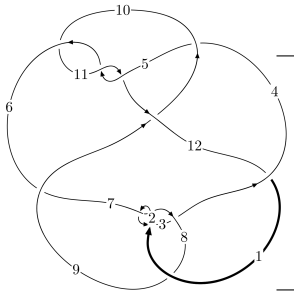
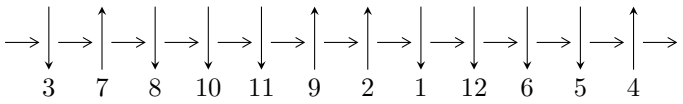
$12a_{0537}$ $(K12a_{0537})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{89} - u^{88} + \cdots + u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 89 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. $I_1^u = \langle u^{89} - u^{88} + \cdots + u - 1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

$$a_9 = \begin{pmatrix} u^8 + u^6 + u^4 + 1 \\ u^{10} + 2u^8 + 3u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{16} + 3u^{14} + 5u^{12} + 4u^{10} + 3u^8 + 2u^6 + 2u^4 + 1 \\ u^{18} + 4u^{16} + 9u^{14} + 12u^{12} + 11u^{10} + 6u^8 + 2u^6 + u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^{11} - 2u^9 - 2u^7 + u^3 \\ u^{11} + 3u^9 + 4u^7 + 3u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{32} - 7u^{30} + \cdots + 2u^4 + 1 \\ u^{32} + 8u^{30} + \cdots + 4u^4 + 2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{61} + 14u^{59} + \cdots - 2u^3 - u \\ -u^{61} - 15u^{59} + \cdots - u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^{66} - 15u^{64} + \cdots - u^2 + 1 \\ -u^{68} - 16u^{66} + \cdots + 3u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{87} - 4u^{86} + \cdots - 4u^2 - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{89}+43u^{88}+\cdots+u-1$
c_2, c_7	$u^{89}+u^{88}+\cdots+u+1$
c_3	$u^{89}-u^{88}+\cdots+1497u+457$
c_4	$u^{89}-u^{88}+\cdots-5u+1$
c_5, c_{10}, c_{11}	$u^{89}+u^{88}+\cdots+3u+1$
c_6, c_{12}	$u^{89}+7u^{88}+\cdots+161u+5$
c_8	$u^{89}+5u^{88}+\cdots+u+1$
c_9	$u^{89}-21u^{88}+\cdots-4023u+187$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{89} + 7y^{88} + \cdots + 13y - 1$
c_2, c_7	$y^{89} + 43y^{88} + \cdots + y - 1$
c_3	$y^{89} - 29y^{88} + \cdots + 6081637y - 208849$
c_4	$y^{89} - 5y^{88} + \cdots + 17y - 1$
c_5, c_{10}, c_{11}	$y^{89} + 79y^{88} + \cdots + y - 1$
c_6, c_{12}	$y^{89} + 67y^{88} + \cdots + 201y - 25$
c_8	$y^{89} - y^{88} + \cdots + 61y - 1$
c_9	$y^{89} + 11y^{88} + \cdots - 1504923y - 34969$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.549845+0.852652I$	$3.32155+4.57387I$	0
$u=-0.549845-0.852652I$	$3.32155-4.57387I$	0
$u=\ \ 0.526296+0.826367I$	$-1.86086-1.10863I$	0
$u=\ \ 0.526296-0.826367I$	$-1.86086+1.10863I$	0
$u=-0.445113+0.947902I$	$-0.40489-1.97636I$	0
$u=-0.445113-0.947902I$	$-0.40489+1.97636I$	0
$u=-0.130520+0.933837I$	$3.46999+3.77804I$	$-4.00000-3.55964I$
$u=-0.130520-0.933837I$	$3.46999-3.77804I$	$-4.00000+3.55964I$
$u=\ \ 0.237242+0.899093I$	$-1.63382-0.87283I$	$-8.59634+3.63079I$
$u=\ \ 0.237242-0.899093I$	$-1.63382+0.87283I$	$-8.59634-3.63079I$
$u=-0.621956+0.688948I$	$3.81774-9.21070I$	$0.+8.07606I$
$u=-0.621956-0.688948I$	$3.81774+9.21070I$	$0.-8.07606I$
$u=\ \ 0.605630+0.694228I$	$-1.43820+5.63420I$	$-4.00000-7.71170I$
$u=\ \ 0.605630-0.694228I$	$-1.43820-5.63420I$	$-4.00000+7.71170I$
$u=\ \ 0.523965+0.945138I$	$5.28882+3.53448I$	0
$u=\ \ 0.523965-0.945138I$	$5.28882-3.53448I$	0
$u=-0.544235+0.732626I$	$0.19552-2.15749I$	$-2.95032+4.14794I$
$u=-0.544235-0.732626I$	$0.19552+2.15749I$	$-2.95032-4.14794I$
$u=-0.556700+0.687523I$	$0.25637-2.05649I$	$-1.44246+3.13624I$
$u=-0.556700-0.687523I$	$0.25637+2.05649I$	$-1.44246-3.13624I$
$u=\ \ 0.601306+0.620005I$	$6.23656+0.95324I$	$3.59693-2.99187I$
$u=\ \ 0.601306-0.620005I$	$6.23656-0.95324I$	$3.59693+2.99187I$
$u=-0.389004+1.075220I$	$-0.038564-0.742399I$	0
$u=-0.389004-1.075220I$	$-0.038564+0.742399I$	0
$u=-0.270428+1.114400I$	$0.573665-0.094345I$	0
$u=-0.270428-1.114400I$	$0.573665+0.094345I$	0
$u=\ \ 0.443236+1.076980I$	$-3.58294+3.54004I$	0
$u=\ \ 0.443236-1.076980I$	$-3.58294-3.54004I$	0
$u=\ \ 0.773116+0.297168I$	$1.90632-11.11310I$	$-1.08984+6.87770I$
$u=\ \ 0.773116-0.297168I$	$1.90632+11.11310I$	$-1.08984-6.87770I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.555744 + 1.035790I$	$6.42783 + 1.42029I$	0
$u = \quad 0.555744 - 1.035790I$	$6.42783 - 1.42029I$	0
$u = -0.537606 + 1.047480I$	$0.71771 - 3.82158I$	0
$u = -0.537606 - 1.047480I$	$0.71771 + 3.82158I$	0
$u = -0.767527 + 0.290372I$	$-3.36844 + 7.41224I$	$-5.77885 - 6.28864I$
$u = -0.767527 - 0.290372I$	$-3.36844 - 7.41224I$	$-5.77885 + 6.28864I$
$u = \quad 0.654390 + 0.489201I$	$8.03046 + 3.30236I$	$5.19136 - 3.35930I$
$u = \quad 0.654390 - 0.489201I$	$8.03046 - 3.30236I$	$5.19136 + 3.35930I$
$u = \quad 0.280299 + 1.149490I$	$-5.92026 - 0.49034I$	0
$u = \quad 0.280299 - 1.149490I$	$-5.92026 + 0.49034I$	0
$u = \quad 0.260330 + 1.156600I$	$-2.58902 - 8.08324I$	0
$u = \quad 0.260330 - 1.156600I$	$-2.58902 + 8.08324I$	0
$u = -0.267783 + 1.155220I$	$-7.80687 + 4.35790I$	0
$u = -0.267783 - 1.155220I$	$-7.80687 - 4.35790I$	0
$u = \quad 0.293939 + 1.151340I$	$-6.07434 - 0.28887I$	0
$u = \quad 0.293939 - 1.151340I$	$-6.07434 + 0.28887I$	0
$u = -0.683893 + 0.428051I$	$7.74822 + 5.29418I$	$4.36161 - 4.33354I$
$u = -0.683893 - 0.428051I$	$7.74822 - 5.29418I$	$4.36161 + 4.33354I$
$u = -0.308826 + 1.154160I$	$-8.28930 - 3.48798I$	0
$u = -0.308826 - 1.154160I$	$-8.28930 + 3.48798I$	0
$u = -0.471075 + 1.098060I$	$0.51569 - 6.51976I$	0
$u = -0.471075 - 1.098060I$	$0.51569 + 6.51976I$	0
$u = \quad 0.752387 + 0.281402I$	$-1.59860 - 3.55841I$	$-3.12371 + 1.57420I$
$u = \quad 0.752387 - 0.281402I$	$-1.59860 + 3.55841I$	$-3.12371 - 1.57420I$
$u = \quad 0.318069 + 1.155530I$	$-3.26936 + 7.19305I$	0
$u = \quad 0.318069 - 1.155530I$	$-3.26936 - 7.19305I$	0
$u = -0.734105 + 0.315100I$	$4.84491 + 2.69309I$	$1.74893 - 2.46850I$
$u = -0.734105 - 0.315100I$	$4.84491 - 2.69309I$	$1.74893 + 2.46850I$
$u = \quad 0.548293 + 1.068850I$	$0.30757 + 7.15974I$	0
$u = \quad 0.548293 - 1.068850I$	$0.30757 - 7.15974I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.561612+1.069280I$	$5.87439-10.10820I$	0
$u=-0.561612-1.069280I$	$5.87439+10.10820I$	0
$u=\ \ 0.746796+0.262051I$	$-1.84029-3.44425I$	$-4.01435+3.41599I$
$u=\ \ 0.746796-0.262051I$	$-1.84029+3.44425I$	$-4.01435-3.41599I$
$u=-0.621550+0.465042I$	$2.42382-0.75571I$	$1.71757+3.84156I$
$u=-0.621550-0.465042I$	$2.42382+0.75571I$	$1.71757-3.84156I$
$u=\ \ 0.653966+0.417174I$	$2.20293-2.46586I$	$0.44156+5.21162I$
$u=\ \ 0.653966-0.417174I$	$2.20293+2.46586I$	$0.44156-5.21162I$
$u=-0.737893+0.238500I$	$-4.15809-0.23287I$	$-7.53192+1.38224I$
$u=-0.737893-0.238500I$	$-4.15809+0.23287I$	$-7.53192-1.38224I$
$u=\ \ 0.733536+0.221566I$	$0.79810+3.87164I$	$-2.73189-2.63327I$
$u=\ \ 0.733536-0.221566I$	$0.79810-3.87164I$	$-2.73189+2.63327I$
$u=-0.553875+1.124130I$	$2.48561-7.58332I$	0
$u=-0.553875-1.124130I$	$2.48561+7.58332I$	0
$u=\ \ 0.526277+1.142710I$	$-1.85636+0.86225I$	0
$u=\ \ 0.526277-1.142710I$	$-1.85636-0.86225I$	0
$u=-0.532862+1.141630I$	$-6.76881-4.54935I$	0
$u=-0.532862-1.141630I$	$-6.76881+4.54935I$	0
$u=\ \ 0.541979+1.140190I$	$-4.39315+8.29738I$	0
$u=\ \ 0.541979-1.140190I$	$-4.39315-8.29738I$	0
$u=\ \ 0.549916+1.137700I$	$-4.09560+8.46534I$	0
$u=\ \ 0.549916-1.137700I$	$-4.09560-8.46534I$	0
$u=-0.556243+1.140170I$	$-5.85930-12.38420I$	0
$u=-0.556243-1.140170I$	$-5.85930+12.38420I$	0
$u=\ \ 0.559891+1.140150I$	$-0.5695+16.1155I$	0
$u=\ \ 0.559891-1.140150I$	$-0.5695-16.1155I$	0
$u=-0.570709+0.131663I$	$3.08005+2.48479I$	$-2.33160-3.10830I$
$u=-0.570709-0.131663I$	$3.08005-2.48479I$	$-2.33160+3.10830I$
$u=\ \ 0.453510$	-1.01886	-9.58030

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{89}+43u^{88}+\cdots+u-1$
c_2, c_7	$u^{89}+u^{88}+\cdots+u+1$
c_3	$u^{89}-u^{88}+\cdots+1497u+457$
c_4	$u^{89}-u^{88}+\cdots-5u+1$
c_5, c_{10}, c_{11}	$u^{89}+u^{88}+\cdots+3u+1$
c_6, c_{12}	$u^{89}+7u^{88}+\cdots+161u+5$
c_8	$u^{89}+5u^{88}+\cdots+u+1$
c_9	$u^{89}-21u^{88}+\cdots-4023u+187$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{89} + 7y^{88} + \cdots + 13y - 1$
c_2, c_7	$y^{89} + 43y^{88} + \cdots + y - 1$
c_3	$y^{89} - 29y^{88} + \cdots + 6081637y - 208849$
c_4	$y^{89} - 5y^{88} + \cdots + 17y - 1$
c_5, c_{10}, c_{11}	$y^{89} + 79y^{88} + \cdots + y - 1$
c_6, c_{12}	$y^{89} + 67y^{88} + \cdots + 201y - 25$
c_8	$y^{89} - y^{88} + \cdots + 61y - 1$
c_9	$y^{89} + 11y^{88} + \cdots - 1504923y - 34969$