2u^7-5u^6+16u^5-3u^4-14u^3+u^2-2)$
c_6, c_{12}	$u(u-1)^4(u+1)^3(u^2+2u-1)^2(u^4+1)(u^4-u^2+2)$ $\cdot\,(u^8-4u^7+6u^6-8u^5+12u^4-2u^3-18u^2+26u-11)$ $\cdot\,(u^8-2u^7-2u^6+8u^5-3u^4-4u^3+2u^2+2u+2)$

XII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y(y-1)^7(y+1)^4(y^2-34y+1)^2(y^2+3y+4)^2$ $\cdot\,(y^8-24y^7+\cdots-38712y+14641)$ $\cdot\,(y^8-4y^7+30y^6-548y^5-2223y^4-2640y^3+1224y^2+48y+16)$
c_2, c_6, c_7 c_{12}	$y(y-1)^7(y^2+1)^2(y^2-6y+1)^2(y^2-y+2)^2$ $\cdot\,(y^8-8y^7+30y^6-64y^5+77y^4-68y^3+8y^2+4y+4)$ $\cdot\,(y^8-4y^7-4y^6+28y^5+82y^4-152y^3+164y^2-280y+121)$
c_3, c_4, c_5 c_8, c_9, c_{10}	$y(y-3)^2(y-1)^{13}(y^4+4y^3+22y^2-12y+1)^2$ $\cdot\,(y^4+8y^3+98y^2-184y+49)$ $\cdot\,(y^8-14y^7+83y^6-280y^5+443y^4-182y^3+13y^2-4y+4)$