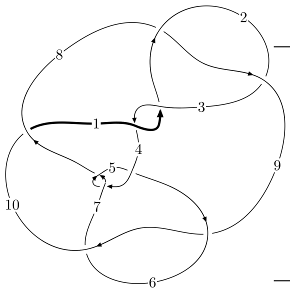
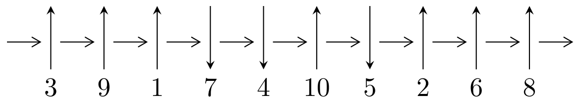
10_{57} $(K10a_6)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{40} + u^{39} + \cdots + 2u^2 + b,\ u^{25} - 4u^{23} + \cdots + a - 3u,\ u^{42} - 2u^{41} + \cdots + 2u - 1\rangle$$
$$I_2^u = \langle b - 1,\ a - u,\ u^3 + u^2 - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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.

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$$\boldsymbol{I_1^u = \langle -u^{40}+u^{39}+\cdots+2u^2+b,\ u^{25}-4u^{23}+\cdots+a-3u,\ u^{42}-2u^{41}+\cdots+2u-1\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4-u^2+1 \\ -u^4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{25}+4u^{23}+\cdots-4u^2+3u \\ u^{40}-u^{39}+\cdots+5u^3-2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^{41}+u^{40}+\cdots+4u-1 \\ u^{41}+u^{40}+\cdots-u^2-u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{41}+u^{40}+\cdots+2u^2-2u \\ u^{41}-u^{40}+\cdots-6u^3+3u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^6+u^4-2u^2+1 \\ -u^8+2u^6-2u^4+2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 9u^{41}-10u^{40}+\cdots-3u+11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{42} - 14u^{41} + \cdots + 2u + 1$
c_2, c_8	$u^{42} - 2u^{41} + \cdots + 2u - 1$
c_4, c_7	$u^{42} - 4u^{41} + \cdots + 7u - 1$
c_5	$u^{42} + 20u^{41} + \cdots + 39u + 1$
c_6, c_9	$u^{42} - u^{41} + \cdots - 28u + 8$
c_{10}	$u^{42} + 2u^{41} + \cdots - 168u - 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{42} + 30y^{41} + \cdots + 2y + 1$
c_2, c_8	$y^{42} - 14y^{41} + \cdots + 2y + 1$
c_4, c_7	$y^{42} - 20y^{41} + \cdots - 39y + 1$
c_5	$y^{42} + 8y^{41} + \cdots - 999y + 1$
c_6, c_9	$y^{42} - 21y^{41} + \cdots - 784y + 64$
c_{10}	$y^{42} - 6y^{41} + \cdots - 7154y + 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.991138 + 0.067760I$ $a = 0.72613 - 1.72423I$ $b = -0.599813 + 0.692072I$	$1.67988 + 2.03798I$	$8.18964 - 3.67578I$
$u = 0.991138 - 0.067760I$ $a = 0.72613 + 1.72423I$ $b = -0.599813 - 0.692072I$	$1.67988 - 2.03798I$	$8.18964 + 3.67578I$
$u = 0.645452 + 0.781684I$ $a = -0.611186 - 0.493033I$ $b = 0.814133 - 0.823314I$	$0.56632 - 2.39851I$	$5.00404 + 0.87866I$
$u = 0.645452 - 0.781684I$ $a = -0.611186 + 0.493033I$ $b = 0.814133 + 0.823314I$	$0.56632 + 2.39851I$	$5.00404 - 0.87866I$
$u = -0.703889 + 0.756112I$ $a = 2.19949 + 0.78549I$ $b = -0.50504 - 2.77745I$	$-3.91253 + 1.78828I$	$0.036224 - 1.373729I$
$u = -0.703889 - 0.756112I$ $a = 2.19949 - 0.78549I$ $b = -0.50504 + 2.77745I$	$-3.91253 - 1.78828I$	$0.036224 + 1.373729I$
$u = -0.794934 + 0.673703I$ $a = -0.870200 + 0.235772I$ $b = 0.92529 + 1.29854I$	$-2.06220 - 2.20756I$	$3.08817 + 4.39193I$
$u = -0.794934 - 0.673703I$ $a = -0.870200 - 0.235772I$ $b = 0.92529 - 1.29854I$	$-2.06220 + 2.20756I$	$3.08817 - 4.39193I$
$u = 0.745202 + 0.733734I$ $a = -1.136060 - 0.593599I$ $b = 1.064410 + 0.315955I$	$-4.59267 + 0.70618I$	$0.622977 + 0.556758I$
$u = 0.745202 - 0.733734I$ $a = -1.136060 + 0.593599I$ $b = 1.064410 - 0.315955I$	$-4.59267 - 0.70618I$	$0.622977 - 0.556758I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.938084$ $a=\ 0.506699$ $b=\ 1.24884$	0.325164	11.1790
$u=\ 0.670918+0.832205I$ $a=\ 2.15907-0.24239I$ $b=-1.29724+2.23565I$	$-1.77790-7.76497I$	$1.88925+4.74518I$
$u=\ 0.670918-0.832205I$ $a=\ 2.15907+0.24239I$ $b=-1.29724-2.23565I$	$-1.77790+7.76497I$	$1.88925-4.74518I$
$u=-1.074440+0.080759I$ $a=\ 0.469289-1.085500I$ $b=-0.649806+0.505264I$	$6.58974-1.93798I$	$11.95326+1.38361I$
$u=-1.074440-0.080759I$ $a=\ 0.469289+1.085500I$ $b=-0.649806-0.505264I$	$6.58974+1.93798I$	$11.95326-1.38361I$
$u=-1.083350+0.141922I$ $a=\ 0.18294+1.60896I$ $b=-0.381965-0.537269I$	$4.86295-7.53350I$	$9.04295+6.51119I$
$u=-1.083350-0.141922I$ $a=\ 0.18294-1.60896I$ $b=-0.381965+0.537269I$	$4.86295+7.53350I$	$9.04295-6.51119I$
$u=\ 0.988336+0.481239I$ $a=\ 0.224561-0.665612I$ $b=\ 1.61306+0.54768I$	$2.85726-1.06689I$	$7.69538+0.36183I$
$u=\ 0.988336-0.481239I$ $a=\ 0.224561+0.665612I$ $b=\ 1.61306-0.54768I$	$2.85726+1.06689I$	$7.69538-0.36183I$
$u=-0.932953+0.658227I$ $a=-0.274599+1.130300I$ $b=\ 2.18013-0.41245I$	$-1.62453-2.94974I$	$4.00088+1.92478I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.932953-0.658227I$ $a=-0.274599-1.130300I$ $b=\ \ 2.18013+0.41245I$	$-1.62453+2.94974I$	$4.00088-1.92478I$
$u=\ \ 0.999660+0.570752I$ $a=-0.434336+1.089620I$ $b=-0.92287-1.72945I$	$3.66366+4.35155I$	$8.59858-5.33139I$
$u=\ \ 0.999660-0.570752I$ $a=-0.434336-1.089620I$ $b=-0.92287+1.72945I$	$3.66366-4.35155I$	$8.59858+5.33139I$
$u=-0.836375+0.809644I$ $a=-0.881965+0.568772I$ $b=\ \ 1.240720-0.165182I$	$-4.73966-4.32552I$	$1.66531+7.57694I$
$u=-0.836375-0.809644I$ $a=-0.881965-0.568772I$ $b=\ \ 1.240720+0.165182I$	$-4.73966+4.32552I$	$1.66531-7.57694I$
$u=\ \ 0.962070+0.695356I$ $a=-0.789231-0.908899I$ $b=\ \ 0.697224-0.036762I$	$-3.92956+4.75718I$	$2.72048-5.86296I$
$u=\ \ 0.962070-0.695356I$ $a=-0.789231+0.908899I$ $b=\ \ 0.697224+0.036762I$	$-3.92956-4.75718I$	$2.72048+5.86296I$
$u=-0.923145+0.781924I$ $a=-0.761880+0.755330I$ $b=\ \ 0.897855+0.246991I$	$-4.47229-1.63203I$	$2.91298-2.62995I$
$u=-0.923145-0.781924I$ $a=-0.761880-0.755330I$ $b=\ \ 0.897855-0.246991I$	$-4.47229+1.63203I$	$2.91298+2.62995I$
$u=-0.988556+0.699620I$ $a=-0.71509-2.16040I$ $b=-2.19567+2.94125I$	$-3.05223-7.32917I$	$2.09146+6.67478I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.988556-0.699620I$ $a=-0.71509+2.16040I$ $b=-2.19567-2.94125I$	$-3.05223+7.32917I$	$2.09146-6.67478I$
$u=1.020290+0.695366I$ $a=-0.318656-0.733367I$ $b=1.83800+0.30183I$	$1.68665+7.98804I$	$6.75545-5.63639I$
$u=1.020290-0.695366I$ $a=-0.318656+0.733367I$ $b=1.83800-0.30183I$	$1.68665-7.98804I$	$6.75545+5.63639I$
$u=1.028180+0.723271I$ $a=-0.13761+2.12451I$ $b=-2.62947-2.13483I$	$-0.68940+13.58860I$	$3.64913-9.29837I$
$u=1.028180-0.723271I$ $a=-0.13761-2.12451I$ $b=-2.62947+2.13483I$	$-0.68940-13.58860I$	$3.64913+9.29837I$
$u=0.368496+0.622797I$ $a=1.324790-0.246617I$ $b=-0.344960+0.719696I$	$2.03700+0.16365I$	$5.74023-0.29295I$
$u=0.368496-0.622797I$ $a=1.324790+0.246617I$ $b=-0.344960-0.719696I$	$2.03700-0.16365I$	$5.74023+0.29295I$
$u=0.209332+0.676070I$ $a=-0.682383-0.891170I$ $b=0.848519-0.570944I$	$0.63189+5.08816I$	$2.51962-5.57765I$
$u=0.209332-0.676070I$ $a=-0.682383+0.891170I$ $b=0.848519+0.570944I$	$0.63189-5.08816I$	$2.51962+5.57765I$
$u=0.647067$ $a=0.662985$ $b=-0.112358$	0.883120	11.7260

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.145920 + 0.358325I$ $a = -0.25789 + 1.99901I$ $b = 0.839252 + 0.324615I$	$-1.72875 - 0.76607I$	$-3.12845 + 1.30178I$
$u = -0.145920 - 0.358325I$ $a = -0.25789 - 1.99901I$ $b = 0.839252 - 0.324615I$	$-1.72875 + 0.76607I$	$-3.12845 - 1.30178I$

II. $I_2^u = \langle b - 1,\ a - u,\ u^3 + u^2 - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = -0.877439 + 0.744862I$ $b = \ \ 1.00000$	$-4.66906 - 2.82812I$	$0.69240 + 3.35914I$
$u = -0.877439 - 0.744862I$ $a = -0.877439 - 0.744862I$ $b = \ \ 1.00000$	$-4.66906 + 2.82812I$	$0.69240 - 3.35914I$
$u = \ \ 0.754878$ $a = \ \ 0.754878$ $b = \ \ 1.00000$	-0.531480	1.61520

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3+u^2+2u+1)(u^{42}-14u^{41}+\cdots+2u+1)$
c_2	$(u^3+u^2-1)(u^{42}-2u^{41}+\cdots+2u-1)$
c_3	$(u^3-u^2+2u-1)(u^{42}-14u^{41}+\cdots+2u+1)$
c_4	$((u-1)^3)(u^{42}-4u^{41}+\cdots+7u-1)$
c_5	$((u+1)^3)(u^{42}+20u^{41}+\cdots+39u+1)$
c_6, c_9	$u^3(u^{42}-u^{41}+\cdots-28u+8)$
c_7	$((u+1)^3)(u^{42}-4u^{41}+\cdots+7u-1)$
c_8	$(u^3-u^2+1)(u^{42}-2u^{41}+\cdots+2u-1)$
c_{10}	$(u^3-u^2+2u-1)(u^{42}+2u^{41}+\cdots-168u-49)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y^3+3y^2+2y-1)(y^{42}+30y^{41}+\cdots+2y+1)$
c_2, c_8	$(y^3-y^2+2y-1)(y^{42}-14y^{41}+\cdots+2y+1)$
c_4, c_7	$((y-1)^3)(y^{42}-20y^{41}+\cdots-39y+1)$
c_5	$((y-1)^3)(y^{42}+8y^{41}+\cdots-999y+1)$
c_6, c_9	$y^3(y^{42}-21y^{41}+\cdots-784y+64)$
c_{10}	$(y^3+3y^2+2y-1)(y^{42}-6y^{41}+\cdots-7154y+2401)$