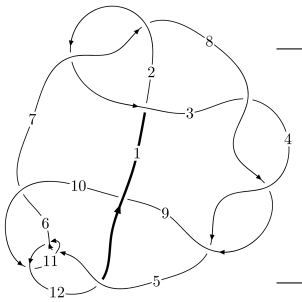
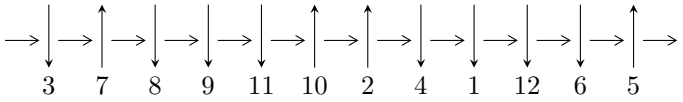
$12a_{0517}$ $(K12a_{0517})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{72} - u^{71} + \cdots + 2u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 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. $I_1^u = \langle u^{72} - u^{71} + \cdots + 2u - 1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^9 + 2u^7 + u^5 - 2u^3 - u \\ -u^9 - 3u^7 - 3u^5 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{14} - 3u^{12} - 4u^{10} - u^8 + 1 \\ -u^{16} - 4u^{14} - 8u^{12} - 8u^{10} - 4u^8 + 2u^6 + 4u^4 + 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{28} + 7u^{26} + \cdots + u^2 + 1 \\ u^{30} + 8u^{28} + \cdots + 2u^4 + u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^{23} - 6u^{21} - 16u^{19} - 20u^{17} - 4u^{15} + 22u^{13} + 26u^{11} + 6u^9 - 9u^7 - 6u^5 \\ u^{23} + 7u^{21} + \cdots + 2u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{62} + 17u^{60} + \cdots - 6u^6 + 1 \\ -u^{62} - 18u^{60} + \cdots + 8u^4 + 3u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{70} - 4u^{69} + \cdots + 8u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{72} + 41u^{71} + \cdots - 10u^2 + 1$
c_2, c_7	$u^{72} + u^{71} + \cdots - 2u - 1$
c_3, c_4, c_8	$u^{72} - u^{71} + \cdots + 42u - 17$
c_5, c_{11}	$u^{72} - u^{71} + \cdots + 2u^3 - 1$
c_6, c_{12}	$u^{72} - 3u^{71} + \cdots - 18u + 3$
c_9	$u^{72} - 11u^{71} + \cdots - 18764u + 1889$
c_{10}	$u^{72} + 39u^{71} + \cdots - 2u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{72} - 19y^{71} + \cdots - 20y + 1$
c_2, c_7	$y^{72} + 41y^{71} + \cdots - 10y^2 + 1$
c_3, c_4, c_8	$y^{72} - 79y^{71} + \cdots - 10740y + 289$
c_5, c_{11}	$y^{72} - 39y^{71} + \cdots - 2y^2 + 1$
c_6, c_{12}	$y^{72} + 61y^{71} + \cdots - 624y + 9$
c_9	$y^{72} - 31y^{71} + \cdots - 2222228y + 3568321$
c_{10}	$y^{72} - 11y^{71} + \cdots - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.439849+0.927313I$	$0.59296-2.15388I$	$0.+3.34635I$
$u=-0.439849-0.927313I$	$0.59296+2.15388I$	$0.-3.34635I$
$u=\ \ 0.127748+0.947194I$	$-2.02452-1.35976I$	$-10.77685+3.46053I$
$u=\ \ 0.127748-0.947194I$	$-2.02452+1.35976I$	$-10.77685-3.46053I$
$u=-0.351185+0.866043I$	$-0.38120-1.62589I$	$-2.66925+4.11942I$
$u=-0.351185-0.866043I$	$-0.38120+1.62589I$	$-2.66925-4.11942I$
$u=\ \ 0.461087+0.962460I$	$0.08467+6.28501I$	0
$u=\ \ 0.461087-0.962460I$	$0.08467-6.28501I$	0
$u=\ \ 0.344819+1.019280I$	$-3.62015+2.92141I$	0
$u=\ \ 0.344819-1.019280I$	$-3.62015-2.92141I$	0
$u=\ \ 0.206282+1.082360I$	$-4.82312-0.17742I$	0
$u=\ \ 0.206282-1.082360I$	$-4.82312+0.17742I$	0
$u=\ \ 0.456210+0.765907I$	$-3.17229-2.09595I$	$-5.70344-0.42832I$
$u=\ \ 0.456210-0.765907I$	$-3.17229+2.09595I$	$-5.70344+0.42832I$
$u=-0.189472+1.099100I$	$-8.15714+4.74025I$	0
$u=-0.189472-1.099100I$	$-8.15714-4.74025I$	0
$u=\ \ 0.882022+0.044279I$	$-11.98020-0.80891I$	$-10.79930-0.35413I$
$u=\ \ 0.882022-0.044279I$	$-11.98020+0.80891I$	$-10.79930+0.35413I$
$u=\ \ 0.879727+0.056445I$	$-11.1703-9.8634I$	$-9.53343+5.93137I$
$u=\ \ 0.879727-0.056445I$	$-11.1703+9.8634I$	$-9.53343-5.93137I$
$u=-0.875707+0.050791I$	$-7.91972+4.99528I$	$-6.55693-2.82964I$
$u=-0.875707-0.050791I$	$-7.91972-4.99528I$	$-6.55693+2.82964I$
$u=-0.225561+1.101690I$	$-8.49214-4.06217I$	0
$u=-0.225561-1.101690I$	$-8.49214+4.06217I$	0
$u=\ \ 0.474807+1.020050I$	$-2.88869+6.40679I$	0
$u=\ \ 0.474807-1.020050I$	$-2.88869-6.40679I$	0
$u=-0.489288+1.023920I$	$-5.98929-11.10170I$	0
$u=-0.489288-1.023920I$	$-5.98929+11.10170I$	0
$u=-0.862003$	-7.62273	-11.5620
$u=-0.467805+1.041330I$	$-6.73822-2.46906I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.467805-1.041330I$	$-6.73822+2.46906I$	0
$u=-0.838828+0.044532I$	$-3.98379+5.00843I$	$-5.49188-6.00077I$
$u=-0.838828-0.044532I$	$-3.98379-5.00843I$	$-5.49188+6.00077I$
$u=\ \ 0.474990+0.690912I$	$-2.96171+6.03372I$	$-4.87395-7.35313I$
$u=\ \ 0.474990-0.690912I$	$-2.96171-6.03372I$	$-4.87395+7.35313I$
$u=\ \ 0.825126+0.022311I$	$-2.88998-0.66859I$	$-2.98851-0.14329I$
$u=\ \ 0.825126-0.022311I$	$-2.88998+0.66859I$	$-2.98851+0.14329I$
$u=-0.413409+0.683683I$	$0.00742-1.75216I$	$-1.16689+4.43589I$
$u=-0.413409-0.683683I$	$0.00742+1.75216I$	$-1.16689-4.43589I$
$u=\ \ 0.450918+1.227690I$	$-6.60070+3.85865I$	0
$u=\ \ 0.450918-1.227690I$	$-6.60070-3.85865I$	0
$u=-0.438765+1.234300I$	$-7.81587+0.51539I$	0
$u=-0.438765-1.234300I$	$-7.81587-0.51539I$	0
$u=\ \ 0.470711+1.225250I$	$-6.45782+5.32632I$	0
$u=\ \ 0.470711-1.225250I$	$-6.45782-5.32632I$	0
$u=-0.442364+0.520924I$	$1.71123-1.63055I$	$1.63060+4.27651I$
$u=-0.442364-0.520924I$	$1.71123+1.63055I$	$1.63060-4.27651I$
$u=-0.481138+1.227880I$	$-7.51183-9.76537I$	0
$u=-0.481138-1.227880I$	$-7.51183+9.76537I$	0
$u=-0.590261+0.336282I$	$-4.08423+6.85269I$	$-6.08983-5.98107I$
$u=-0.590261-0.336282I$	$-4.08423-6.85269I$	$-6.08983+5.98107I$
$u=-0.463776+1.244240I$	$-11.37070-4.72051I$	0
$u=-0.463776-1.244240I$	$-11.37070+4.72051I$	0
$u=-0.436607+1.257510I$	$-11.90830+0.38192I$	0
$u=-0.436607-1.257510I$	$-11.90830-0.38192I$	0
$u=\ \ 0.433445+1.260510I$	$-15.1956-5.2532I$	0
$u=\ \ 0.433445-1.260510I$	$-15.1956+5.2532I$	0
$u=\ \ 0.441141+1.260650I$	$-15.9636+3.8514I$	0
$u=\ \ 0.441141-1.260650I$	$-15.9636-3.8514I$	0
$u=-0.490825+1.242560I$	$-11.5116-9.9029I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.490825-1.242560I$	$-11.5116+9.9029I$	0
$u=\ \ 0.494249+1.243290I$	$-14.7502+14.8001I$	0
$u=\ \ 0.494249-1.243290I$	$-14.7502-14.8001I$	0
$u=\ \ 0.488923+1.246820I$	$-15.6129+5.7245I$	0
$u=\ \ 0.488923-1.246820I$	$-15.6129-5.7245I$	0
$u=\ \ 0.477316+0.439878I$	$1.50816-2.35510I$	$0.54892+4.70586I$
$u=\ \ 0.477316-0.439878I$	$1.50816+2.35510I$	$0.54892-4.70586I$
$u=-0.586128+0.275072I$	$-4.62644-1.65735I$	$-7.50243+0.63837I$
$u=-0.586128-0.275072I$	$-4.62644+1.65735I$	$-7.50243-0.63837I$
$u=\ \ 0.556736+0.320665I$	$-0.97920-2.29313I$	$-2.83779+3.07654I$
$u=\ \ 0.556736-0.320665I$	$-0.97920+2.29313I$	$-2.83779-3.07654I$
$u=\ \ 0.411425$	-1.15550	-8.76440

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{72} + 41u^{71} + \cdots - 10u^2 + 1$
c_2, c_7	$u^{72} + u^{71} + \cdots - 2u - 1$
c_3, c_4, c_8	$u^{72} - u^{71} + \cdots + 42u - 17$
c_5, c_{11}	$u^{72} - u^{71} + \cdots + 2u^3 - 1$
c_6, c_{12}	$u^{72} - 3u^{71} + \cdots - 18u + 3$
c_9	$u^{72} - 11u^{71} + \cdots - 18764u + 1889$
c_{10}	$u^{72} + 39u^{71} + \cdots - 2u^2 + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{72} - 19y^{71} + \cdots - 20y + 1$
c_2, c_7	$y^{72} + 41y^{71} + \cdots - 10y^2 + 1$
c_3, c_4, c_8	$y^{72} - 79y^{71} + \cdots - 10740y + 289$
c_5, c_{11}	$y^{72} - 39y^{71} + \cdots - 2y^2 + 1$
c_6, c_{12}	$y^{72} + 61y^{71} + \cdots - 624y + 9$
c_9	$y^{72} - 31y^{71} + \cdots - 2222228y + 3568321$
c_{10}	$y^{72} - 11y^{71} + \cdots - 4y + 1$