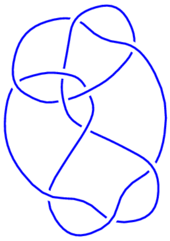
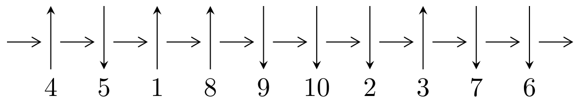
10_{86} $(K10a_{84})$



[1]

Arc Sequences



Solving Sequence

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

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{42} - u^{41} + \cdots - 7u + 1,\ -2.05671 \times 10^{41} u^{41} + 3.97001 \times 10^{41} u^{40} + \cdots + 4.30354 \times 10^{41} b + 7.60817 \times 10^{4}$$
$$6.07646 \times 10^{41} u^{41} - 4.12878 \times 10^{41} u^{40} + \cdots + 4.30354 \times 10^{41} a - 1.60045 \times 10^{42} \rangle$$

There are 1 irreducible components with 42 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I^u_1 =$
$\langle u^{42} - u^{41} + \cdots - 7u + 1,\ -2.06 \times 10^{41} u^{41} + 3.97 \times 10^{41} u^{40} + \cdots + 4.30 \times 10^{41} b + 7.61 \times 10^{41},\ 6.08 \times 10^{41} u^{41} - 4.13 \times 10^{41} u^{40} + \cdots + 4.30 \times 10^{41} a - 1.60 \times 10^{42} \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.41197u^{41} + 0.959391u^{40} + \cdots - 14.4410u + 3.71891 \\ 0.477911u^{41} - 0.922498u^{40} + \cdots + 7.06562u - 1.76789 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2.77158u^{41} - 1.08312u^{40} + \cdots + 21.9413u - 1.18768 \\ -1.68846u^{41} + 1.05493u^{40} + \cdots - 18.2134u + 2.77158 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.50241u^{41} + 0.238159u^{40} + \cdots - 19.7871u + 4.61607 \\ 0.568358u^{41} - 0.201265u^{40} + \cdots + 12.4117u - 2.66505 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.316625u^{41} + 0.131924u^{40} + \cdots + 3.50667u - 1.53464 \\ -0.0808274u^{41} + 0.166917u^{40} + \cdots + 4.55944u - 0.340005 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1.12680u^{41} - 0.158855u^{40} + \cdots - 9.13149u + 2.40360 \\ 0.697664u^{41} - 0.349754u^{40} + \cdots + 13.1824u - 2.60097 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.903189u^{41} + 0.114572u^{40} + \cdots - 0.190721u + 1.34698 \\ 0.763641u^{41} - 0.575919u^{40} + \cdots + 7.42279u - 0.907491 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.20010u^{41} + 2.57440u^{40} + \cdots + 33.9644u - 10.1116$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.59021 - 0.31938I$ $a = \quad 0.494704 - 0.027397I$ $b = -1.219799 + 0.002831I$	$7.73393 - 1.79873I$	$8.47510 + 0.83291I$
$u = -1.59021 + 0.31938I$ $a = \quad 0.494704 + 0.027397I$ $b = -1.219799 - 0.002831I$	$7.73393 + 1.79873I$	$8.47510 - 0.83291I$
$u = -1.35692 - 0.75103I$ $a = -0.539577 + 0.095105I$ $b = \quad 0.993876 + 0.040628I$	$6.95368 + 5.70185I$	$6.61456 - 6.99288I$
$u = -1.35692 + 0.75103I$ $a = -0.539577 - 0.095105I$ $b = \quad 0.993876 - 0.040628I$	$6.95368 - 5.70185I$	$6.61456 + 6.99288I$
$u = -1.282224 - 0.233589I$ $a = -0.518200 - 0.006322I$ $b = \quad 1.266500 - 0.152690I$	$2.66792 + 0.25713I$	$4.13768 + 2.68186I$
$u = -1.282224 + 0.233589I$ $a = -0.518200 + 0.006322I$ $b = \quad 1.266500 + 0.152690I$	$2.66792 - 0.25713I$	$4.13768 - 2.68186I$
$u = -1.185909 - 0.634079I$ $a = \quad 0.583752 - 0.068870I$ $b = -0.953593 + 0.089142I$	$1.89435 + 2.76342I$	$1.45970 - 7.65568I$
$u = -1.185909 + 0.634079I$ $a = \quad 0.583752 + 0.068870I$ $b = -0.953593 - 0.089142I$	$1.89435 - 2.76342I$	$1.45970 + 7.65568I$
$u = -1.062262 - 0.112148I$ $a = -0.082033 + 0.467990I$ $b = \quad 0.22377 + 2.56103I$	$4.98903 + 3.19900I$	$-8.91732 + 10.84472I$
$u = -1.062262 + 0.112148I$ $a = -0.082033 - 0.467990I$ $b = \quad 0.22377 - 2.56103I$	$4.98903 - 3.19900I$	$-8.91732 - 10.84472I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.950829 - 0.083249I$ $a = 0.212446 - 0.439888I$ $b = -0.65164 - 2.24393I$	$0.484443 + 0.387619I$	$2.4374 + 16.9357I$
$u = -0.950829 + 0.083249I$ $a = 0.212446 + 0.439888I$ $b = -0.65164 + 2.24393I$	$0.484443 - 0.387619I$	$2.4374 - 16.9357I$
$u = -0.696421 - 0.165470I$ $a = -0.383908 + 0.772203I$ $b = 0.12109 + 1.51260I$	$4.17623 - 2.06372I$	$3.58768 + 6.20553I$
$u = -0.696421 + 0.165470I$ $a = -0.383908 - 0.772203I$ $b = 0.12109 - 1.51260I$	$4.17623 + 2.06372I$	$3.58768 - 6.20553I$
$u = -0.583240 - 0.870509I$ $a = -0.773504 + 0.288256I$ $b = 0.433101 - 0.082185I$	$4.85107 + 1.20148I$	$3.68187 - 4.16647I$
$u = -0.583240 + 0.870509I$ $a = -0.773504 - 0.288256I$ $b = 0.433101 + 0.082185I$	$4.85107 - 1.20148I$	$3.68187 + 4.16647I$
$u = 0.042429 - 1.203731I$ $a = 0.573665 - 0.663785I$ $b = 0.029372 - 0.143689I$	$2.08911 + 8.16087I$	$-0.05294 - 7.65229I$
$u = 0.042429 + 1.203731I$ $a = 0.573665 + 0.663785I$ $b = 0.029372 + 0.143689I$	$2.08911 - 8.16087I$	$-0.05294 + 7.65229I$
$u = 0.094153 - 0.465611I$ $a = 1.31474 - 1.25366I$ $b = 0.061549 + 0.350317I$	$-0.258833 + 1.342433I$	$-2.96321 - 4.26706I$
$u = 0.094153 + 0.465611I$ $a = 1.31474 + 1.25366I$ $b = 0.061549 - 0.350317I$	$-0.258833 - 1.342433I$	$-2.96321 + 4.26706I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.099277 - 0.336973I$ $a = -1.59764 - 1.64287I$ $b = 1.016440 - 0.688102I$	$2.51211 + 3.57467I$	$-1.00642 - 1.46864I$
$u = 0.099277 + 0.336973I$ $a = -1.59764 + 1.64287I$ $b = 1.016440 + 0.688102I$	$2.51211 - 3.57467I$	$-1.00642 + 1.46864I$
$u = 0.124458 - 1.072262I$ $a = -0.610767 + 0.756041I$ $b = -0.0880951 + 0.0513554I$	$-2.84345 + 4.53919I$	$-5.58452 - 6.45237I$
$u = 0.124458 + 1.072262I$ $a = -0.610767 - 0.756041I$ $b = -0.0880951 - 0.0513554I$	$-2.84345 - 4.53919I$	$-5.58452 + 6.45237I$
$u = 0.268719$ $a = 3.07501$ $b = -1.15152$	-1.70188	-6.91452
$u = 0.294655 - 0.824886I$ $a = 0.642977 - 1.018477I$ $b = 0.207458 + 0.128430I$	$-0.411802 + 1.015422I$	$-3.47498 - 1.21296I$
$u = 0.294655 + 0.824886I$ $a = 0.642977 + 1.018477I$ $b = 0.207458 - 0.128430I$	$-0.411802 - 1.015422I$	$-3.47498 + 1.21296I$
$u = 0.707864$ $a = 2.01491$ $b = -1.92258$	-1.60575	-10.6726
$u = 0.858629 - 0.224884I$ $a = 0.16082 + 1.77453I$ $b = -0.587804 - 0.928556I$	$-0.84767 - 2.24209I$	$-7.43868 + 8.38261I$
$u = 0.858629 + 0.224884I$ $a = 0.16082 - 1.77453I$ $b = -0.587804 + 0.928556I$	$-0.84767 + 2.24209I$	$-7.43868 - 8.38261I$

Solution to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.936177 - 0.313071I$ $a = -1.57375 + 0.22251I$ $b = 2.02662 - 0.61292I$	$1.66550 - 4.60168I$	$-2.07825 + 9.10658I$
$u = 0.936177 + 0.313071I$ $a = -1.57375 - 0.22251I$ $b = 2.02662 + 0.61292I$	$1.66550 + 4.60168I$	$-2.07825 - 9.10658I$
$u = 1.075364 - 0.267682I$ $a = -0.46838 - 1.46015I$ $b = 1.093724 + 0.823856I$	$5.06478 - 6.18924I$	$2.34203 + 9.11051I$
$u = 1.075364 + 0.267682I$ $a = -0.46838 + 1.46015I$ $b = 1.093724 - 0.823856I$	$5.06478 + 6.18924I$	$2.34203 - 9.11051I$
$u = 1.220785 - 0.479473I$ $a = -1.131698 + 0.316933I$ $b = 2.04897 - 0.70006I$	$2.62044 - 5.77796I$	$0.70723 + 3.77194I$
$u = 1.220785 + 0.479473I$ $a = -1.131698 - 0.316933I$ $b = 2.04897 + 0.70006I$	$2.62044 + 5.77796I$	$0.70723 - 3.77194I$
$u = 1.298635 - 0.557134I$ $a = 1.033866 - 0.287477I$ $b = -2.08028 + 0.69968I$	$0.84307 - 10.28746I$	$-1.70761 + 7.71466I$
$u = 1.298635 + 0.557134I$ $a = 1.033866 + 0.287477I$ $b = -2.08028 - 0.69968I$	$0.84307 + 10.28746I$	$-1.70761 - 7.71466I$
$u = 1.310130 - 0.290272I$ $a = 1.096911 - 0.550360I$ $b = -2.00565 + 0.67403I$	$10.43310 - 4.60033I$	$6.21445 + 4.58319I$
$u = 1.310130 + 0.290272I$ $a = 1.096911 + 0.550360I$ $b = -2.00565 - 0.67403I$	$10.43310 + 4.60033I$	$6.21445 - 4.58319I$

Solution to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.36503 - 0.57666I$ $a = -0.979383 + 0.296305I$ $b = 2.10145 - 0.68623I$	$6.2544 - 14.3413I$	$2.35976 + 8.28932I$
$u = 1.36503 + 0.57666I$ $a = -0.979383 - 0.296305I$ $b = 2.10145 + 0.68623I$	$6.2544 + 14.3413I$	$2.35976 - 8.28932I$

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_3	$(u^{42} + u^{41} + \cdots + 7u + 1)$
c_2	$(u^{42} + 7u^{41} + \cdots + u + 1)$
c_4	$(u^{42} + 3u^{41} + \cdots + u + 1)$
c_5	$(u^{42} + u^{41} + \cdots + 37u + 17)$
c_6, c_9, c_{10}	$(u^{42} + u^{41} + \cdots + 3u + 1)$
c_7	$(u^{42} + u^{41} + \cdots + 10u + 4)$
c_8	$(u^{42} + u^{41} + \cdots + 21u + 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_3	$(y^{42} - 27y^{41} + \cdots - 7y + 1)$
c_2	$(y^{42} - 3y^{41} + \cdots - 7y + 1)$
c_4	$(y^{42} - 7y^{41} + \cdots - 3y + 1)$
c_5	$(y^{42} - 7y^{41} + \cdots - 1539y + 289)$
c_6, c_9, c_{10}	$(y^{42} + 37y^{41} + \cdots - 3y + 1)$
c_7	$(y^{42} + 41y^{41} + \cdots + 308y + 16)$
c_8	$(y^{42} + 33y^{41} + \cdots - 247y + 1)$