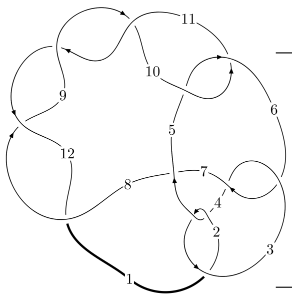
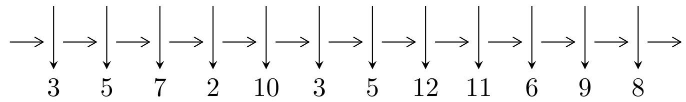
$12n_{0077}$ ($K12n_{0077}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{25} - u^{24} + \cdots + b + 1,\ u^{22} - 3u^{20} + \cdots + a + 4u,\ u^{26} - 2u^{25} + \cdots - 2u - 1\rangle$$
$$I_2^u = \langle b + 1,\ u^4 - u^2 + a + u + 2,\ u^5 - u^4 + u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 31 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.

$$I^u_1 = \langle u^{25} - u^{24} + \cdots + b + 1,\ u^{22} - 3u^{20} + \cdots + a + 4u,\ u^{26} - 2u^{25} + \cdots - 2u - 1\rangle$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -u^{22} + 3u^{20} + \cdots - 4u^2 - 4u \\ -u^{25} + u^{24} + \cdots - u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^9 - 3u^5 - u \\ -u^9 + u^7 - 3u^5 + 2u^3 - u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^7 - 2u^3 \\ -u^9 + u^7 - 3u^5 + 2u^3 - u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{25} + u^{24} + \cdots - 5u - 1 \\ -u^{25} + u^{24} + \cdots - u - 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -2u^{25} + 2u^{24} + \cdots - 7u - 1 \\ -u^{25} + u^{24} + \cdots - 2u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^{25} + u^{24} + 8u^{23} - 10u^{22} - 26u^{21} + 30u^{20} + 57u^{19} - 86u^{18} - 103u^{17} + 156u^{16} + 148u^{15} - 242u^{14} - 181u^{13} + 278u^{12} + 205u^{11} - 248u^{10} - 197u^9 + 159u^8 + 194u^7 - 60u^6 - 148u^5 + 8u^4 + 77u^3 + 10u^2 - 19u - 20$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 34u^{25} + \cdots + 68u + 1$
c_2, c_4	$u^{26} - 6u^{25} + \cdots + 34u^2 - 1$
c_3, c_6	$u^{26} + u^{25} + \cdots + 96u + 32$
c_5, c_{10}	$u^{26} - 2u^{25} + \cdots - 2u - 1$
c_7	$u^{26} - 2u^{25} + \cdots - 2u - 1$
c_8, c_9, c_{11} c_{12}	$u^{26} + 6u^{25} + \cdots + 10u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} - 78y^{25} + \cdots - 1224y + 1$
c_2, c_4	$y^{26} - 34y^{25} + \cdots - 68y + 1$
c_3, c_6	$y^{26} - 33y^{25} + \cdots - 1536y + 1024$
c_5, c_{10}	$y^{26} - 6y^{25} + \cdots - 10y + 1$
c_7	$y^{26} - 54y^{25} + \cdots - 10y + 1$
c_8, c_9, c_{11} c_{12}	$y^{26} + 30y^{25} + \cdots + 18y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.03768$ $a = 3.52363$ $b = 1.79564$	-14.3257	-18.8510
$u = -0.848363 + 0.365549I$ $a = -1.78442 - 1.39985I$ $b = -0.876527 + 0.552462I$	$-2.09559 + 3.16364I$	$-16.0021 - 6.5670I$
$u = -0.848363 - 0.365549I$ $a = -1.78442 + 1.39985I$ $b = -0.876527 - 0.552462I$	$-2.09559 - 3.16364I$	$-16.0021 + 6.5670I$
$u = 0.743105 + 0.536823I$ $a = 0.594036 - 0.232636I$ $b = 0.265907 - 0.097994I$	$1.42344 - 2.05884I$	$-4.65256 + 4.58362I$
$u = 0.743105 - 0.536823I$ $a = 0.594036 + 0.232636I$ $b = 0.265907 + 0.097994I$	$1.42344 + 2.05884I$	$-4.65256 - 4.58362I$
$u = -1.016900 + 0.465737I$ $a = 2.21366 + 1.97366I$ $b = 1.76028 - 0.15334I$	$-11.56550 + 6.15142I$	$-15.5995 - 5.2395I$
$u = -1.016900 - 0.465737I$ $a = 2.21366 - 1.97366I$ $b = 1.76028 + 0.15334I$	$-11.56550 - 6.15142I$	$-15.5995 + 5.2395I$
$u = -0.340992 + 0.772246I$ $a = 0.190362 - 0.001300I$ $b = 1.70063 + 0.08748I$	$-9.33177 - 1.67049I$	$-11.65109 + 0.28027I$
$u = -0.340992 - 0.772246I$ $a = 0.190362 + 0.001300I$ $b = 1.70063 - 0.08748I$	$-9.33177 + 1.67049I$	$-11.65109 - 0.28027I$
$u = 0.780793 + 0.228604I$ $a = -2.51035 + 0.76802I$ $b = -1.168300 + 0.232886I$	$-2.90735 - 0.78726I$	$-17.0746 + 5.9643I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.780793 - 0.228604I$ $a = -2.51035 - 0.76802I$ $b = -1.168300 - 0.232886I$	$-2.90735 + 0.78726I$	$-17.0746 - 5.9643I$
$u = -0.901624 + 0.824241I$ $a = -0.978749 - 0.966956I$ $b = -1.49560 - 0.03445I$	$3.16228 + 3.07757I$	$-10.53156 - 2.75315I$
$u = -0.901624 - 0.824241I$ $a = -0.978749 + 0.966956I$ $b = -1.49560 + 0.03445I$	$3.16228 - 3.07757I$	$-10.53156 + 2.75315I$
$u = 0.875285 + 0.858337I$ $a = 0.452866 - 0.465694I$ $b = -0.617869 + 0.854688I$	$5.39540 - 0.25204I$	$-9.68980 - 0.25577I$
$u = 0.875285 - 0.858337I$ $a = 0.452866 + 0.465694I$ $b = -0.617869 - 0.854688I$	$5.39540 + 0.25204I$	$-9.68980 + 0.25577I$
$u = 0.840955 + 0.925824I$ $a = 0.193479 + 0.004136I$ $b = 1.65874 - 0.26853I$	$-2.27912 + 3.95861I$	$-11.45131 - 0.83940I$
$u = 0.840955 - 0.925824I$ $a = 0.193479 - 0.004136I$ $b = 1.65874 + 0.26853I$	$-2.27912 - 3.95861I$	$-11.45131 + 0.83940I$
$u = 0.939409 + 0.834109I$ $a = -0.76938 + 1.23390I$ $b = -0.687301 - 0.869387I$	$5.19384 - 6.03805I$	$-10.26289 + 5.25215I$
$u = 0.939409 - 0.834109I$ $a = -0.76938 - 1.23390I$ $b = -0.687301 + 0.869387I$	$5.19384 + 6.03805I$	$-10.26289 - 5.25215I$
$u = -0.931297 + 0.895111I$ $a = 0.372833 + 0.308620I$ $b = 0.537292 + 0.017409I$	$10.10520 + 3.30342I$	$-2.39471 - 2.26919I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.931297 - 0.895111I$ $a = 0.372833 - 0.308620I$ $b = 0.537292 - 0.017409I$	$10.10520 - 3.30342I$	$-2.39471 + 2.26919I$
$u = 0.998011 + 0.849444I$ $a = 0.83951 - 1.88704I$ $b = 1.68410 + 0.28961I$	$-2.78496 - 10.50130I$	$-12.09690 + 5.41863I$
$u = 0.998011 - 0.849444I$ $a = 0.83951 + 1.88704I$ $b = 1.68410 - 0.28961I$	$-2.78496 + 10.50130I$	$-12.09690 - 5.41863I$
$u = -0.527536$ $a = 0.849795$ $b = -0.171524$	-0.708379	-14.2100
$u = -0.393456 + 0.342390I$ $a = 0.999444 + 0.387392I$ $b = -0.573413 - 0.271251I$	$-0.780751 - 0.150062I$	$-11.06268 - 0.12594I$
$u = -0.393456 - 0.342390I$ $a = 0.999444 - 0.387392I$ $b = -0.573413 + 0.271251I$	$-0.780751 + 0.150062I$	$-11.06268 + 0.12594I$

II. $I_2^u = \langle b+1,\ u^4 - u^2 + a + u + 2,\ u^5 - u^4 + u^2 + u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^3 + 3u^2 - u - 14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_6	y^5
c_5, c_{10}	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
c_7, c_8, c_9 c_{11}, c_{12}	$y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.758138+0.584034I$ $a=-0.278580-1.055720I$ $b=-1.00000$	$0.17487+2.21397I$	$-12.88087-4.04855I$
$u=-0.758138-0.584034I$ $a=-0.278580+1.055720I$ $b=-1.00000$	$0.17487-2.21397I$	$-12.88087+4.04855I$
$u=\ \ 0.935538+0.903908I$ $a=-0.020316+0.590570I$ $b=-1.00000$	$9.31336-3.33174I$	$-13.28666+2.53508I$
$u=\ \ 0.935538-0.903908I$ $a=-0.020316-0.590570I$ $b=-1.00000$	$9.31336+3.33174I$	$-13.28666-2.53508I$
$u=\ \ 0.645200$ $a=-2.40221$ $b=-1.00000$	-2.52712	-13.6650

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{26}+34u^{25}+\cdots+68u+1)$
c_2	$((u-1)^5)(u^{26}-6u^{25}+\cdots+34u^2-1)$
c_3, c_6	$u^5(u^{26}+u^{25}+\cdots+96u+32)$
c_4	$((u+1)^5)(u^{26}-6u^{25}+\cdots+34u^2-1)$
c_5	$(u^5-u^4+u^2+u-1)(u^{26}-2u^{25}+\cdots-2u-1)$
c_7	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{26}-2u^{25}+\cdots-2u-1)$
c_8, c_9	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{26}+6u^{25}+\cdots+10u+1)$
c_{10}	$(u^5+u^4-u^2+u+1)(u^{26}-2u^{25}+\cdots-2u-1)$
c_{11}, c_{12}	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{26}+6u^{25}+\cdots+10u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{26}-78y^{25}+\cdots-1224y+1)$
c_2, c_4	$((y-1)^5)(y^{26}-34y^{25}+\cdots-68y+1)$
c_3, c_6	$y^5(y^{26}-33y^{25}+\cdots-1536y+1024)$
c_5, c_{10}	$(y^5-y^4+4y^3-3y^2+3y-1)(y^{26}-6y^{25}+\cdots-10y+1)$
c_7	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{26}-54y^{25}+\cdots-10y+1)$
c_8, c_9, c_{11} c_{12}	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{26}+30y^{25}+\cdots+18y+1)$