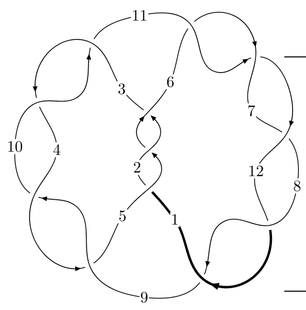
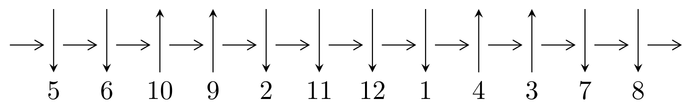
$12a_{1242}$ ($K12a_{1242}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -73684140u^{28} - 84869082u^{27} + \cdots + 1450706621b - 231458335,$$
$$109671719u^{28} + 211321507u^{27} + \cdots + 870423726a + 469996164,\ u^{29} + 2u^{28} + \cdots + 3u + 3\rangle$$
$$I_2^u = \langle b - 1,\ a^2 - 2u + 4,\ u^2 - u - 1\rangle$$
$$I_3^u = \langle b + 1,\ a,\ u^2 + u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 35 representations.

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

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

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$$\boldsymbol{I^u_1 = \langle -7.37\times 10^{7}u^{28} - 8.49\times 10^{7}u^{27} + \cdots + 1.45\times 10^{8}b - 2.31\times 10^{8},\ 1.10\times 10^{8}u^{28} + 2.11\times 10^{8}u^{27} + \cdots + 8.70\times 10^{8}a + 4.70\times 10^{8},\ u^{29} + 2u^{28} + \cdots + 3u + 3\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.125998u^{28} - 0.242780u^{27} + \cdots - 2.67848u - 0.539962\\0.507919u^{28} + 0.585019u^{27} + \cdots - 1.09278u + 1.59549\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.381921u^{28} + 0.342239u^{27} + \cdots - 3.77126u + 1.05552\\0.507919u^{28} + 0.585019u^{27} + \cdots - 1.09278u + 1.59549\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.468112u^{28} - 0.582646u^{27} + \cdots + 3.90750u - 1.40739\\-0.374870u^{28} - 0.400564u^{27} + \cdots + 1.59469u - 1.19585\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^3-2u\\u^5-3u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.277134u^{28} + 0.150852u^{27} + \cdots + 1.79663u + 1.03838\\0.00440318u^{28} + 0.00821410u^{27} + \cdots + 0.0681851u + 0.279727\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.346692u^{28} + 0.461594u^{27} + \cdots - 4.19855u + 1.50586\\0.258251u^{28} + 0.340383u^{27} + \cdots - 1.54868u + 1.00040\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^4-3u^2+1\\u^6-4u^4+3u^2\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{293684115}{145070621}u^{28} + \frac{473769543}{145070621}u^{27} + \cdots - \frac{27583342}{145070621}u + \frac{376643745}{145070621}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$u^{29} + 3u^{28} + \cdots - 4u + 11$
c_3, c_4, c_9 c_{10}	$u^{29} + u^{28} + \cdots + 8u + 4$
c_6, c_7, c_8 c_{11}, c_{12}	$u^{29} - 2u^{28} + \cdots + 3u - 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y^{29} - 35y^{28} + \cdots + 2018y - 121$
c_3, c_4, c_9 c_{10}	$y^{29} + 39y^{28} + \cdots + 96y - 16$
c_6, c_7, c_8 c_{11}, c_{12}	$y^{29} - 42y^{28} + \cdots + 93y - 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.957238 + 0.092408I$ $a = 0.133281 + 0.801704I$ $b = 0.518624 - 0.562490I$	$-3.64717 + 1.99860I$	$-12.92483 - 5.25598I$
$u = -0.957238 - 0.092408I$ $a = 0.133281 - 0.801704I$ $b = 0.518624 + 0.562490I$	$-3.64717 - 1.99860I$	$-12.92483 + 5.25598I$
$u = -0.417915 + 0.773611I$ $a = -1.69685 + 0.96816I$ $b = 1.64439 - 0.07500I$	$-14.7963 + 2.4842I$	$-12.51838 - 2.49231I$
$u = -0.417915 - 0.773611I$ $a = -1.69685 - 0.96816I$ $b = 1.64439 + 0.07500I$	$-14.7963 - 2.4842I$	$-12.51838 + 2.49231I$
$u = 1.18567$ $a = 0.637942$ $b = 1.42557$	-7.33093	-11.5170
$u = 1.210040 + 0.155277I$ $a = 0.148791 + 1.323010I$ $b = -0.663260 - 0.808481I$	$-11.90960 - 2.74446I$	$-13.57354 + 3.19351I$
$u = 1.210040 - 0.155277I$ $a = 0.148791 - 1.323010I$ $b = -0.663260 + 0.808481I$	$-11.90960 + 2.74446I$	$-13.57354 - 3.19351I$
$u = -1.196500 + 0.243718I$ $a = -0.237053 - 0.864265I$ $b = -1.50253 + 0.09750I$	$-10.33150 + 4.22769I$	$-14.4747 - 4.4209I$
$u = -1.196500 - 0.243718I$ $a = -0.237053 + 0.864265I$ $b = -1.50253 - 0.09750I$	$-10.33150 - 4.22769I$	$-14.4747 + 4.4209I$
$u = 0.759489$ $a = -0.494566$ $b = -0.342129$	-1.45016	-4.67260

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.212910 + 0.458406I$ $a = -0.378766 - 1.282880I$ $b = 1.67070 + 0.24034I$	$19.6011 - 6.7273I$	$-15.0335 + 3.7545I$
$u = 1.212910 - 0.458406I$ $a = -0.378766 + 1.282880I$ $b = 1.67070 - 0.24034I$	$19.6011 + 6.7273I$	$-15.0335 - 3.7545I$
$u = 0.393984 + 0.502310I$ $a = 1.01292 + 1.12566I$ $b = -1.344740 - 0.017303I$	$-5.21965 - 1.67900I$	$-11.30545 + 4.50169I$
$u = 0.393984 - 0.502310I$ $a = 1.01292 - 1.12566I$ $b = -1.344740 + 0.017303I$	$-5.21965 + 1.67900I$	$-11.30545 - 4.50169I$
$u = -0.405673 + 0.323850I$ $a = 1.81380 - 2.24627I$ $b = -0.657758 + 0.300683I$	$-6.62321 + 1.10353I$	$-8.65226 - 6.29840I$
$u = -0.405673 - 0.323850I$ $a = 1.81380 + 2.24627I$ $b = -0.657758 - 0.300683I$	$-6.62321 - 1.10353I$	$-8.65226 + 6.29840I$
$u = -0.372797$ $a = 0.875809$ $b = 1.09755$	-2.21609	2.51900
$u = -1.64751$ $a = -0.250551$ $b = -0.668321$	-9.96220	-4.00000
$u = 0.181930 + 0.272469I$ $a = -0.761066 - 1.146960I$ $b = 0.244593 + 0.276761I$	$-0.167538 - 0.756994I$	$-5.06839 + 9.13574I$
$u = 0.181930 - 0.272469I$ $a = -0.761066 + 1.146960I$ $b = 0.244593 - 0.276761I$	$-0.167538 + 0.756994I$	$-5.06839 - 9.13574I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.70546 + 0.00477I$ $a = 0.148318 - 0.582342I$ $b = 0.663162 + 0.664949I$	$-13.14750 - 2.29645I$	$0. + 3.83143I$
$u = 1.70546 - 0.00477I$ $a = 0.148318 + 0.582342I$ $b = 0.663162 - 0.664949I$	$-13.14750 + 2.29645I$	$0. - 3.83143I$
$u = -1.78389$ $a = 0.547557$ $b = 1.64670$	-18.2348	-12.5570
$u = 1.78805 + 0.06048I$ $a = -0.376146 + 0.573320I$ $b = -1.66502 - 0.19299I$	$18.2495 - 5.5663I$	0
$u = 1.78805 - 0.06048I$ $a = -0.376146 - 0.573320I$ $b = -1.66502 + 0.19299I$	$18.2495 + 5.5663I$	0
$u = -1.79084 + 0.03907I$ $a = -0.016087 - 0.967046I$ $b = -0.686725 + 1.113520I$	$16.5545 + 3.6131I$	0
$u = -1.79084 - 0.03907I$ $a = -0.016087 + 0.967046I$ $b = -0.686725 - 1.113520I$	$16.5545 - 3.6131I$	0
$u = -1.79469 + 0.12774I$ $a = 0.050769 + 0.974515I$ $b = 1.69889 - 0.39866I$	$8.82781 + 9.35694I$	0
$u = -1.79469 - 0.12774I$ $a = 0.050769 - 0.974515I$ $b = 1.69889 + 0.39866I$	$8.82781 - 9.35694I$	0

II. $I^u_2 = \langle b-1,\ a^2-2u+4,\ u^2-u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = \quad 2.28825I$ $b = \quad 1.00000$	-7.56670	-16.0000
$u = -0.618034$ $a = \quad -2.28825I$ $b = \quad 1.00000$	-7.56670	-16.0000
$u = \quad 1.61803$ $a = \quad 0.874032I$ $b = \quad 1.00000$	-15.4624	-16.0000
$u = \quad 1.61803$ $a = \quad -0.874032I$ $b = \quad 1.00000$	-15.4624	-16.0000

III. $I_3^u = \langle b+1,\ a,\ u^2+u-1\rangle$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0$ $b = -1.00000$	-2.63189	-18.0000
$u = -1.61803$ $a = 0$ $b = -1.00000$	-10.5276	-18.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^2)(u+1)^4(u^{29}+3u^{28}+\cdots-4u+11)$
c_3, c_4, c_9 c_{10}	$u^2(u^2+2)^2(u^{29}+u^{28}+\cdots+8u+4)$
c_5	$((u-1)^4)(u+1)^2(u^{29}+3u^{28}+\cdots-4u+11)$
c_6, c_7, c_8	$((u^2-u-1)^2)(u^2+u-1)(u^{29}-2u^{28}+\cdots+3u-3)$
c_{11}, c_{12}	$(u^2-u-1)(u^2+u-1)^2(u^{29}-2u^{28}+\cdots+3u-3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$((y-1)^6)(y^{29} - 35y^{28} + \cdots + 2018y - 121)$
c_3, c_4, c_9 c_{10}	$y^2(y+2)^4(y^{29} + 39y^{28} + \cdots + 96y - 16)$
c_6, c_7, c_8 c_{11}, c_{12}	$((y^2 - 3y + 1)^3)(y^{29} - 42y^{28} + \cdots + 93y - 9)$