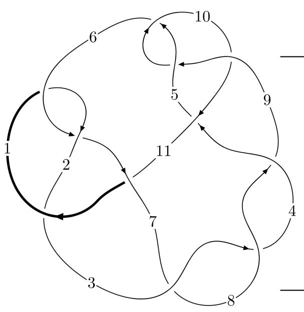
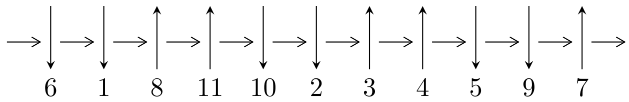
$11a_{175}$ ($K11a_{175}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{11} - u^{10} - 2u^9 + 2u^8 + 3u^7 - 2u^6 - 2u^5 + 2u^3 - u + 1 \rangle$$
$$I_2^u = \langle u^{40} - u^{39} + \cdots - 3u^3 + 1 \rangle$$
$$I_3^u = \langle u + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 52 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. $\boldsymbol{I_1^u = \langle u^{11} - u^{10} - 2u^9 + 2u^8 + 3u^7 - 2u^6 - 2u^5 + 2u^3 - u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} u^{10} - 3u^8 - u^7 + 4u^6 + 2u^5 - 2u^4 - 3u^3 + u - 1 \\ -u^8 + 2u^6 - 2u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{10} - u^8 - u^7 + u^6 + 2u^5 + u^4 - u^3 \\ u^3 - u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u^{10} + u^9 + 4u^8 - u^7 - 5u^6 - u^5 + 2u^4 + 3u^3 - u^2 + 1 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{10} - 3u^8 - u^7 + 5u^6 + 2u^5 - 3u^4 - 3u^3 + u - 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{10} - 3u^8 - u^7 + 5u^6 + 2u^5 - 3u^4 - 3u^3 + u - 1 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{10} + 4u^9 - 12u^8 - 8u^7 + 16u^6 + 12u^5 - 4u^4 - 8u^3 - 4u^2 + 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9	$u^{11} - u^{10} - 2u^9 + 2u^8 + 3u^7 - 2u^6 - 2u^5 + 2u^3 - u + 1$
c_2, c_{10}	$u^{11} + 5u^{10} + \cdots + u + 1$
c_3, c_7, c_8	$u^{11} + 4u^{10} + 3u^9 - 3u^8 + 3u^7 + 10u^6 - u^5 + u^4 + 6u^3 - 5u^2 + 4$
c_4, c_{11}	$u^{11} + u^9 + 2u^8 + 7u^7 + u^6 + 4u^5 - 3u^4 + 12u^3 - 8u^2 + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^{11} - 5y^{10} + \cdots + y - 1$
c_2, c_{10}	$y^{11} + 3y^{10} + \cdots - 7y - 1$
c_3, c_7, c_8	$y^{11} - 10y^{10} + \cdots + 40y - 16$
c_4, c_{11}	$y^{11} + 2y^{10} + \cdots + 41y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.472789 + 0.800775I$	$9.12060 - 3.24476I$	$5.98156 + 0.51441I$
$u = -0.472789 - 0.800775I$	$9.12060 + 3.24476I$	$5.98156 - 0.51441I$
$u = -0.912079$	-1.65611	-5.73710
$u = \quad 1.054490 + 0.371149I$	$-4.87523 - 4.09967I$	$-8.95070 + 5.15592I$
$u = \quad 1.054490 - 0.371149I$	$-4.87523 + 4.09967I$	$-8.95070 - 5.15592I$
$u = -1.081800 + 0.517146I$	$-2.76698 + 9.75515I$	$-4.05162 - 10.29185I$
$u = -1.081800 - 0.517146I$	$-2.76698 - 9.75515I$	$-4.05162 + 10.29185I$
$u = \quad 1.094170 + 0.624458I$	$5.3908 - 13.9605I$	$0.53068 + 9.48051I$
$u = \quad 1.094170 - 0.624458I$	$5.3908 + 13.9605I$	$0.53068 - 9.48051I$
$u = \quad 0.361975 + 0.559972I$	$1.36102 + 0.98826I$	$4.35867 - 1.84291I$
$u = \quad 0.361975 - 0.559972I$	$1.36102 - 0.98826I$	$4.35867 + 1.84291I$

II. $I_2^u = \langle u^{40} - u^{39} + \cdots - 3u^3 + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^8 - u^6 + u^4 + 1 \\ u^8 - 2u^6 + 2u^4 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{13} - 2u^{11} + 3u^9 - 2u^7 + 2u^5 - 2u^3 + u \\ u^{13} - 3u^{11} + 5u^9 - 4u^7 + 2u^5 - u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{18} + 3u^{16} - 6u^{14} + 7u^{12} - 7u^{10} + 7u^8 - 6u^6 + 4u^4 - u^2 + 1 \\ -u^{18} + 4u^{16} - 9u^{14} + 12u^{12} - 11u^{10} + 8u^8 - 6u^6 + 4u^4 - u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{39} - u^{38} + \cdots + u^3 - 1 \\ -u^{38} + 9u^{36} + \cdots + u^3 - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{21} + 4u^{19} - 9u^{17} + 12u^{15} - 10u^{13} + 6u^{11} - 3u^9 + 2u^7 + u^5 - 2u^3 + u \\ -u^{23} + 5u^{21} + \cdots - 2u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{21} + 4u^{19} - 9u^{17} + 12u^{15} - 10u^{13} + 6u^{11} - 3u^9 + 2u^7 + u^5 - 2u^3 + u \\ -u^{23} + 5u^{21} + \cdots - 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{38} - 32u^{36} + 140u^{34} - 416u^{32} + 928u^{30} - 1644u^{28} + 2412u^{26} - 3040u^{24} + 3380u^{22} - 3364u^{20} + 2992u^{18} + 4u^{17} - 2368u^{16} - 16u^{15} + 1668u^{14} + 36u^{13} - 1048u^{12} - 52u^{11} + 580u^{10} + 52u^9 - 268u^8 - 44u^7 + 100u^6 + 32u^5 - 28u^4 - 20u^3 + 8u^2 + 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9	$u^{40} - u^{39} + \cdots - 3u^3 + 1$
c_2, c_{10}	$u^{40} + 17u^{39} + \cdots + 2u^2 + 1$
c_3, c_7, c_8	$(u^{20} - 2u^{19} + \cdots - 2u + 1)^2$
c_4, c_{11}	$u^{40} - 3u^{39} + \cdots + 6u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^{40} - 17y^{39} + \cdots + 2y^2 + 1$
c_2, c_{10}	$y^{40} + 11y^{39} + \cdots + 4y + 1$
c_3, c_7, c_8	$(y^{20} - 22y^{19} + \cdots - 30y + 1)^2$
c_4, c_{11}	$y^{40} - 5y^{39} + \cdots - 282y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.989179+0.332673I$	$-1.87696+1.08776I$	$-3.66948-0.80831I$
$u=-0.989179-0.332673I$	$-1.87696-1.08776I$	$-3.66948+0.80831I$
$u=-0.912778+0.528712I$	0.112919	$1.81750+0.I$
$u=-0.912778-0.528712I$	0.112919	$1.81750+0.I$
$u=\ \ 0.515254+0.788495I$	$7.58837-5.35722I$	$3.80298+4.77693I$
$u=\ \ 0.515254-0.788495I$	$7.58837+5.35722I$	$3.80298-4.77693I$
$u=-0.502219+0.792060I$	9.28815	$6.23474+0.I$
$u=-0.502219-0.792060I$	9.28815	$6.23474+0.I$
$u=\ \ 0.461488+0.804643I$	$7.28190+8.60190I$	$3.29856-5.07396I$
$u=\ \ 0.461488-0.804643I$	$7.28190-8.60190I$	$3.29856+5.07396I$
$u=\ \ 1.047750+0.294823I$	$-4.22715+2.78049I$	$-7.53200-3.56896I$
$u=\ \ 1.047750-0.294823I$	$-4.22715-2.78049I$	$-7.53200+3.56896I$
$u=\ \ 0.475874+0.769365I$	$3.57846+1.46542I$	$0.189647-0.302471I$
$u=\ \ 0.475874-0.769365I$	$3.57846-1.46542I$	$0.189647+0.302471I$
$u=\ \ 1.112840+0.027837I$	$3.57846+1.46542I$	$0.189647-0.302471I$
$u=\ \ 1.112840-0.027837I$	$3.57846-1.46542I$	$0.189647+0.302471I$
$u=\ \ 0.976421+0.536361I$	$0.79488-4.38017I$	$2.87668+6.69250I$
$u=\ \ 0.976421-0.536361I$	$0.79488+4.38017I$	$2.87668-6.69250I$
$u=-1.119580+0.049168I$	$1.78732-6.69475I$	$-2.60998+4.97701I$
$u=-1.119580-0.049168I$	$1.78732+6.69475I$	$-2.60998-4.97701I$
$u=-0.674204+0.548152I$	$0.79488+4.38017I$	$2.87668-6.69250I$
$u=-0.674204-0.548152I$	$0.79488-4.38017I$	$2.87668+6.69250I$
$u=-1.065390+0.469454I$	$-4.22715+2.78049I$	$-7.53200-3.56896I$
$u=-1.065390-0.469454I$	$-4.22715-2.78049I$	$-7.53200+3.56896I$
$u=\ \ 1.053770+0.517468I$	$-0.55874-5.32051I$	$-0.06135+6.50240I$
$u=\ \ 1.053770-0.517468I$	$-0.55874+5.32051I$	$-0.06135-6.50240I$
$u=\ \ 0.565990+0.536897I$	1.96889	$5.82360+0.I$
$u=\ \ 0.565990-0.536897I$	1.96889	$5.82360+0.I$
$u=\ \ 1.062890+0.635226I$	5.95204	$1.53406+0.I$
$u=\ \ 1.062890-0.635226I$	5.95204	$1.53406+0.I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.077540 + 0.613425I$	$1.78732 - 6.69475I$	$-2.60998 + 4.97701I$
$u = 1.077540 - 0.613425I$	$1.78732 + 6.69475I$	$-2.60998 - 4.97701I$
$u = -1.071010 + 0.632590I$	$7.58837 + 5.35722I$	$3.80298 - 4.77693I$
$u = -1.071010 - 0.632590I$	$7.58837 - 5.35722I$	$3.80298 + 4.77693I$
$u = -1.087960 + 0.626575I$	$7.28190 + 8.60190I$	$3.29856 - 5.07396I$
$u = -1.087960 - 0.626575I$	$7.28190 - 8.60190I$	$3.29856 + 5.07396I$
$u = -0.289073 + 0.622325I$	$-0.55874 - 5.32051I$	$-0.06135 + 6.50240I$
$u = -0.289073 - 0.622325I$	$-0.55874 + 5.32051I$	$-0.06135 - 6.50240I$
$u = -0.138437 + 0.513103I$	$-1.87696 + 1.08776I$	$-3.66948 - 0.80831I$
$u = -0.138437 - 0.513103I$	$-1.87696 - 1.08776I$	$-3.66948 + 0.80831I$

III. $I_3^u = \langle u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6, c_7 c_8, c_9, c_{10}	$y - 1$
c_4, c_{11}	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$	-1.64493	-6.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9	$(u+1)(u^{11} - u^{10} - 2u^9 + 2u^8 + 3u^7 - 2u^6 - 2u^5 + 2u^3 - u + 1)$ $\cdot (u^{40} - u^{39} + \cdots - 3u^3 + 1)$
c_2, c_{10}	$(u+1)(u^{11} + 5u^{10} + \cdots + u + 1)(u^{40} + 17u^{39} + \cdots + 2u^2 + 1)$
c_3, c_7, c_8	$(u+1)(u^{11} + 4u^{10} + \cdots - 5u^2 + 4)$ $\cdot (u^{20} - 2u^{19} + \cdots - 2u + 1)^2$
c_4, c_{11}	$u(u^{11} + u^9 + 2u^8 + 7u^7 + u^6 + 4u^5 - 3u^4 + 12u^3 - 8u^2 + 5u + 1)$ $\cdot (u^{40} - 3u^{39} + \cdots + 6u + 3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$(y-1)(y^{11}-5y^{10}+\cdots+y-1)(y^{40}-17y^{39}+\cdots+2y^2+1)$
c_2, c_{10}	$(y-1)(y^{11}+3y^{10}+\cdots-7y-1)(y^{40}+11y^{39}+\cdots+4y+1)$
c_3, c_7, c_8	$(y-1)(y^{11}-10y^{10}+\cdots+40y-16)(y^{20}-22y^{19}+\cdots-30y+1)^2$
c_4, c_{11}	$y(y^{11}+2y^{10}+\cdots+41y-1)(y^{40}-5y^{39}+\cdots-282y+9)$