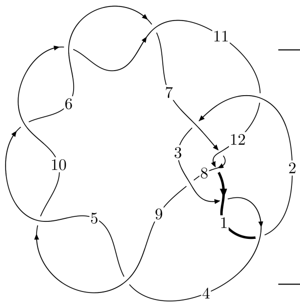
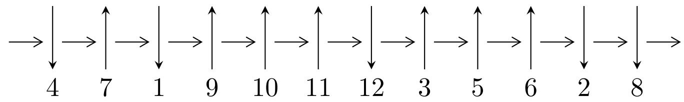
$12a_{1120}$ $(K12a_{1120})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 4.98637 \times 10^{30} u^{53} - 5.22392 \times 10^{30} u^{52} + \cdots + 3.76717 \times 10^{30} b - 2.97716 \times 10^{30},$$
$$5.96153 \times 10^{29} u^{53} - 5.96332 \times 10^{30} u^{52} + \cdots + 3.76717 \times 10^{30} a - 1.91291 \times 10^{30},\ u^{54} - 2u^{53} + \cdots - u + 1\rangle$$
$$I_2^u = \langle b+1,\ a-1,\ u+1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 55 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.
$\boldsymbol{I_1^u = \langle 4.99\times10^{30}u^{53} - 5.22\times10^{30}u^{52} + \cdots + 3.77\times10^{30}b - 2.98\times10^{30},\ 5.96\times10^{29}u^{53} - 5.96\times10^{30}u^{52} + \cdots + 3.77\times10^{30}a - 1.91\times10^{30},\ u^{54} - 2u^{53} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 + 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.158250u^{53} + 1.58297u^{52} + \cdots - 4.25488u + 0.507784 \\ -1.32364u^{53} + 1.38670u^{52} + \cdots - 1.95767u + 0.790290 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.325199u^{53} + 1.65590u^{52} + \cdots - 5.74265u + 0.513674 \\ -1.15669u^{53} + 1.31376u^{52} + \cdots - 0.469892u + 0.784399 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.210151u^{53} + 1.38312u^{52} + \cdots - 5.45196u + 0.243522 \\ -1.10881u^{53} + 1.16850u^{52} + \cdots - 0.141966u + 0.636692 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.270302u^{53} - 0.634518u^{52} + \cdots - 9.79695u + 0.917907 \\ -0.0490456u^{53} - 0.234591u^{52} + \cdots - 5.02262u + 0.936311 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.353877u^{53} + 0.509159u^{52} + \cdots - 10.3335u + 1.46507 \\ -0.614164u^{53} + 0.364566u^{52} + \cdots - 5.18084u + 1.68406 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.476022u^{53} - 2.58830u^{52} + \cdots - 14.0755u - 1.06185$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{54} - 3u^{53} + \cdots - 321u + 25$
c_2	$u^{54} + 3u^{53} + \cdots - 75u - 75$
c_4, c_5, c_6 c_9, c_{10}	$u^{54} + 2u^{53} + \cdots + u + 1$
c_7, c_{12}	$u^{54} - 20u^{52} + \cdots + 3u + 1$
c_8	$15(15u^{54} + 126u^{53} + \cdots + 675u - 223)$
c_{11}	$15(15u^{54} + 114u^{53} + \cdots + 155u - 17)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{54} - 33y^{53} + \cdots - 13641y + 625$
c_2	$y^{54} - 9y^{53} + \cdots - 165825y + 5625$
c_4, c_5, c_6 c_9, c_{10}	$y^{54} - 72y^{53} + \cdots + 9y + 1$
c_7, c_{12}	$y^{54} - 40y^{53} + \cdots + 9y + 1$
c_8	$225(225y^{54} - 11196y^{53} + \cdots - 230395y + 49729)$
c_{11}	$225(225y^{54} - 15156y^{53} + \cdots + 8581y + 289)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.954693+0.114732I$ $a=-1.07360+0.95925I$ $b=\ \ 0.18824-1.51024I$	$1.57417-1.88622I$	$7.17160+3.60080I$
$u=-0.954693-0.114732I$ $a=-1.07360-0.95925I$ $b=\ \ 0.18824+1.51024I$	$1.57417+1.88622I$	$7.17160-3.60080I$
$u=-0.820169+0.442176I$ $a=\ \ 1.36851-0.53320I$ $b=-0.737742+0.980815I$	$1.107040-0.620193I$	$11.81390+3.24095I$
$u=-0.820169-0.442176I$ $a=\ \ 1.36851+0.53320I$ $b=-0.737742-0.980815I$	$1.107040+0.620193I$	$11.81390-3.24095I$
$u=-1.052830+0.228694I$ $a=-0.085060-0.679778I$ $b=\ \ 0.378348-0.402776I$	$2.57681-6.14024I$	0
$u=-1.052830-0.228694I$ $a=-0.085060+0.679778I$ $b=\ \ 0.378348+0.402776I$	$2.57681+6.14024I$	0
$u=\ \ 0.903461+0.179518I$ $a=\ \ 1.46868+0.05196I$ $b=-0.282897-1.203480I$	$-2.49578+3.75084I$	$0.-6.34793I$
$u=\ \ 0.903461-0.179518I$ $a=\ \ 1.46868-0.05196I$ $b=-0.282897+1.203480I$	$-2.49578-3.75084I$	$0.+6.34793I$
$u=\ \ 0.909362$ $a=\ \ 3.13396$ $b=-1.83771$	0.433211	12.4360
$u=\ \ 1.105440+0.194944I$ $a=-0.386284-0.500062I$ $b=-0.0018704-0.1304650I$	$5.87997+2.18326I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.105440 - 0.194944I$ $a = -0.386284 + 0.500062I$ $b = -0.0018704 + 0.1304650I$	$5.87997 - 2.18326I$	0
$u = 1.054560 + 0.387125I$ $a = -1.75458 - 0.73634I$ $b = 0.99610 + 1.48113I$	$3.53124 + 6.84405I$	0
$u = 1.054560 - 0.387125I$ $a = -1.75458 + 0.73634I$ $b = 0.99610 - 1.48113I$	$3.53124 - 6.84405I$	0
$u = -1.092340 + 0.372866I$ $a = 1.85396 - 0.88170I$ $b = -0.91541 + 1.72790I$	$-1.45842 - 12.26440I$	0
$u = -1.092340 - 0.372866I$ $a = 1.85396 + 0.88170I$ $b = -0.91541 - 1.72790I$	$-1.45842 + 12.26440I$	0
$u = 0.455278 + 0.634993I$ $a = -1.262020 - 0.389416I$ $b = 0.003555 + 1.381020I$	$-5.45797 - 4.61873I$	$-0.99770 + 3.60735I$
$u = 0.455278 - 0.634993I$ $a = -1.262020 + 0.389416I$ $b = 0.003555 - 1.381020I$	$-5.45797 + 4.61873I$	$-0.99770 - 3.60735I$
$u = -0.748769$ $a = -2.10016$ $b = -0.0211096$	-3.87941	-0.406540
$u = 0.318419 + 0.649836I$ $a = -0.662849 + 0.251720I$ $b = 0.44752 + 1.63240I$	$-5.85021 + 8.79187I$	$-1.25205 - 7.85625I$
$u = 0.318419 - 0.649836I$ $a = -0.662849 - 0.251720I$ $b = 0.44752 - 1.63240I$	$-5.85021 - 8.79187I$	$-1.25205 + 7.85625I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.221871 + 0.671219I$ $a = 0.335155 + 0.012761I$ $b = -0.34810 + 1.38867I$	$-0.45577 - 3.26840I$	$4.20658 + 8.69995I$
$u = -0.221871 - 0.671219I$ $a = 0.335155 - 0.012761I$ $b = -0.34810 - 1.38867I$	$-0.45577 + 3.26840I$	$4.20658 - 8.69995I$
$u = -1.290900 + 0.340769I$ $a = 1.31057 - 0.77757I$ $b = -0.532843 + 0.817367I$	$0.033603 + 1.175310I$	0
$u = -1.290900 - 0.340769I$ $a = 1.31057 + 0.77757I$ $b = -0.532843 - 0.817367I$	$0.033603 - 1.175310I$	0
$u = -0.478853 + 0.294895I$ $a = 0.927174 - 0.540157I$ $b = -0.241342 + 0.376066I$	$1.006850 - 0.374600I$	$9.52818 + 2.20824I$
$u = -0.478853 - 0.294895I$ $a = 0.927174 + 0.540157I$ $b = -0.241342 - 0.376066I$	$1.006850 + 0.374600I$	$9.52818 - 2.20824I$
$u = 0.299222 + 0.419209I$ $a = -0.97060 - 1.29997I$ $b = -0.383803 + 0.085272I$	$-1.63498 + 3.92306I$	$0.88103 - 8.15922I$
$u = 0.299222 - 0.419209I$ $a = -0.97060 + 1.29997I$ $b = -0.383803 - 0.085272I$	$-1.63498 - 3.92306I$	$0.88103 + 8.15922I$
$u = 0.238190 + 0.367958I$ $a = 0.400758 - 0.042252I$ $b = 0.692395 + 0.425963I$	$-1.72767 - 1.34489I$	$0.52459 - 1.53353I$
$u = 0.238190 - 0.367958I$ $a = 0.400758 + 0.042252I$ $b = 0.692395 - 0.425963I$	$-1.72767 + 1.34489I$	$0.52459 + 1.53353I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.089832 + 0.399750I$ $a = 0.23684 - 2.50659I$ $b = 0.195200 - 1.035880I$	$-5.47596 - 1.75188I$	$-7.48810 + 4.25133I$
$u = -0.089832 - 0.399750I$ $a = 0.23684 + 2.50659I$ $b = 0.195200 + 1.035880I$	$-5.47596 + 1.75188I$	$-7.48810 - 4.25133I$
$u = -0.397661$ $a = -2.03586$ $b = -1.12513$	-4.03946	8.30440
$u = 1.68917$ $a = 1.87072$ $b = -0.736564$	5.02402	0
$u = -1.70299 + 0.03507I$ $a = -1.25795 + 0.67361I$ $b = 0.495516 - 1.319840I$	$6.81119 - 4.51765I$	0
$u = -1.70299 - 0.03507I$ $a = -1.25795 - 0.67361I$ $b = 0.495516 + 1.319840I$	$6.81119 + 4.51765I$	0
$u = 0.121737 + 0.263787I$ $a = 0.57633 - 2.28178I$ $b = 0.358359 - 0.939016I$	$-1.69045 + 0.57106I$	$-4.72601 + 0.62327I$
$u = 0.121737 - 0.263787I$ $a = 0.57633 + 2.28178I$ $b = 0.358359 + 0.939016I$	$-1.69045 - 0.57106I$	$-4.72601 - 0.62327I$
$u = -1.71294$ $a = -3.64511$ $b = 2.91465$	9.89130	0
$u = 1.71293 + 0.11942I$ $a = -2.01031 - 0.80822I$ $b = 1.45413 + 1.05839I$	$10.21160 + 2.85652I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.71293 - 0.11942I$ $a = -2.01031 + 0.80822I$ $b = 1.45413 - 1.05839I$	$10.21160 - 2.85652I$	0
$u = 1.71703 + 0.02443I$ $a = 1.13619 + 1.52937I$ $b = -0.57778 - 1.87863I$	$11.16480 + 2.40805I$	0
$u = 1.71703 - 0.02443I$ $a = 1.13619 - 1.52937I$ $b = -0.57778 + 1.87863I$	$11.16480 - 2.40805I$	0
$u = -1.72389$ $a = -8.95841$ $b = 8.34748$	9.78120	0
$u = 1.73658 + 0.05830I$ $a = 0.267916 - 0.025740I$ $b = -0.380396 - 0.762948I$	$12.5688 + 7.3202I$	0
$u = 1.73658 - 0.05830I$ $a = 0.267916 + 0.025740I$ $b = -0.380396 + 0.762948I$	$12.5688 - 7.3202I$	0
$u = -1.73758 + 0.10229I$ $a = 2.10706 - 1.16433I$ $b = -1.44637 + 1.54521I$	$13.4357 - 8.8604I$	0
$u = -1.73758 - 0.10229I$ $a = 2.10706 + 1.16433I$ $b = -1.44637 - 1.54521I$	$13.4357 + 8.8604I$	0
$u = -1.74855 + 0.05158I$ $a = 0.1406020 - 0.0077622I$ $b = 0.059463 - 0.541387I$	$16.1419 - 3.2325I$	0
$u = -1.74855 - 0.05158I$ $a = 0.1406020 + 0.0077622I$ $b = 0.059463 + 0.541387I$	$16.1419 + 3.2325I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.74671 + 0.09995I$ $a = -2.04887 - 1.38157I$ $b = 1.28385 + 1.80212I$	$8.6391 + 14.2502I$	0
$u = 1.74671 - 0.09995I$ $a = -2.04887 + 1.38157I$ $b = 1.28385 - 1.80212I$	$8.6391 - 14.2502I$	0
$u = 1.76453$ $a = -0.974558$ $b = 0.804257$	11.7892	0
$u = 1.78233$ $a = -0.925833$ $b = 0.645888$	11.7819	0

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

(i) Arc colorings

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

$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_{10} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$

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

$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

$a_7 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$

$a_1 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$

$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$

$a_2 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$

$a_3 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$

$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

$a_{12} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$

(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	u
c_4, c_5, c_6 c_7, c_8, c_9 c_{10}, c_{12}	$u-1$
c_{11}	$u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3	y
c_4, c_5, c_6 c_7, c_8, c_9 c_{10}, c_{11}, c_{12}	$y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 1.00000$ $b = -1.00000$	1.64493	6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3	$u(u^{54} - 3u^{53} + \cdots - 321u + 25)$
c_2	$u(u^{54} + 3u^{53} + \cdots - 75u - 75)$
c_4, c_5, c_6 c_9, c_{10}	$(u-1)(u^{54} + 2u^{53} + \cdots + u + 1)$
c_7, c_{12}	$(u-1)(u^{54} - 20u^{52} + \cdots + 3u + 1)$
c_8	$15(u-1)(15u^{54} + 126u^{53} + \cdots + 675u - 223)$
c_{11}	$15(u+1)(15u^{54} + 114u^{53} + \cdots + 155u - 17)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y(y^{54} - 33y^{53} + \cdots - 13641y + 625)$
c_2	$y(y^{54} - 9y^{53} + \cdots - 165825y + 5625)$
c_4, c_5, c_6 c_9, c_{10}	$(y-1)(y^{54} - 72y^{53} + \cdots + 9y + 1)$
c_7, c_{12}	$(y-1)(y^{54} - 40y^{53} + \cdots + 9y + 1)$
c_8	$225(y-1)(225y^{54} - 11196y^{53} + \cdots - 230395y + 49729)$
c_{11}	$225(y-1)(225y^{54} - 15156y^{53} + \cdots + 8581y + 289)$