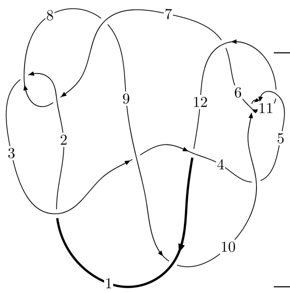
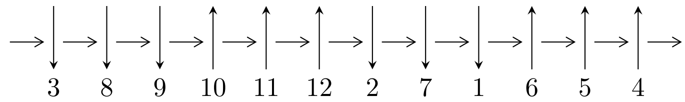
$12a_{0715}$ $(K12a_{0715})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{84} + u^{83} + \cdots + 2u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 84 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.

I. $I_1^u = \langle u^{84} + u^{83} + \cdots + 2u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^8 + u^6 - u^4 + 1 \\ -u^8 + 2u^6 - 2u^4 + 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^9 + 2u^7 - 3u^5 + 2u^3 - u \\ -u^{11} + u^9 - 2u^7 + u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{28} - 5u^{26} + \cdots + u^2 + 1 \\ u^{30} - 4u^{28} + \cdots - 2u^4 + u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{20} - 3u^{18} + 7u^{16} - 10u^{14} + 10u^{12} - 7u^{10} + u^8 + 2u^6 - 3u^4 + u^2 + 1 \\ u^{20} - 4u^{18} + 10u^{16} - 18u^{14} + 23u^{12} - 24u^{10} + 18u^8 - 10u^6 + 3u^4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^{39} + 6u^{37} + \cdots + 8u^5 - 2u^3 \\ -u^{39} + 7u^{37} + \cdots - 3u^5 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{78} - 13u^{76} + \cdots + 2u^2 + 1 \\ u^{80} - 12u^{78} + \cdots - 16u^6 + 4u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{83} + 56u^{81} + \cdots - 16u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{84} + 27u^{83} + \cdots - 2u + 1$
c_2, c_7	$u^{84} + u^{83} + \cdots + 2u + 1$
c_3	$u^{84} - u^{83} + \cdots - 4u + 1$
c_4, c_6	$u^{84} + u^{83} + \cdots + 126u + 37$
c_5, c_{10}, c_{11}	$u^{84} - u^{83} + \cdots + u^2 + 1$
c_9	$u^{84} + 7u^{83} + \cdots + 36022u + 4921$
c_{12}	$u^{84} + 7u^{83} + \cdots + 24u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{84} + 61y^{83} + \cdots - 14y + 1$
c_2, c_7	$y^{84} - 27y^{83} + \cdots + 2y + 1$
c_3	$y^{84} + y^{83} + \cdots + 18y + 1$
c_4, c_6	$y^{84} - 55y^{83} + \cdots + 22678y + 1369$
c_5, c_{10}, c_{11}	$y^{84} + 69y^{83} + \cdots + 2y + 1$
c_9	$y^{84} + 29y^{83} + \cdots + 233801190y + 24216241$
c_{12}	$y^{84} + y^{83} + \cdots + 154y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000680 + 0.114921I$	$-3.30654 - 2.82803I$	0
$u = 1.000680 - 0.114921I$	$-3.30654 + 2.82803I$	0
$u = -0.905164 + 0.455365I$	$-2.33728 - 4.40675I$	0
$u = -0.905164 - 0.455365I$	$-2.33728 + 4.40675I$	0
$u = -0.974058 + 0.042964I$	$-2.08693 + 0.08784I$	0
$u = -0.974058 - 0.042964I$	$-2.08693 - 0.08784I$	0
$u = -0.694407 + 0.683449I$	$-1.36007 + 2.80367I$	0
$u = -0.694407 - 0.683449I$	$-1.36007 - 2.80367I$	0
$u = 1.027590 + 0.043282I$	$-6.59695 + 3.00636I$	0
$u = 1.027590 - 0.043282I$	$-6.59695 - 3.00636I$	0
$u = 1.018280 + 0.162257I$	$-2.47637 - 2.14319I$	0
$u = 1.018280 - 0.162257I$	$-2.47637 + 2.14319I$	0
$u = 0.853648 + 0.436783I$	$2.14949 + 0.51882I$	0
$u = 0.853648 - 0.436783I$	$2.14949 - 0.51882I$	0
$u = 0.685516 + 0.786962I$	$-3.09599 + 3.71420I$	0
$u = 0.685516 - 0.786962I$	$-3.09599 - 3.71420I$	0
$u = -1.038020 + 0.108768I$	$-9.19499 + 3.72935I$	0
$u = -1.038020 - 0.108768I$	$-9.19499 - 3.72935I$	0
$u = -1.036400 + 0.157863I$	$0.57258 + 6.20944I$	0
$u = -1.036400 - 0.157863I$	$0.57258 - 6.20944I$	0
$u = 1.046330 + 0.154384I$	$-4.03349 - 10.29500I$	0
$u = 1.046330 - 0.154384I$	$-4.03349 + 10.29500I$	0
$u = -0.712204 + 0.784436I$	$2.71266 - 2.44286I$	0
$u = -0.712204 - 0.784436I$	$2.71266 + 2.44286I$	0
$u = 0.739410 + 0.760668I$	$3.28834 - 0.55550I$	0
$u = 0.739410 - 0.760668I$	$3.28834 + 0.55550I$	0
$u = -0.896150 + 0.594563I$	$-0.81662 + 2.30924I$	0
$u = -0.896150 - 0.594563I$	$-0.81662 - 2.30924I$	0
$u = -0.696784 + 0.820077I$	$2.51894 - 10.14580I$	0
$u = -0.696784 - 0.820077I$	$2.51894 + 10.14580I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.702760 + 0.818077I$	$7.10746 + 5.96437I$	0
$u = \ \ 0.702760 - 0.818077I$	$7.10746 - 5.96437I$	0
$u = -0.711331 + 0.814103I$	$4.01224 - 1.74526I$	0
$u = -0.711331 - 0.814103I$	$4.01224 + 1.74526I$	0
$u = -0.839981 + 0.681059I$	$-1.13918 + 2.62448I$	0
$u = -0.839981 - 0.681059I$	$-1.13918 - 2.62448I$	0
$u = \ \ 0.938413 + 0.554154I$	$-6.71108 - 2.02254I$	0
$u = \ \ 0.938413 - 0.554154I$	$-6.71108 + 2.02254I$	0
$u = -0.842956 + 0.308678I$	$-1.24656 + 3.23995I$	$-1.88607 - 4.84912I$
$u = -0.842956 - 0.308678I$	$-1.24656 - 3.23995I$	$-1.88607 + 4.84912I$
$u = \ \ 0.777185 + 0.798350I$	$5.15367 + 1.34157I$	0
$u = \ \ 0.777185 - 0.798350I$	$5.15367 - 1.34157I$	0
$u = -0.788473 + 0.795791I$	$8.60971 + 2.86537I$	0
$u = -0.788473 - 0.795791I$	$8.60971 - 2.86537I$	0
$u = \ \ 0.797824 + 0.793842I$	$4.29016 - 7.05239I$	0
$u = \ \ 0.797824 - 0.793842I$	$4.29016 + 7.05239I$	0
$u = \ \ 0.953308 + 0.626952I$	$1.33534 - 5.16055I$	0
$u = \ \ 0.953308 - 0.626952I$	$1.33534 + 5.16055I$	0
$u = -0.969589 + 0.611792I$	$-3.26007 + 8.69634I$	0
$u = -0.969589 - 0.611792I$	$-3.26007 - 8.69634I$	0
$u = -0.981582 + 0.680099I$	$-2.20981 + 2.51113I$	0
$u = -0.981582 - 0.680099I$	$-2.20981 - 2.51113I$	0
$u = \ \ 0.942272 + 0.750733I$	$3.84490 + 1.24185I$	0
$u = \ \ 0.942272 - 0.750733I$	$3.84490 - 1.24185I$	0
$u = \ \ 0.973775 + 0.709890I$	$2.57173 - 5.03263I$	0
$u = \ \ 0.973775 - 0.709890I$	$2.57173 + 5.03263I$	0
$u = -0.950090 + 0.748512I$	$8.11226 + 2.94426I$	0
$u = -0.950090 - 0.748512I$	$8.11226 - 2.94426I$	0
$u = \ \ 0.616499 + 0.492783I$	$2.15550 + 0.43358I$	$3.37103 - 0.17478I$
$u = \ \ 0.616499 - 0.492783I$	$2.15550 - 0.43358I$	$3.37103 + 0.17478I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.958896 + 0.746173I$	$4.59540 - 7.15142I$	0
$u = \quad 0.958896 - 0.746173I$	$4.59540 + 7.15142I$	0
$u = -0.993122 + 0.716813I$	$1.86003 + 8.11878I$	0
$u = -0.993122 - 0.716813I$	$1.86003 - 8.11878I$	0
$u = \quad 1.005760 + 0.710135I$	$-4.06219 - 9.37250I$	0
$u = \quad 1.005760 - 0.710135I$	$-4.06219 + 9.37250I$	0
$u = -1.003120 + 0.730563I$	$3.12182 + 7.54780I$	0
$u = -1.003120 - 0.730563I$	$3.12182 - 7.54780I$	0
$u = \quad 1.008780 + 0.729448I$	$6.17424 - 11.77370I$	0
$u = \quad 1.008780 - 0.729448I$	$6.17424 + 11.77370I$	0
$u = -1.012300 + 0.728181I$	$1.5573 + 15.9558I$	0
$u = -1.012300 - 0.728181I$	$1.5573 - 15.9558I$	0
$u = -0.497524 + 0.528030I$	$-2.16401 - 4.06838I$	$-1.45615 + 2.43017I$
$u = -0.497524 - 0.528030I$	$-2.16401 + 4.06838I$	$-1.45615 - 2.43017I$
$u = -0.151272 + 0.620418I$	$-0.20052 + 7.91026I$	$2.01559 - 6.55266I$
$u = -0.151272 - 0.620418I$	$-0.20052 - 7.91026I$	$2.01559 + 6.55266I$
$u = \quad 0.131937 + 0.610074I$	$4.29748 - 3.82525I$	$6.98451 + 4.41441I$
$u = \quad 0.131937 - 0.610074I$	$4.29748 + 3.82525I$	$6.98451 - 4.41441I$
$u = -0.101127 + 0.596695I$	$1.070480 - 0.240163I$	$4.08415 - 0.33242I$
$u = -0.101127 - 0.596695I$	$1.070480 + 0.240163I$	$4.08415 + 0.33242I$
$u = \quad 0.247307 + 0.537464I$	$-5.22517 - 1.87101I$	$-3.27342 + 3.75201I$
$u = \quad 0.247307 - 0.537464I$	$-5.22517 + 1.87101I$	$-3.27342 - 3.75201I$
$u = -0.130530 + 0.452424I$	$0.151301 + 1.049580I$	$2.45407 - 6.37188I$
$u = -0.130530 - 0.452424I$	$0.151301 - 1.049580I$	$2.45407 + 6.37188I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{84} + 27u^{83} + \cdots - 2u + 1$
c_2, c_7	$u^{84} + u^{83} + \cdots + 2u + 1$
c_3	$u^{84} - u^{83} + \cdots - 4u + 1$
c_4, c_6	$u^{84} + u^{83} + \cdots + 126u + 37$
c_5, c_{10}, c_{11}	$u^{84} - u^{83} + \cdots + u^2 + 1$
c_9	$u^{84} + 7u^{83} + \cdots + 36022u + 4921$
c_{12}	$u^{84} + 7u^{83} + \cdots + 24u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{84} + 61y^{83} + \cdots - 14y + 1$
c_2, c_7	$y^{84} - 27y^{83} + \cdots + 2y + 1$
c_3	$y^{84} + y^{83} + \cdots + 18y + 1$
c_4, c_6	$y^{84} - 55y^{83} + \cdots + 22678y + 1369$
c_5, c_{10}, c_{11}	$y^{84} + 69y^{83} + \cdots + 2y + 1$
c_9	$y^{84} + 29y^{83} + \cdots + 233801190y + 24216241$
c_{12}	$y^{84} + y^{83} + \cdots + 154y + 1$