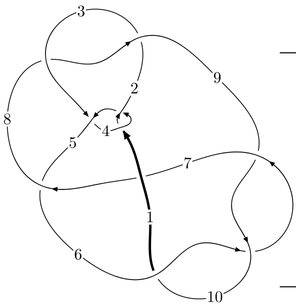
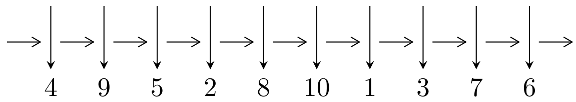
10_{53} ($K10a_{14}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.00600 \times 10^{29} u^{38} + 2.48316 \times 10^{29} u^{37} + \cdots + 8.64881 \times 10^{29} b + 3.57482 \times 10^{30},$$
$$1.23985 \times 10^{30} u^{38} + 2.03123 \times 10^{29} u^{37} + \cdots + 3.45952 \times 10^{30} a - 6.27933 \times 10^{30},\ u^{39} + u^{38} + \cdots + 20u + 8$$

$$I_1^v = \langle a,\ b - 1,\ v^3 - v^2 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 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.

$\boldsymbol{I_1^u = \langle -1.01\times 10^{29}u^{38}+2.48\times 10^{29}u^{37}+\cdots+8.65\times 10^{29}b+3.57\times 10^{30},\ 1.24\times 10^{30}u^{38}+2.03\times 10^{29}u^{37}+\cdots+3.46\times 10^{30}a-6.28\times 10^{30},\ u^{39}+u^{38}+\cdots+20u+8\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.358388u^{38} - 0.0587140u^{37} + \cdots - 1.78450u + 1.81508\\ 0.116317u^{38} - 0.287110u^{37} + \cdots - 9.31854u - 4.13331\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.242071u^{38} - 0.345824u^{37} + \cdots - 11.1030u - 2.31823\\ 0.116317u^{38} - 0.287110u^{37} + \cdots - 9.31854u - 4.13331\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.241767u^{38} + 0.162227u^{37} + \cdots + 4.40767u + 3.55101\\ 0.116621u^{38} + 0.220941u^{37} + \cdots + 6.19217u + 1.73592\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.242918u^{38} - 0.232042u^{37} + \cdots - 7.93025u - 1.41687\\ 0.221145u^{38} - 0.326120u^{37} + \cdots - 10.6121u - 5.05488\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.198873u^{38} - 0.0970595u^{37} + \cdots + 1.83795u + 1.62354\\ 0.233523u^{38} - 0.0483612u^{37} + \cdots + 1.48213u - 1.84886\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.153182u^{38} - 0.312103u^{37} + \cdots - 7.28402u - 2.56081\\ 0.660384u^{38} + 0.789150u^{37} + \cdots + 16.3791u + 4.59908\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.333316u^{38} - 0.171100u^{37} + \cdots + 10.6866u - 4.74934$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{39} - 4u^{38} + \cdots + u + 1$
c_2, c_8	$u^{39} + u^{38} + \cdots + 20u + 8$
c_3	$u^{39} + 18u^{38} + \cdots + 17u + 1$
c_5	$u^{39} - 8u^{38} + \cdots - 168u + 49$
c_6, c_9, c_{10}	$u^{39} - 2u^{38} + \cdots - 4u^2 + 1$
c_7	$u^{39} + 2u^{38} + \cdots + 6u + 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{39} - 18y^{38} + \cdots + 17y - 1$
c_2, c_8	$y^{39} + 21y^{38} + \cdots - 304y - 64$
c_3	$y^{39} + 10y^{38} + \cdots + 273y - 1$
c_5	$y^{39} + 16y^{38} + \cdots - 14896y - 2401$
c_6, c_9, c_{10}	$y^{39} + 36y^{38} + \cdots + 8y - 1$
c_7	$y^{39} + 4y^{38} + \cdots - 648y - 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.017070 + 0.016485I$ $a = 0.533352 + 0.181785I$ $b = 0.679795 - 0.572535I$	$4.66283 - 1.97475I$	$-5.44784 + 0.24565I$
$u = 1.017070 - 0.016485I$ $a = 0.533352 - 0.181785I$ $b = 0.679795 + 0.572535I$	$4.66283 + 1.97475I$	$-5.44784 - 0.24565I$
$u = -0.231699 + 0.952667I$ $a = 0.433679 - 0.020477I$ $b = 1.300720 + 0.108633I$	$2.67862 + 4.04441I$	$-5.85906 - 4.24790I$
$u = -0.231699 - 0.952667I$ $a = 0.433679 + 0.020477I$ $b = 1.300720 - 0.108633I$	$2.67862 - 4.04441I$	$-5.85906 + 4.24790I$
$u = 0.956761 + 0.380033I$ $a = 0.481763 + 0.120619I$ $b = 0.953268 - 0.489041I$	$-1.62662 + 3.39278I$	$-12.11270 - 5.92716I$
$u = 0.956761 - 0.380033I$ $a = 0.481763 - 0.120619I$ $b = 0.953268 + 0.489041I$	$-1.62662 - 3.39278I$	$-12.11270 + 5.92716I$
$u = -0.446453 + 0.963476I$ $a = 0.00685 - 2.03156I$ $b = -0.998340 + 0.492226I$	$1.05258 + 5.41055I$	$-8.42668 - 7.07273I$
$u = -0.446453 - 0.963476I$ $a = 0.00685 + 2.03156I$ $b = -0.998340 - 0.492226I$	$1.05258 - 5.41055I$	$-8.42668 + 7.07273I$
$u = 0.313799 + 0.869843I$ $a = 0.49321 + 2.23303I$ $b = -0.905691 - 0.426992I$	$-2.15141 - 1.70381I$	$-11.63741 + 3.75866I$
$u = 0.313799 - 0.869843I$ $a = 0.49321 - 2.23303I$ $b = -0.905691 + 0.426992I$	$-2.15141 + 1.70381I$	$-11.63741 - 3.75866I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.654305 + 0.610659I$ $a = 0.464054 - 0.067479I$ $b = 1.110300 + 0.306863I$	$-0.106397 - 1.133730I$	$-10.95849 + 0.14045I$
$u = -0.654305 - 0.610659I$ $a = 0.464054 + 0.067479I$ $b = 1.110300 - 0.306863I$	$-0.106397 + 1.133730I$	$-10.95849 - 0.14045I$
$u = -1.078760 + 0.377362I$ $a = 0.470618 - 0.137655I$ $b = 0.957399 + 0.572535I$	$3.81328 - 6.57302I$	$-7.10620 + 5.57627I$
$u = -1.078760 - 0.377362I$ $a = 0.470618 + 0.137655I$ $b = 0.957399 - 0.572535I$	$3.81328 + 6.57302I$	$-7.10620 - 5.57627I$
$u = 0.287457 + 0.756867I$ $a = 0.451557 + 0.026551I$ $b = 1.206930 - 0.129766I$	$-2.53592 - 1.13990I$	$-11.07531 + 5.95720I$
$u = 0.287457 - 0.756867I$ $a = 0.451557 - 0.026551I$ $b = 1.206930 + 0.129766I$	$-2.53592 + 1.13990I$	$-11.07531 - 5.95720I$
$u = -0.194269 + 0.773271I$ $a = 1.21955 - 2.26240I$ $b = -0.815381 + 0.342489I$	$2.08468 - 1.94841I$	$-5.31413 - 1.52369I$
$u = -0.194269 - 0.773271I$ $a = 1.21955 + 2.26240I$ $b = -0.815381 - 0.342489I$	$2.08468 + 1.94841I$	$-5.31413 + 1.52369I$
$u = -0.770646 + 0.144014I$ $a = 0.545673 - 0.103341I$ $b = 0.769146 + 0.335047I$	$-0.798777 - 0.294565I$	$-9.95022 - 1.12683I$
$u = -0.770646 - 0.144014I$ $a = 0.545673 + 0.103341I$ $b = 0.769146 - 0.335047I$	$-0.798777 + 0.294565I$	$-9.95022 + 1.12683I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.243035 + 1.196980I$ $a = 0.558338 - 0.947938I$ $b = -0.538688 + 0.783208I$	$3.77660 + 0.24936I$	$-5.00470 - 2.68648I$
$u = 0.243035 - 1.196980I$ $a = 0.558338 + 0.947938I$ $b = -0.538688 - 0.783208I$	$3.77660 - 0.24936I$	$-5.00470 + 2.68648I$
$u = 0.541726 + 0.535219I$ $a = 0.814600 - 0.384225I$ $b = 0.004189 + 0.473649I$	$3.03156 - 1.95518I$	$-5.07609 + 3.73688I$
$u = 0.541726 - 0.535219I$ $a = 0.814600 + 0.384225I$ $b = 0.004189 - 0.473649I$	$3.03156 + 1.95518I$	$-5.07609 - 3.73688I$
$u = -0.406069 + 1.207170I$ $a = 0.543323 + 0.815855I$ $b = -0.434521 - 0.849125I$	$3.06039 + 3.68428I$	$-6.85695 - 4.07509I$
$u = -0.406069 - 1.207170I$ $a = 0.543323 - 0.815855I$ $b = -0.434521 + 0.849125I$	$3.06039 - 3.68428I$	$-6.85695 + 4.07509I$
$u = -0.523733 + 1.187360I$ $a = -0.14870 - 1.57065I$ $b = -1.059740 + 0.631021I$	$2.20437 + 5.08722I$	$-7.54287 - 2.85265I$
$u = -0.523733 - 1.187360I$ $a = -0.14870 + 1.57065I$ $b = -1.059740 - 0.631021I$	$2.20437 - 5.08722I$	$-7.54287 + 2.85265I$
$u = 0.625085 + 1.211420I$ $a = -0.29116 + 1.51228I$ $b = -1.122760 - 0.637619I$	$0.99592 - 9.20929I$	$-10.00000 + 8.02113I$
$u = 0.625085 - 1.211420I$ $a = -0.29116 - 1.51228I$ $b = -1.122760 + 0.637619I$	$0.99592 + 9.20929I$	$-10.00000 - 8.02113I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.182143+1.351690I$ $a=\ \ 0.418664+0.974374I$ $b=-0.627750-0.866354I$	$10.13810-2.62234I$	$-1.83668+2.51405I$
$u=-0.182143-1.351690I$ $a=\ \ 0.418664-0.974374I$ $b=-0.627750+0.866354I$	$10.13810+2.62234I$	$-1.83668-2.51405I$
$u=\ \ 0.466572+1.289940I$ $a=\ \ 0.484403-0.782733I$ $b=-0.428310+0.923778I$	$8.81943-7.07830I$	$-3.10210+4.00909I$
$u=\ \ 0.466572-1.289940I$ $a=\ \ 0.484403+0.782733I$ $b=-0.428310-0.923778I$	$8.81943+7.07830I$	$-3.10210-4.00909I$
$u=\ \ 0.447724+1.316540I$ $a=-0.050181+1.390930I$ $b=-1.025900-0.718007I$	$8.92932-3.22969I$	$-3.39800+2.79415I$
$u=\ \ 0.447724-1.316540I$ $a=-0.050181-1.390930I$ $b=-1.025900+0.718007I$	$8.92932+3.22969I$	$-3.39800-2.79415I$
$u=-0.66765+1.25832I$ $a=-0.32850-1.43602I$ $b=-1.151380+0.661742I$	$6.6219+12.8868I$	$-6.05446-8.07914I$
$u=-0.66765-1.25832I$ $a=-0.32850+1.43602I$ $b=-1.151380-0.661742I$	$6.6219-12.8868I$	$-6.05446+8.07914I$
$u=-0.486980$ $a=\ \ 0.797813$ $b=\ \ 0.253426$	-0.735355	-13.2930

II. $I_1^v = \langle a,\ b-1,\ v^3 - v^2 + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= v^2 + 3v - 13$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.877439 + 0.744862I$ $a = 0$ $b = 1.00000$	$1.37919 - 2.82812I$	$-10.15260 + 3.54173I$
$v = 0.877439 - 0.744862I$ $a = 0$ $b = 1.00000$	$1.37919 + 2.82812I$	$-10.15260 - 3.54173I$
$v = -0.754878$ $a = 0$ $b = 1.00000$	-2.75839	-14.6950

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{39}-4u^{38}+\cdots+u+1)$
c_2, c_8	$u^3(u^{39}+u^{38}+\cdots+20u+8)$
c_3	$((u-1)^3)(u^{39}+18u^{38}+\cdots+17u+1)$
c_4	$((u+1)^3)(u^{39}-4u^{38}+\cdots+u+1)$
c_5	$(u^3+u^2-1)(u^{39}-8u^{38}+\cdots-168u+49)$
c_6	$(u^3-u^2+2u-1)(u^{39}-2u^{38}+\cdots-4u^2+1)$
c_7	$(u^3+u^2-1)(u^{39}+2u^{38}+\cdots+6u+9)$
c_9, c_{10}	$(u^3+u^2+2u+1)(u^{39}-2u^{38}+\cdots-4u^2+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^3)(y^{39} - 18y^{38} + \cdots + 17y - 1)$
c_2, c_8	$y^3(y^{39} + 21y^{38} + \cdots - 304y - 64)$
c_3	$((y-1)^3)(y^{39} + 10y^{38} + \cdots + 273y - 1)$
c_5	$(y^3 - y^2 + 2y - 1)(y^{39} + 16y^{38} + \cdots - 14896y - 2401)$
c_6, c_9, c_{10}	$(y^3 + 3y^2 + 2y - 1)(y^{39} + 36y^{38} + \cdots + 8y - 1)$
c_7	$(y^3 - y^2 + 2y - 1)(y^{39} + 4y^{38} + \cdots - 648y - 81)$