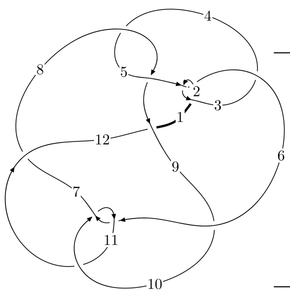
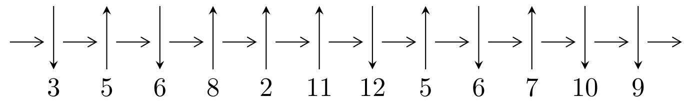
$12n_{0035}$ ($K12n_{0035}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{42} - 2u^{41} + \cdots + 2b - u,\ -2u^{42} - 4u^{41} + \cdots + 2a - 2,\ u^{44} + 3u^{43} + \cdots + 3u + 1\rangle$$

$$I_2^u = \langle -2u^4a - 4u^3a - 2u^4 + 3u^2a - 4u^3 - 8au + 3u^2 + 19b - 7a - 8u - 7,$$
$$u^3a - u^2a - 2u^3 + a^2 + au + 2u^2 - u + 2,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 54 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. $I^u_1 =$ $\langle -u^{42}-2u^{41}+\cdots+2b-u,\ -2u^{42}-4u^{41}+\cdots+2a-2,\ u^{44}+3u^{43}+\cdots+3u+1\rangle$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} u^{42} + 2u^{41} + \cdots + \frac{1}{2}u + 1 \\ \frac{1}{2}u^{42} + u^{41} + \cdots + u^2 + \frac{1}{2}u \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} \frac{5}{2}u^{42} + 5u^{41} + \cdots + 3u + 1 \\ \frac{1}{2}u^{42} + u^{41} + \cdots + 2u^2 + \frac{3}{2}u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -3u^{42} - 6u^{41} + \cdots - \frac{7}{2}u - 1 \\ -\frac{3}{2}u^{42} - 2u^{41} + \cdots - 3u^2 - \frac{3}{2}u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{11} - 2u^9 - 2u^7 - u^3 \\ -u^{11} - 3u^9 - 4u^7 - u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} \frac{3}{2}u^{42} + 4u^{41} + \cdots + 2u + 1 \\ \frac{3}{2}u^{42} + 2u^{41} + \cdots + 3u^2 + \frac{3}{2}u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{43} + \frac{39}{2}u^{42} + \cdots + 25u + \frac{23}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{44} + 10u^{43} + \cdots + 2u + 1$
c_2, c_5	$u^{44} + 6u^{43} + \cdots + 6u + 1$
c_3	$u^{44} - 6u^{43} + \cdots + 717363u + 73746$
c_4, c_8	$u^{44} - u^{43} + \cdots + 1024u + 1024$
c_6, c_{10}	$u^{44} - 3u^{43} + \cdots - 3u + 1$
c_7, c_9	$u^{44} + 3u^{43} + \cdots + 211u + 34$
c_{11}	$u^{44} + 23u^{43} + \cdots + 3u + 1$
c_{12}	$u^{44} - u^{43} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{44} + 54y^{43} + \cdots + 102y + 1$
c_2, c_5	$y^{44} + 10y^{43} + \cdots + 2y + 1$
c_3	$y^{44} + 98y^{43} + \cdots + 113290466283y + 5438472516$
c_4, c_8	$y^{44} - 55y^{43} + \cdots - 1048576y + 1048576$
c_6, c_{10}	$y^{44} + 23y^{43} + \cdots + 3y + 1$
c_7, c_9	$y^{44} - 25y^{43} + \cdots + 17903y + 1156$
c_{11}	$y^{44} - y^{43} + \cdots + 11y + 1$
c_{12}	$y^{44} + 75y^{43} + \cdots + 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.691393 + 0.770310I$ $a = -0.066986 + 0.372800I$ $b = 0.965189 - 0.946149I$	$11.85400 - 0.89687I$	$3.89150 - 0.58111I$
$u = 0.691393 - 0.770310I$ $a = -0.066986 - 0.372800I$ $b = 0.965189 + 0.946149I$	$11.85400 + 0.89687I$	$3.89150 + 0.58111I$
$u = 0.681315 + 0.809304I$ $a = -1.36604 + 1.02725I$ $b = 0.945813 + 0.981170I$	$11.73940 + 6.10553I$	$3.57078 - 5.20880I$
$u = 0.681315 - 0.809304I$ $a = -1.36604 - 1.02725I$ $b = 0.945813 - 0.981170I$	$11.73940 - 6.10553I$	$3.57078 + 5.20880I$
$u = -0.417026 + 0.814240I$ $a = -0.966326 - 0.411751I$ $b = 0.276291 - 0.156022I$	$-0.06080 - 1.78150I$	$0.19283 + 3.69450I$
$u = -0.417026 - 0.814240I$ $a = -0.966326 + 0.411751I$ $b = 0.276291 + 0.156022I$	$-0.06080 + 1.78150I$	$0.19283 - 3.69450I$
$u = -0.849289 + 0.246416I$ $a = -0.864419 + 0.930692I$ $b = 0.878595 + 1.030530I$	$8.55506 + 8.32906I$	$2.52276 - 4.33779I$
$u = -0.849289 - 0.246416I$ $a = -0.864419 - 0.930692I$ $b = 0.878595 - 1.030530I$	$8.55506 - 8.32906I$	$2.52276 + 4.33779I$
$u = -0.836265 + 0.281412I$ $a = -0.206151 - 0.049476I$ $b = 0.974475 - 0.853175I$	$9.13585 + 1.52647I$	$3.42363 + 0.21688I$
$u = -0.836265 - 0.281412I$ $a = -0.206151 + 0.049476I$ $b = 0.974475 + 0.853175I$	$9.13585 - 1.52647I$	$3.42363 - 0.21688I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.433525 + 1.047130I$ $a = -0.326846 + 0.375439I$ $b = -0.695543 + 0.930432I$	$-1.29668 + 0.57558I$	$-2.65523 - 2.16561I$
$u = 0.433525 - 1.047130I$ $a = -0.326846 - 0.375439I$ $b = -0.695543 - 0.930432I$	$-1.29668 - 0.57558I$	$-2.65523 + 2.16561I$
$u = -0.094054 + 0.853687I$ $a = -1.11225 + 1.86145I$ $b = -0.198619 + 0.750506I$	$-1.66817 - 1.59205I$	$-6.58514 + 4.39514I$
$u = -0.094054 - 0.853687I$ $a = -1.11225 - 1.86145I$ $b = -0.198619 - 0.750506I$	$-1.66817 + 1.59205I$	$-6.58514 - 4.39514I$
$u = -0.487271 + 1.047260I$ $a = -0.779531 + 0.841946I$ $b = -0.766362 - 0.217429I$	$-0.23513 - 3.16229I$	$1.52764 + 3.47706I$
$u = -0.487271 - 1.047260I$ $a = -0.779531 - 0.841946I$ $b = -0.766362 + 0.217429I$	$-0.23513 + 3.16229I$	$1.52764 - 3.47706I$
$u = -0.388702 + 1.120050I$ $a = -1.03941 - 2.62383I$ $b = -0.288878 - 1.073200I$	$-4.05811 - 0.18233I$	$-4.90447 + 0.I$
$u = -0.388702 - 1.120050I$ $a = -1.03941 + 2.62383I$ $b = -0.288878 + 1.073200I$	$-4.05811 + 0.18233I$	$-4.90447 + 0.I$
$u = 0.497679 + 1.078530I$ $a = 1.02995 - 1.29852I$ $b = -0.800804 - 0.775068I$	$-0.74030 + 6.20071I$	$0. - 7.00102I$
$u = 0.497679 - 1.078530I$ $a = 1.02995 + 1.29852I$ $b = -0.800804 + 0.775068I$	$-0.74030 - 6.20071I$	$0. + 7.00102I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.769712 + 0.052444I$ $a = -0.818253 - 0.833331I$ $b = 0.257390 - 0.588680I$	$-2.66109 - 0.97035I$	$-2.65239 - 1.69439I$
$u = 0.769712 - 0.052444I$ $a = -0.818253 + 0.833331I$ $b = 0.257390 + 0.588680I$	$-2.66109 + 0.97035I$	$-2.65239 + 1.69439I$
$u = -0.496317 + 1.126200I$ $a = 1.35629 + 2.84442I$ $b = -0.396506 + 1.136040I$	$-3.29384 - 7.52516I$	$0. + 7.24279I$
$u = -0.496317 - 1.126200I$ $a = 1.35629 - 2.84442I$ $b = -0.396506 - 1.136040I$	$-3.29384 + 7.52516I$	$0. - 7.24279I$
$u = -0.254712 + 1.221060I$ $a = 0.54185 - 1.65734I$ $b = 0.918787 - 0.852340I$	$4.30712 - 1.86418I$	0
$u = -0.254712 - 1.221060I$ $a = 0.54185 + 1.65734I$ $b = 0.918787 + 0.852340I$	$4.30712 + 1.86418I$	0
$u = -0.287527 + 1.233810I$ $a = 0.72859 + 1.68616I$ $b = 0.853738 + 1.000090I$	$3.83508 + 4.68909I$	0
$u = -0.287527 - 1.233810I$ $a = 0.72859 - 1.68616I$ $b = 0.853738 - 1.000090I$	$3.83508 - 4.68909I$	0
$u = 0.433746 + 1.198270I$ $a = -0.009131 - 1.365560I$ $b = 0.240844 - 0.671835I$	$-6.28026 + 3.26453I$	0
$u = 0.433746 - 1.198270I$ $a = -0.009131 + 1.365560I$ $b = 0.240844 + 0.671835I$	$-6.28026 - 3.26453I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.474335 + 1.198320I$ $a = -0.95599 + 1.60970I$ $b = 0.327962 + 0.610342I$	$-5.99302 + 5.51262I$	0
$u = 0.474335 - 1.198320I$ $a = -0.95599 - 1.60970I$ $b = 0.327962 - 0.610342I$	$-5.99302 - 5.51262I$	0
$u = -0.572998 + 1.165320I$ $a = 1.218420 - 0.246333I$ $b = 0.988002 + 0.822945I$	$6.50379 - 6.73509I$	0
$u = -0.572998 - 1.165320I$ $a = 1.218420 + 0.246333I$ $b = 0.988002 - 0.822945I$	$6.50379 + 6.73509I$	0
$u = -0.563792 + 1.182090I$ $a = -1.12741 - 2.43594I$ $b = 0.865756 - 1.050490I$	$5.7613 - 13.5297I$	0
$u = -0.563792 - 1.182090I$ $a = -1.12741 + 2.43594I$ $b = 0.865756 + 1.050490I$	$5.7613 + 13.5297I$	0
$u = -0.519184 + 0.444465I$ $a = 0.243564 - 0.426397I$ $b = -0.671501 + 0.420740I$	$1.51555 - 0.97971I$	$5.31353 + 2.39080I$
$u = -0.519184 - 0.444465I$ $a = 0.243564 + 0.426397I$ $b = -0.671501 - 0.420740I$	$1.51555 + 0.97971I$	$5.31353 - 2.39080I$
$u = 0.363275 + 0.565886I$ $a = 2.00200 - 1.16729I$ $b = -0.553077 - 0.974993I$	$0.28460 + 2.90693I$	$3.00949 - 1.23686I$
$u = 0.363275 - 0.565886I$ $a = 2.00200 + 1.16729I$ $b = -0.553077 + 0.974993I$	$0.28460 - 2.90693I$	$3.00949 + 1.23686I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.539085 + 0.365328I$ $a = 0.768774 - 0.591177I$ $b = -0.715038 + 0.680296I$	$1.31536 - 1.96169I$	$3.58238 + 3.39063I$
$u = 0.539085 - 0.365328I$ $a = 0.768774 + 0.591177I$ $b = -0.715038 - 0.680296I$	$1.31536 + 1.96169I$	$3.58238 - 3.39063I$
$u = -0.616927 + 0.185561I$ $a = 0.74931 - 1.75287I$ $b = -0.406514 - 1.058610I$	$-0.68635 + 3.17011I$	$1.49231 - 4.26381I$
$u = -0.616927 - 0.185561I$ $a = 0.74931 + 1.75287I$ $b = -0.406514 + 1.058610I$	$-0.68635 - 3.17011I$	$1.49231 + 4.26381I$

II. $\boldsymbol{I_2^u = \langle -2u^4a - 2u^4 + \cdots - 7a - 7,\ u^3a - u^2a - 2u^3 + a^2 + au + 2u^2 - u + 2,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ 0.105263au^4 + 0.105263u^4 + \cdots + 0.368421a + 0.368421 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.105263au^4 - 0.105263u^4 + \cdots + 0.631579a - 0.368421 \\ 0.105263au^4 + 0.105263u^4 + \cdots + 0.368421a - 0.631579 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3 - u^2 + a + u - 1 \\ 0.105263au^4 + 0.105263u^4 + \cdots + 0.368421a - 0.631579 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^3 \\ u^4 - u^3 + u^2 + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.105263au^4 - 0.105263u^4 + \cdots + 0.631579a - 0.368421 \\ 0.105263au^4 + 0.105263u^4 + \cdots + 0.368421a - 0.631579 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^4a - u^3a + u^2a + 2u^3 - 3au - 2u^2 - a + u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5	$(u^2 - u + 1)^5$
c_2	$(u^2 + u + 1)^5$
c_4, c_8	u^{10}
c_6	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)^2$
c_7	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$
c_9, c_{12}	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)^2$
c_{10}	$(u^5 + u^4 + 2u^3 + u^2 + u + 1)^2$
c_{11}	$(u^5 + 3u^4 + 4u^3 + u^2 - u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5	$(y^2 + y + 1)^5$
c_4, c_8	y^{10}
c_6, c_{10}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^2$
c_7, c_9, c_{12}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$
c_{11}	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.339110 + 0.822375I$ $a = 0.523653 + 0.423720I$ $b = 0.500000 + 0.866025I$	$-0.329100 + 0.499304I$	$0.886311 - 0.883423I$
$u = -0.339110 + 0.822375I$ $a = -1.39487 - 1.53138I$ $b = 0.500000 - 0.866025I$	$-0.32910 - 3.56046I$	$-3.42267 + 7.93863I$
$u = -0.339110 - 0.822375I$ $a = 0.523653 - 0.423720I$ $b = 0.500000 - 0.866025I$	$-0.329100 - 0.499304I$	$0.886311 + 0.883423I$
$u = -0.339110 - 0.822375I$ $a = -1.39487 + 1.53138I$ $b = 0.500000 + 0.866025I$	$-0.32910 + 3.56046I$	$-3.42267 - 7.93863I$
$u = 0.766826$ $a = -0.314857 + 1.186700I$ $b = 0.500000 + 0.866025I$	$-2.40108 + 2.02988I$	$-0.40252 - 4.16430I$
$u = 0.766826$ $a = -0.314857 - 1.186700I$ $b = 0.500000 - 0.866025I$	$-2.40108 - 2.02988I$	$-0.40252 + 4.16430I$
$u = 0.455697 + 1.200150I$ $a = 0.85051 - 1.45588I$ $b = 0.500000 - 0.866025I$	$-5.87256 + 2.37095I$	$-2.86519 + 1.02882I$
$u = 0.455697 + 1.200150I$ $a = -0.66443 + 2.33052I$ $b = 0.500000 + 0.866025I$	$-5.87256 + 6.43072I$	$-4.19593 - 8.50148I$
$u = 0.455697 - 1.200150I$ $a = 0.85051 + 1.45588I$ $b = 0.500000 + 0.866025I$	$-5.87256 - 2.37095I$	$-2.86519 - 1.02882I$
$u = 0.455697 - 1.200150I$ $a = -0.66443 - 2.33052I$ $b = 0.500000 - 0.866025I$	$-5.87256 - 6.43072I$	$-4.19593 + 8.50148I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2 - u + 1)^5)(u^{44} + 10u^{43} + \cdots + 2u + 1)$
c_2	$((u^2 + u + 1)^5)(u^{44} + 6u^{43} + \cdots + 6u + 1)$
c_3	$((u^2 - u + 1)^5)(u^{44} - 6u^{43} + \cdots + 717363u + 73746)$
c_4, c_8	$u^{10}(u^{44} - u^{43} + \cdots + 1024u + 1024)$
c_5	$((u^2 - u + 1)^5)(u^{44} + 6u^{43} + \cdots + 6u + 1)$
c_6	$((u^5 - u^4 + 2u^3 - u^2 + u - 1)^2)(u^{44} - 3u^{43} + \cdots - 3u + 1)$
c_7	$((u^5 + u^4 - 2u^3 - u^2 + u - 1)^2)(u^{44} + 3u^{43} + \cdots + 211u + 34)$
c_9	$((u^5 - u^4 - 2u^3 + u^2 + u + 1)^2)(u^{44} + 3u^{43} + \cdots + 211u + 34)$
c_{10}	$((u^5 + u^4 + 2u^3 + u^2 + u + 1)^2)(u^{44} - 3u^{43} + \cdots - 3u + 1)$
c_{11}	$((u^5 + 3u^4 + 4u^3 + u^2 - u - 1)^2)(u^{44} + 23u^{43} + \cdots + 3u + 1)$
c_{12}	$((u^5 - u^4 - 2u^3 + u^2 + u + 1)^2)(u^{44} - u^{43} + \cdots + 3u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^5)(y^{44}+54y^{43}+\cdots+102y+1)$
c_2, c_5	$((y^2+y+1)^5)(y^{44}+10y^{43}+\cdots+2y+1)$
c_3	$((y^2+y+1)^5)(y^{44}+98y^{43}+\cdots+1.13290\times 10^{11}y+5.43847\times 10^9)$
c_4, c_8	$y^{10}(y^{44}-55y^{43}+\cdots-1048576y+1048576)$
c_6, c_{10}	$((y^5+3y^4+4y^3+y^2-y-1)^2)(y^{44}+23y^{43}+\cdots+3y+1)$
c_7, c_9	$((y^5-5y^4+8y^3-3y^2-y-1)^2)(y^{44}-25y^{43}+\cdots+17903y+1156)$
c_{11}	$((y^5-y^4+8y^3-3y^2+3y-1)^2)(y^{44}-y^{43}+\cdots+11y+1)$
c_{12}	$((y^5-5y^4+8y^3-3y^2-y-1)^2)(y^{44}+75y^{43}+\cdots+3y+1)$