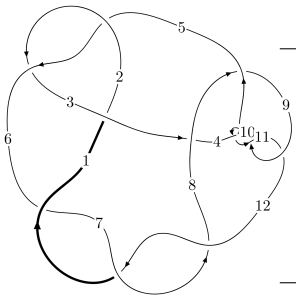
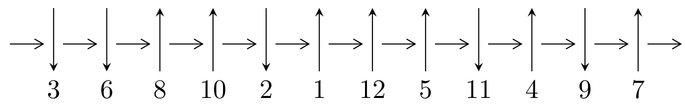
$12a_{0303}$ $(K12a_{0303})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$4{,}11 \xrightarrow[c_{10}]{} 10 \xrightarrow[c_{4}]{} 5 \xrightarrow[c_{9}]{} 9 \xrightarrow[c_{11}]{} 12 \xrightarrow[c_{8}]{} 8 \xrightarrow[c_{3}]{} 3 \xrightarrow[c_{7}]{} 7 \xrightarrow[c_{12}]{} 1 \xrightarrow[c_{1}]{} 2 \xrightarrow[c_{6}]{} 6 \gg c_2, c_5$$

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

$$I_1^u = \langle u^{76} + u^{75} + \cdots - u^2 + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 76 representations.

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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. $I_1^u = \langle u^{76} + u^{75} + \cdots - u^2 + 1 \rangle$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^8 + 2u^6 + 2u^4 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{13} - 2u^{11} - 5u^9 - 6u^7 - 6u^5 - 4u^3 - u \\ -u^{15} - 3u^{13} - 6u^{11} - 9u^9 - 8u^7 - 6u^5 - 2u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{16} - 3u^{14} - 7u^{12} - 10u^{10} - 11u^8 - 8u^6 - 4u^4 + 1 \\ -u^{16} - 2u^{14} - 4u^{12} - 4u^{10} - 2u^8 + 2u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{28} + 5u^{26} + \cdots - u^2 + 1 \\ u^{28} + 4u^{26} + \cdots - 10u^6 - 3u^4 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{56} + 9u^{54} + \cdots - 2u^2 + 1 \\ u^{58} + 10u^{56} + \cdots - 8u^4 + u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{40} - 7u^{38} + \cdots - 2u^2 + 1 \\ -u^{40} - 6u^{38} + \cdots + 2u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{74} - 4u^{73} + \cdots + 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{76} + 43u^{75} + \cdots + 2u + 1$
c_2, c_5	$u^{76} + u^{75} + \cdots + 2u + 1$
c_3	$u^{76} + u^{75} + \cdots + 4u + 1$
c_4, c_{10}	$u^{76} + u^{75} + \cdots - u^2 + 1$
c_6, c_7, c_{12}	$u^{76} + 3u^{75} + \cdots + 85u + 16$
c_8	$u^{76} - 5u^{75} + \cdots - 374u + 31$
c_9, c_{11}	$u^{76} + 25u^{75} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{76} - 19y^{75} + \cdots + 6y + 1$
c_2, c_5	$y^{76} - 43y^{75} + \cdots - 2y + 1$
c_3	$y^{76} + y^{75} + \cdots + 270y + 1$
c_4, c_{10}	$y^{76} + 25y^{75} + \cdots - 2y + 1$
c_6, c_7, c_{12}	$y^{76} + 81y^{75} + \cdots + 13735y + 256$
c_8	$y^{76} + 13y^{75} + \cdots - 24866y + 961$
c_9, c_{11}	$y^{76} + 53y^{75} + \cdots - 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.549992 + 0.839426I$	$-1.86851 + 0.80066I$	0
$u = -0.549992 - 0.839426I$	$-1.86851 - 0.80066I$	0
$u = \ \ 0.734078 + 0.689064I$	$-0.233189 - 0.030227I$	0
$u = \ \ 0.734078 - 0.689064I$	$-0.233189 + 0.030227I$	0
$u = -0.128262 + 1.010270I$	$-3.91459 - 5.98588I$	$0. + 8.65263I$
$u = -0.128262 - 1.010270I$	$-3.91459 + 5.98588I$	$0. - 8.65263I$
$u = -0.053301 + 1.017620I$	$-5.69296 + 0.01431I$	$-9.46209 + 0.I$
$u = -0.053301 - 1.017620I$	$-5.69296 - 0.01431I$	$-9.46209 + 0.I$
$u = \ \ 0.105691 + 0.972796I$	$-2.05395 + 2.01148I$	$0. - 4.13806I$
$u = \ \ 0.105691 - 0.972796I$	$-2.05395 - 2.01148I$	$0. + 4.13806I$
$u = -0.803027 + 0.656543I$	$-6.37926 + 0.22483I$	0
$u = -0.803027 - 0.656543I$	$-6.37926 - 0.22483I$	0
$u = \ \ 0.805471 + 0.664918I$	$-2.39312 - 4.72743I$	0
$u = \ \ 0.805471 - 0.664918I$	$-2.39312 + 4.72743I$	0
$u = -0.812427 + 0.664787I$	$-5.89683 + 9.60757I$	0
$u = -0.812427 - 0.664787I$	$-5.89683 - 9.60757I$	0
$u = -0.777148 + 0.718369I$	$3.81626 + 1.47965I$	0
$u = -0.777148 - 0.718369I$	$3.81626 - 1.47965I$	0
$u = \ \ 0.792070 + 0.703497I$	$2.24141 - 5.67987I$	0
$u = \ \ 0.792070 - 0.703497I$	$2.24141 + 5.67987I$	0
$u = -0.766849 + 0.751004I$	$4.34102 + 0.47315I$	0
$u = -0.766849 - 0.751004I$	$4.34102 - 0.47315I$	0
$u = -0.112650 + 1.068840I$	$-8.69417 - 4.47662I$	0
$u = -0.112650 - 1.068840I$	$-8.69417 + 4.47662I$	0
$u = \ \ 0.105301 + 1.074320I$	$-12.64070 - 0.11757I$	0
$u = \ \ 0.105301 - 1.074320I$	$-12.64070 + 0.11757I$	0
$u = \ \ 0.118931 + 1.073810I$	$-12.2810 + 9.3441I$	0
$u = \ \ 0.118931 - 1.073810I$	$-12.2810 - 9.3441I$	0
$u = \ \ 0.761679 + 0.778695I$	$3.51871 + 3.54542I$	0
$u = \ \ 0.761679 - 0.778695I$	$3.51871 - 3.54542I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=0.657768+0.884317I$	$0.75898+2.55649I$	0
$u=0.657768-0.884317I$	$0.75898-2.55649I$	0
$u=0.522845+0.981114I$	$-9.92299-3.05366I$	0
$u=0.522845-0.981114I$	$-9.92299+3.05366I$	0
$u=-0.534047+0.976505I$	$-6.24472-1.73196I$	0
$u=-0.534047-0.976505I$	$-6.24472+1.73196I$	0
$u=0.541158+0.986467I$	$-10.08060+6.40086I$	0
$u=0.541158-0.986467I$	$-10.08060-6.40086I$	0
$u=0.098011+0.866661I$	$-1.22834+1.65455I$	$0.27868-5.35488I$
$u=0.098011-0.866661I$	$-1.22834-1.65455I$	$0.27868+5.35488I$
$u=0.742071+0.854898I$	$0.64970+2.80186I$	0
$u=0.742071-0.854898I$	$0.64970-2.80186I$	0
$u=-0.624175+0.949101I$	$-2.41040-5.46960I$	0
$u=-0.624175-0.949101I$	$-2.41040+5.46960I$	0
$u=-0.763464+0.852083I$	$-2.77257-7.28993I$	0
$u=-0.763464-0.852083I$	$-2.77257+7.28993I$	0
$u=-0.752907+0.877669I$	$-2.85456+1.57140I$	0
$u=-0.752907-0.877669I$	$-2.85456-1.57140I$	0
$u=0.719849+0.944749I$	$3.00834+2.07307I$	0
$u=0.719849-0.944749I$	$3.00834-2.07307I$	0
$u=-0.717327+0.965109I$	$3.68716-6.10001I$	0
$u=-0.717327-0.965109I$	$3.68716+6.10001I$	0
$u=0.688616+0.990506I$	$-1.13632+5.47914I$	0
$u=0.688616-0.990506I$	$-1.13632-5.47914I$	0
$u=-0.714018+0.987014I$	$3.00008-7.12522I$	0
$u=-0.714018-0.987014I$	$3.00008+7.12522I$	0
$u=0.717315+0.998744I$	$1.34575+11.37650I$	0
$u=0.717315-0.998744I$	$1.34575-11.37650I$	0
$u=-0.706503+1.022920I$	$-7.48383-5.90967I$	0
$u=-0.706503-1.022920I$	$-7.48383+5.90967I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.710438 + 1.020630I$	$-3.46781 + 10.43380I$	0
$u = \quad 0.710438 - 1.020630I$	$-3.46781 - 10.43380I$	0
$u = -0.713131 + 1.023170I$	$-6.9817 - 15.3418I$	0
$u = -0.713131 - 1.023170I$	$-6.9817 + 15.3418I$	0
$u = \quad 0.628289 + 0.287953I$	$-8.27860 - 2.15552I$	$-1.39100 + 0.52176I$
$u = \quad 0.628289 - 0.287953I$	$-8.27860 + 2.15552I$	$-1.39100 - 0.52176I$
$u = \quad 0.635764 + 0.254330I$	$-8.00815 + 7.17653I$	$-0.70722 - 5.79183I$
$u = \quad 0.635764 - 0.254330I$	$-8.00815 - 7.17653I$	$-0.70722 + 5.79183I$
$u = -0.618374 + 0.265903I$	$-4.43337 - 2.40172I$	$2.29852 + 2.79052I$
$u = -0.618374 - 0.265903I$	$-4.43337 + 2.40172I$	$2.29852 - 2.79052I$
$u = -0.369455 + 0.417253I$	$-1.64493 + 1.05899I$	$-1.96400 - 0.53371I$
$u = -0.369455 - 0.417253I$	$-1.64493 - 1.05899I$	$-1.96400 + 0.53371I$
$u = -0.532976 + 0.147039I$	$-0.32430 - 3.97095I$	$3.93653 + 7.54015I$
$u = -0.532976 - 0.147039I$	$-0.32430 + 3.97095I$	$3.93653 - 7.54015I$
$u = \quad 0.464687 + 0.063723I$	$1.098580 + 0.248748I$	$9.36843 - 1.05673I$
$u = \quad 0.464687 - 0.063723I$	$1.098580 - 0.248748I$	$9.36843 + 1.05673I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{76}+43u^{75}+\cdots+2u+1$
c_2, c_5	$u^{76}+u^{75}+\cdots+2u+1$
c_3	$u^{76}+u^{75}+\cdots+4u+1$
c_4, c_{10}	$u^{76}+u^{75}+\cdots-u^2+1$
c_6, c_7, c_{12}	$u^{76}+3u^{75}+\cdots+85u+16$
c_8	$u^{76}-5u^{75}+\cdots-374u+31$
c_9, c_{11}	$u^{76}+25u^{75}+\cdots-2u+1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{76} - 19y^{75} + \cdots + 6y + 1$
c_2, c_5	$y^{76} - 43y^{75} + \cdots - 2y + 1$
c_3	$y^{76} + y^{75} + \cdots + 270y + 1$
c_4, c_{10}	$y^{76} + 25y^{75} + \cdots - 2y + 1$
c_6, c_7, c_{12}	$y^{76} + 81y^{75} + \cdots + 13735y + 256$
c_8	$y^{76} + 13y^{75} + \cdots - 24866y + 961$
c_9, c_{11}	$y^{76} + 53y^{75} + \cdots - 10y + 1$