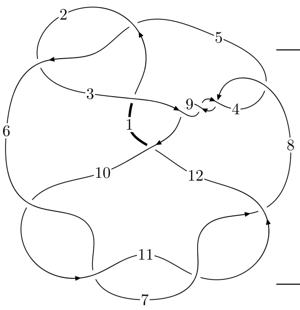
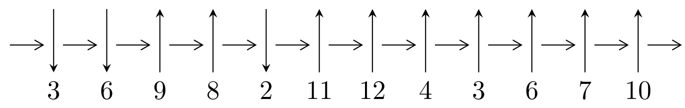
$12n_{0522}$ ($K12n_{0522}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -5889u^{16} - 7060u^{15} + \cdots + 12589b + 19445,\ 32189u^{16} + 36655u^{15} + \cdots + 75534a - 90802,$$
$$u^{17} + 2u^{16} + \cdots - 5u - 3\rangle$$
$$I_2^u = \langle b + 1,\ a - 1,\ u^2 - u - 1\rangle$$
$$I_3^u = \langle b - 1,\ a^2 + 2a + 2u + 5,\ u^2 + u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 23 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. $\boldsymbol{I_1^u = \langle -5889u^{16} - 7060u^{15} + \cdots + 12589b + 19445,\ 32189u^{16} + 36655u^{15} + \cdots + 75534a - 90802,\ u^{17} + 2u^{16} + \cdots - 5u - 3\rangle}$

(i) Arc colorings

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

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

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

$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.426152u^{16} - 0.485278u^{15} + \cdots + 2.12912u + 1.20213 \\ 0.467789u^{16} + 0.560807u^{15} + \cdots - 0.689253u - 1.54460 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.0416369u^{16} + 0.0755289u^{15} + \cdots + 1.43987u - 0.342468 \\ 0.467789u^{16} + 0.560807u^{15} + \cdots - 0.689253u - 1.54460 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^5 + 2u^3 + u \\ u^5 - 3u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.103278u^{16} - 0.225501u^{15} + \cdots + 1.46060u + 0.772526 \\ 0.345063u^{16} + 0.406545u^{15} + \cdots - 0.432520u - 1.18063 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.147841u^{16} - 0.400932u^{15} + \cdots + 1.50334u + 0.606627 \\ 0.232187u^{16} + 0.332949u^{15} + \cdots + 0.0411470u - 0.962706 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -0.258864u^{16} - 0.155586u^{15} + \cdots - 0.170347u + 0.00406439 \\ -0.0189451u^{16} + 0.0363810u^{15} + \cdots + 0.256136u - 0.309834 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{11735}{12589}u^{16} - \frac{15443}{12589}u^{15} + \cdots + \frac{246832}{12589}u + \frac{106629}{12589}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 27u^{16} + \cdots + 4064u + 121$
c_2, c_5	$u^{17} + 3u^{16} + \cdots - 40u + 11$
c_3, c_4, c_8 c_9	$u^{17} - u^{16} + \cdots - 8u + 4$
c_6, c_7, c_{10} c_{11}	$u^{17} + 2u^{16} + \cdots - 5u - 3$
c_{12}	$u^{17} - 2u^{16} + \cdots + 7u + 63$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 67y^{16} + \cdots + 9958380y - 14641$
c_2, c_5	$y^{17} - 27y^{16} + \cdots + 4064y - 121$
c_3, c_4, c_8 c_9	$y^{17} + 27y^{16} + \cdots + 128y - 16$
c_6, c_7, c_{10} c_{11}	$y^{17} - 18y^{16} + \cdots + 43y - 9$
c_{12}	$y^{17} + 54y^{16} + \cdots + 28903y - 3969$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.15416$ $a = 0.769400$ $b = -1.41340$	0.566399	8.58110
$u = 0.629765 + 0.993192I$ $a = 0.607738 - 0.970566I$ $b = -2.02831 + 0.15469I$	$18.5230 + 3.2436I$	$1.66321 - 2.07655I$
$u = 0.629765 - 0.993192I$ $a = 0.607738 + 0.970566I$ $b = -2.02831 - 0.15469I$	$18.5230 - 3.2436I$	$1.66321 + 2.07655I$
$u = -0.119587 + 0.703609I$ $a = 0.666875 + 0.456265I$ $b = 1.40522 - 0.37226I$	$-7.95189 - 0.77655I$	$-0.292399 + 0.937296I$
$u = -0.119587 - 0.703609I$ $a = 0.666875 - 0.456265I$ $b = 1.40522 + 0.37226I$	$-7.95189 + 0.77655I$	$-0.292399 - 0.937296I$
$u = -1.259020 + 0.292419I$ $a = -0.62819 - 2.15227I$ $b = 0.889145 + 0.880924I$	$-4.39263 - 2.75657I$	$5.16569 + 3.00882I$
$u = -1.259020 - 0.292419I$ $a = -0.62819 + 2.15227I$ $b = 0.889145 - 0.880924I$	$-4.39263 + 2.75657I$	$5.16569 - 3.00882I$
$u = 1.38400 + 0.32880I$ $a = -1.062080 + 0.704755I$ $b = 1.66229 - 0.01674I$	$-3.11311 + 4.57021I$	$4.59157 - 3.56675I$
$u = 1.38400 - 0.32880I$ $a = -1.062080 - 0.704755I$ $b = 1.66229 + 0.01674I$	$-3.11311 - 4.57021I$	$4.59157 + 3.56675I$
$u = 1.48295 + 0.02809I$ $a = 0.461098 - 1.264320I$ $b = -0.624675 + 0.638127I$	$4.78510 + 2.25631I$	$7.06459 - 4.01035I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.48295 - 0.02809I$ $a = 0.461098 + 1.264320I$ $b = -0.624675 - 0.638127I$	$4.78510 - 2.25631I$	$7.06459 + 4.01035I$
$u = -0.341751 + 0.353385I$ $a = -0.109209 + 1.262730I$ $b = -0.680413 - 0.329909I$	$-1.24584 - 1.09242I$	$0.17632 + 5.11244I$
$u = -0.341751 - 0.353385I$ $a = -0.109209 - 1.262730I$ $b = -0.680413 + 0.329909I$	$-1.24584 + 1.09242I$	$0.17632 - 5.11244I$
$u = 0.460304$ $a = 0.456311$ $b = 0.195899$	0.651323	15.8300
$u = -1.58318$ $a = -0.387801$ $b = 0.650314$	7.81790	16.8850
$u = -1.63784 + 0.36660I$ $a = 1.47814 + 1.42375I$ $b = -1.83966 - 0.39328I$	$-13.5898 - 8.3565I$	$3.98308 + 3.14605I$
$u = -1.63784 - 0.36660I$ $a = 1.47814 - 1.42375I$ $b = -1.83966 + 0.39328I$	$-13.5898 + 8.3565I$	$3.98308 - 3.14605I$

II. $I_2^u = \langle b+1,\ a-1,\ u^2-u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^2$
c_3, c_4, c_8 c_9	u^2
c_5	$(u+1)^2$
c_6, c_7	$u^2 - u - 1$
c_{10}, 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_8 c_9	y^2
c_6, c_7, c_{10} c_{11}, c_{12}	$y^2 - 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = 1.00000$ $b = -1.00000$	-0.657974	2.00000
$u = 1.61803$ $a = 1.00000$ $b = -1.00000$	7.23771	2.00000

III. $I_3^u = \langle b-1,\ a^2+2a+2u+5,\ u^2+u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

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

(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_8 c_9	$(y+2)^4$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2-3y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.618034$ $a = -1.00000 + 2.28825I$ $b = \ \ 1.00000$	-5.59278	4.00000
$u = \ \ 0.618034$ $a = -1.00000 - 2.28825I$ $b = \ \ 1.00000$	-5.59278	4.00000
$u = -1.61803$ $a = -1.000000 + 0.874032I$ $b = \ \ 1.00000$	2.30291	4.00000
$u = -1.61803$ $a = -1.000000 - 0.874032I$ $b = \ \ 1.00000$	2.30291	4.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{17}+27u^{16}+\cdots+4064u+121)$
c_2	$((u-1)^2)(u+1)^4(u^{17}+3u^{16}+\cdots-40u+11)$
c_3, c_4, c_8 c_9	$u^2(u^2+2)^2(u^{17}-u^{16}+\cdots-8u+4)$
c_5	$((u-1)^4)(u+1)^2(u^{17}+3u^{16}+\cdots-40u+11)$
c_6, c_7	$(u^2-u-1)(u^2+u-1)^2(u^{17}+2u^{16}+\cdots-5u-3)$
c_{10}, c_{11}	$((u^2-u-1)^2)(u^2+u-1)(u^{17}+2u^{16}+\cdots-5u-3)$
c_{12}	$((u^2+u-1)^3)(u^{17}-2u^{16}+\cdots+7u+63)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{17}-67y^{16}+\cdots+9958380y-14641)$
c_2, c_5	$((y-1)^6)(y^{17}-27y^{16}+\cdots+4064y-121)$
c_3, c_4, c_8 c_9	$y^2(y+2)^4(y^{17}+27y^{16}+\cdots+128y-16)$
c_6, c_7, c_{10} c_{11}	$((y^2-3y+1)^3)(y^{17}-18y^{16}+\cdots+43y-9)$
c_{12}	$((y^2-3y+1)^3)(y^{17}+54y^{16}+\cdots+28903y-3969)$