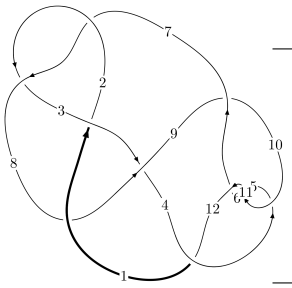
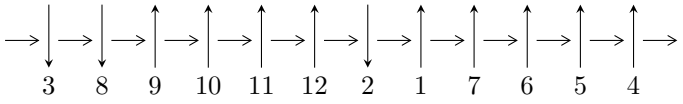
$12a_{0721}$ $(K12a_{0721})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{85} + u^{84} + \cdots + u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 85 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. $I_1^u = \langle u^{85} + u^{84} + \cdots + u + 1 \rangle$

(i) Arc colorings

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

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

$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} u^5 + 2u^3 + u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{10} - 5u^8 - 8u^6 - 3u^4 + 3u^2 + 1 \\ u^{10} + 4u^8 + 5u^6 - 3u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{12} - 5u^{10} - 9u^8 - 6u^6 + u^2 + 1 \\ u^{14} + 6u^{12} + 13u^{10} + 10u^8 - 2u^6 - 4u^4 + u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{29} + 12u^{27} + \cdots - 6u^3 - 3u \\ -u^{31} - 13u^{29} + \cdots + 24u^7 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{34} - 15u^{32} + \cdots - 3u^2 + 1 \\ u^{34} + 14u^{32} + \cdots + 8u^4 + u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{70} + 29u^{68} + \cdots + 9u^4 + 1 \\ -u^{72} - 30u^{70} + \cdots - 6u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{84} + 4u^{83} + \cdots - 8u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{85}+41u^{84}+\cdots+3u+1$
c_2, c_7	$u^{85}+u^{84}+\cdots-u-1$
c_3	$u^{85}-u^{84}+\cdots-3u-1$
c_4, c_6	$u^{85}+u^{84}+\cdots-3u-2$
c_5, c_{10}, c_{11}	$u^{85}-u^{84}+\cdots+u-1$
c_8	$u^{85}+3u^{84}+\cdots-703u-192$
c_9, c_{12}	$u^{85}+7u^{84}+\cdots+433u+37$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{85} + 7y^{84} + \cdots - 21y - 1$
c_2, c_7	$y^{85} - 41y^{84} + \cdots + 3y - 1$
c_3	$y^{85} - y^{84} + \cdots + 67y - 1$
c_4, c_6	$y^{85} - 45y^{84} + \cdots + 9y - 4$
c_5, c_{10}, c_{11}	$y^{85} + 71y^{84} + \cdots + 3y - 1$
c_8	$y^{85} + 27y^{84} + \cdots + 92545y - 36864$
c_9, c_{12}	$y^{85} + 59y^{84} + \cdots - 33697y - 1369$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.248900+1.008010I$	$-5.94190+0.14890I$	0
$u=-0.248900-1.008010I$	$-5.94190-0.14890I$	0
$u=-0.297171+1.034020I$	$-4.01353+7.94113I$	0
$u=-0.297171-1.034020I$	$-4.01353-7.94113I$	0
$u=\ \ 0.280740+1.047720I$	$-1.61529-3.02389I$	0
$u=\ \ 0.280740-1.047720I$	$-1.61529+3.02389I$	0
$u=\ \ 0.270441+1.112840I$	$-0.089929-1.275270I$	0
$u=\ \ 0.270441-1.112840I$	$-0.089929+1.275270I$	0
$u=-0.278034+1.156140I$	$-0.94658-3.20959I$	0
$u=-0.278034-1.156140I$	$-0.94658+3.20959I$	0
$u=\ \ 0.209551+0.776333I$	$-6.17352+0.11601I$	$-1.51814-0.75097I$
$u=\ \ 0.209551-0.776333I$	$-6.17352-0.11601I$	$-1.51814+0.75097I$
$u=-0.781173+0.165218I$	$-1.36801-11.97790I$	$5.82993+9.11891I$
$u=-0.781173-0.165218I$	$-1.36801+11.97790I$	$5.82993-9.11891I$
$u=\ \ 0.775804+0.160398I$	$1.06779+6.99922I$	$9.02457-5.56636I$
$u=\ \ 0.775804-0.160398I$	$1.06779-6.99922I$	$9.02457+5.56636I$
$u=-0.766023+0.170399I$	$-3.38713-4.04703I$	$2.85028+3.33634I$
$u=-0.766023-0.170399I$	$-3.38713+4.04703I$	$2.85028-3.33634I$
$u=-0.778318+0.031728I$	$4.10355-5.77938I$	$10.92900+6.00912I$
$u=-0.778318-0.031728I$	$4.10355+5.77938I$	$10.92900-6.00912I$
$u=\ \ 0.764543+0.137328I$	$2.81551+5.13000I$	$10.71873-6.57822I$
$u=\ \ 0.764543-0.137328I$	$2.81551-5.13000I$	$10.71873+6.57822I$
$u=\ \ 0.772607+0.016397I$	$5.85261+1.00201I$	$14.4008-0.7177I$
$u=\ \ 0.772607-0.016397I$	$5.85261-1.00201I$	$14.4008+0.7177I$
$u=\ \ 0.264885+0.713873I$	$-4.48668+7.92179I$	$1.27242-7.67068I$
$u=\ \ 0.264885-0.713873I$	$-4.48668-7.92179I$	$1.27242+7.67068I$
$u=-0.750929+0.115587I$	$2.17145-0.56664I$	$9.65396+0.21560I$
$u=-0.750929-0.115587I$	$2.17145+0.56664I$	$9.65396-0.21560I$
$u=\ \ 0.719433+0.187623I$	$-4.06922+3.45026I$	$2.04119-4.45417I$
$u=\ \ 0.719433-0.187623I$	$-4.06922-3.45026I$	$2.04119+4.45417I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.228274+0.698343I$	$-2.02866-3.11378I$	$4.29634+4.05625I$
$u=-0.228274-0.698343I$	$-2.02866+3.11378I$	$4.29634-4.05625I$
$u=-0.326512+1.230870I$	$0.41498+1.78773I$	0
$u=-0.326512-1.230870I$	$0.41498-1.78773I$	0
$u=-0.184745+1.263020I$	$-3.07305-2.43438I$	0
$u=-0.184745-1.263020I$	$-3.07305+2.43438I$	0
$u=0.688445+0.200059I$	$-2.66519-4.42958I$	$4.16803+2.23694I$
$u=0.688445-0.200059I$	$-2.66519+4.42958I$	$4.16803-2.23694I$
$u=-0.691627+0.177718I$	$-0.102256-0.240928I$	$7.49528+1.37110I$
$u=-0.691627-0.177718I$	$-0.102256+0.240928I$	$7.49528-1.37110I$
$u=0.324883+1.246210I$	$2.05753+2.96009I$	0
$u=0.324883-1.246210I$	$2.05753-2.96009I$	0
$u=0.116828+1.284750I$	$-6.28256-0.70523I$	0
$u=0.116828-1.284750I$	$-6.28256+0.70523I$	0
$u=-0.699942$	1.55328	6.87670
$u=0.329649+1.271860I$	$1.85314+4.97870I$	0
$u=0.329649-1.271860I$	$1.85314-4.97870I$	0
$u=-0.290553+1.282560I$	$-2.46212-3.58115I$	0
$u=-0.290553-1.282560I$	$-2.46212+3.58115I$	0
$u=0.182008+1.306080I$	$-5.59206+6.55252I$	0
$u=0.182008-1.306080I$	$-5.59206-6.55252I$	0
$u=-0.334981+1.281900I$	$0.01669-9.79487I$	0
$u=-0.334981-1.281900I$	$0.01669+9.79487I$	0
$u=-0.317650+1.339370I$	$-2.41072-4.43457I$	0
$u=-0.317650-1.339370I$	$-2.41072+4.43457I$	0
$u=-0.013172+1.384380I$	$-6.34751-2.22482I$	0
$u=-0.013172-1.384380I$	$-6.34751+2.22482I$	0
$u=0.324897+1.349170I$	$-1.86872+9.07355I$	0
$u=0.324897-1.349170I$	$-1.86872-9.07355I$	0
$u=-0.293142+1.358620I$	$-4.94324-3.84382I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.293142-1.358620I$	$-4.94324+3.84382I$	0
$u=\ \ 0.288385+1.364890I$	$-7.59509-0.86185I$	0
$u=\ \ 0.288385-1.364890I$	$-7.59509+0.86185I$	0
$u=\ \ 0.301046+1.365670I$	$-8.97185+7.16378I$	0
$u=\ \ 0.301046-1.365670I$	$-8.97185-7.16378I$	0
$u=\ \ 0.328741+1.361380I$	$-3.73450+10.99570I$	0
$u=\ \ 0.328741-1.361380I$	$-3.73450-10.99570I$	0
$u=-0.323051+1.364830I$	$-8.23465-7.99145I$	0
$u=-0.323051-1.364830I$	$-8.23465+7.99145I$	0
$u=-0.330797+1.364300I$	$-6.1963-15.9996I$	0
$u=-0.330797-1.364300I$	$-6.1963+15.9996I$	0
$u=-0.023413+1.410440I$	$-8.46842-3.63559I$	0
$u=-0.023413-1.410440I$	$-8.46842+3.63559I$	0
$u=\ \ 0.02698+1.41604I$	$-11.02750+8.52728I$	0
$u=\ \ 0.02698-1.41604I$	$-11.02750-8.52728I$	0
$u=\ \ 0.01432+1.41634I$	$-12.76900+0.46813I$	0
$u=\ \ 0.01432-1.41634I$	$-12.76900-0.46813I$	0
$u=-0.159545+0.546638I$	$-0.43421-1.85967I$	$4.91547+5.62191I$
$u=-0.159545-0.546638I$	$-0.43421+1.85967I$	$4.91547-5.62191I$
$u=\ \ 0.408138+0.257025I$	$-0.93232+4.40586I$	$5.40236-8.36399I$
$u=\ \ 0.408138-0.257025I$	$-0.93232-4.40586I$	$5.40236+8.36399I$
$u=\ \ 0.266823+0.380763I$	$-1.43413-1.94308I$	$2.89552-0.96140I$
$u=\ \ 0.266823-0.380763I$	$-1.43413+1.94308I$	$2.89552+0.96140I$
$u=-0.391169+0.128683I$	$0.923187-0.319535I$	$11.07004+2.67367I$
$u=-0.391169-0.128683I$	$0.923187+0.319535I$	$11.07004-2.67367I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{85}+41u^{84}+\cdots+3u+1$
c_2, c_7	$u^{85}+u^{84}+\cdots-u-1$
c_3	$u^{85}-u^{84}+\cdots-3u-1$
c_4, c_6	$u^{85}+u^{84}+\cdots-3u-2$
c_5, c_{10}, c_{11}	$u^{85}-u^{84}+\cdots+u-1$
c_8	$u^{85}+3u^{84}+\cdots-703u-192$
c_9, c_{12}	$u^{85}+7u^{84}+\cdots+433u+37$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{85}+7y^{84}+\cdots-21y-1$
c_2, c_7	$y^{85}-41y^{84}+\cdots+3y-1$
c_3	$y^{85}-y^{84}+\cdots+67y-1$
c_4, c_6	$y^{85}-45y^{84}+\cdots+9y-4$
c_5, c_{10}, c_{11}	$y^{85}+71y^{84}+\cdots+3y-1$
c_8	$y^{85}+27y^{84}+\cdots+92545y-36864$
c_9, c_{12}	$y^{85}+59y^{84}+\cdots-33697y-1369$