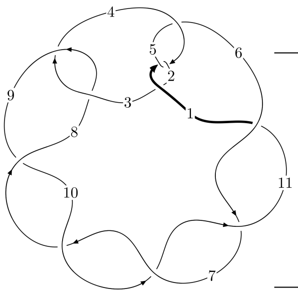
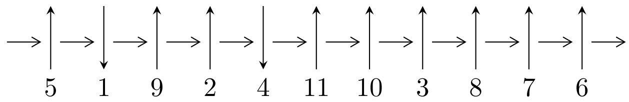
# $11a_{65}$ $(K11a_{65})$




A knot diagram[1]

**Linearized knot diagam**




**Solving Sequence**

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

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

$$I_1^u = \langle u^{29} + u^{28} + \cdots - u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 29 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.** $\boldsymbol{I_1^u = \langle u^{29} + u^{28} + \cdots - u - 1 \rangle}$

**(i) Arc colorings**

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

**(ii) Obstruction class** $= -1$

**(iii) Cusp Shapes** $= 4u^{27} + 4u^{26} - 8u^{25} - 12u^{24} + 44u^{23} + 48u^{22} - 72u^{21} - 104u^{20} + 184u^{19} + 208u^{18} - 240u^{17} - 324u^{16} + 364u^{15} + 404u^{14} - 360u^{13} - 440u^{12} + 340u^{11} + 352u^{10} - 228u^9 - 256u^8 + 124u^7 + 124u^6 - 32u^5 - 48u^4 + 8u^3 + 8u^2 + 12u + 6$

**(iv) u-Polynomials at the component**

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $u^{29} + u^{28} + \cdots + 3u - 1$ |
| $c_2, c_5$ | $u^{29} + 11u^{28} + \cdots + 3u - 1$ |
| $c_3, c_8$ | $u^{29} + u^{28} + \cdots - u - 1$ |
| $c_6, c_7, c_9$<br>$c_{10}, c_{11}$ | $u^{29} - 5u^{28} + \cdots + 3u - 1$ |

**(v) Riley Polynomials at the component**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $y^{29} + 11y^{28} + \cdots + 3y - 1$ |
| $c_2, c_5$ | $y^{29} + 15y^{28} + \cdots + 95y - 1$ |
| $c_3, c_8$ | $y^{29} - 5y^{28} + \cdots + 3y - 1$ |
| $c_6, c_7, c_9$ <br> $c_{10}, c_{11}$ | $y^{29} + 39y^{28} + \cdots + 15y - 1$ |

**(vi) Complex Volumes and Cusp Shapes**

| Solutions to $I_1^u$ | $\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$ | Cusp shape |
|---|---|---|
| $u = \phantom{-}0.662542 + 0.733995I$ | $-2.87279 - 3.43190I$ | $1.84331 + 2.63617I$ |
| $u = \phantom{-}0.662542 - 0.733995I$ | $-2.87279 + 3.43190I$ | $1.84331 - 2.63617I$ |
| $u = -0.860153 + 0.603140I$ | $-0.92695 - 3.26280I$ | $6.14452 + 3.98889I$ |
| $u = -0.860153 - 0.603140I$ | $-0.92695 + 3.26280I$ | $6.14452 - 3.98889I$ |
| $u = \phantom{-}0.800498 + 0.711356I$ | $-6.28353 + 2.63192I$ | $-1.57742 - 3.51356I$ |
| $u = \phantom{-}0.800498 - 0.711356I$ | $-6.28353 - 2.63192I$ | $-1.57742 + 3.51356I$ |
| $u = -0.670146 + 0.643469I$ | $-1.53821 - 1.44300I$ | $4.26199 + 3.33866I$ |
| $u = -0.670146 - 0.643469I$ | $-1.53821 + 1.44300I$ | $4.26199 - 3.33866I$ |
| $u = \phantom{-}0.897053 + 0.637489I$ | $-2.10190 + 8.51637I$ | $4.12248 - 8.75770I$ |
| $u = \phantom{-}0.897053 - 0.637489I$ | $-2.10190 - 8.51637I$ | $4.12248 + 8.75770I$ |
| $u = -0.863375 + 0.243437I$ | $2.76289 - 4.79469I$ | $10.76150 + 7.92652I$ |
| $u = -0.863375 - 0.243437I$ | $2.76289 + 4.79469I$ | $10.76150 - 7.92652I$ |
| $u = \phantom{-}0.849421 + 0.171489I$ | $3.14251 - 0.34812I$ | $12.60939 - 1.20059I$ |
| $u = \phantom{-}0.849421 - 0.171489I$ | $3.14251 + 0.34812I$ | $12.60939 + 1.20059I$ |
| $u = -0.567456 + 0.428614I$ | $-1.16133 - 1.54019I$ | $1.06319 + 5.77766I$ |
| $u = -0.567456 - 0.428614I$ | $-1.16133 + 1.54019I$ | $1.06319 - 5.77766I$ |
| $u = \phantom{-}0.925735 + 0.921889I$ | $-10.84070 + 1.59263I$ | $4.08077 - 2.18896I$ |
| $u = \phantom{-}0.925735 - 0.921889I$ | $-10.84070 - 1.59263I$ | $4.08077 + 2.18896I$ |
| $u = -0.922097 + 0.934395I$ | $-12.57420 + 3.90608I$ | $1.76608 - 2.34733I$ |
| $u = -0.922097 - 0.934395I$ | $-12.57420 - 3.90608I$ | $1.76608 + 2.34733I$ |
| $u = \phantom{-}0.955680 + 0.906089I$ | $-10.74280 + 5.13666I$ | $4.24719 - 2.41278I$ |
| $u = \phantom{-}0.955680 - 0.906089I$ | $-10.74280 - 5.13666I$ | $4.24719 + 2.41278I$ |
| $u = -0.948212 + 0.927384I$ | $-16.7628 - 3.4088I$ | $-1.58895 + 2.29581I$ |
| $u = -0.948212 - 0.927384I$ | $-16.7628 + 3.4088I$ | $-1.58895 - 2.29581I$ |
| $u = -0.966924 + 0.909523I$ | $-12.4263 - 10.6865I$ | $2.06858 + 6.86438I$ |
| $u = -0.966924 - 0.909523I$ | $-12.4263 + 10.6865I$ | $2.06858 - 6.86438I$ |
| $u = \phantom{-}0.587859$ | $0.756056$ | $13.9270$ |
| $u = -0.086497 + 0.514422I$ | $0.39338 + 2.26507I$ | $2.23388 - 3.17909I$ |
| $u = -0.086497 - 0.514422I$ | $0.39338 - 2.26507I$ | $2.23388 + 3.17909I$ |

## II. u-Polynomials

| Crossings | u-Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $u^{29} + u^{28} + \cdots + 3u - 1$ |
| $c_2, c_5$ | $u^{29} + 11u^{28} + \cdots + 3u - 1$ |
| $c_3, c_8$ | $u^{29} + u^{28} + \cdots - u - 1$ |
| $c_6, c_7, c_9$ <br> $c_{10}, c_{11}$ | $u^{29} - 5u^{28} + \cdots + 3u - 1$ |

**III. Riley Polynomials**

| Crossings | Riley Polynomials at each crossing |
|---|---|
| $c_1, c_4$ | $y^{29} + 11y^{28} + \cdots + 3y - 1$ |
| $c_2, c_5$ | $y^{29} + 15y^{28} + \cdots + 95y - 1$ |
| $c_3, c_8$ | $y^{29} - 5y^{28} + \cdots + 3y - 1$ |
| $c_6, c_7, c_9$<br>$c_{10}, c_{11}$ | $y^{29} + 39y^{28} + \cdots + 15y - 1$ |