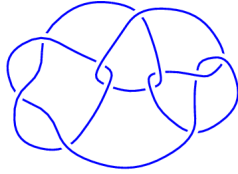
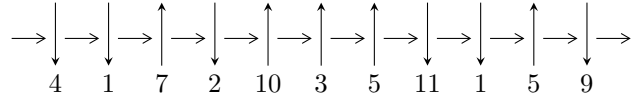


11n<sub>24</sub> (K11n<sub>24</sub>)

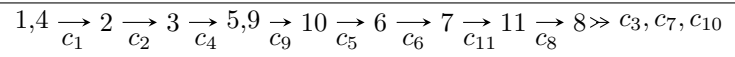


1

**Arc Sequences**



**Solving Sequence**



**Representation Ideals**

$$I = \bigcap_{i=1}^2 I_i^u$$

$$I_1^u = \langle u^6 + u^5 - u^4 - 2u^3 + u + 1, b + 1, -u^4 - u^3 + a + u + 1 \rangle$$

$$I_2^u = \langle u^{17} - 2u^{16} + \dots + u + 1, -44u^{16} - 153u^{15} + \dots + 4229b + 2570, \\ -15u^{16} - 2455u^{15} + \dots + 4229a - 4314 \rangle$$

There are 2 irreducible components with 23 representations.

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<sup>1</sup>The knot diagram image is adapter from “C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, <http://www.indiana.edu/~knotinfo>”

$$\text{I. } I_1^u = \langle u^6 + u^5 - u^4 - 2u^3 + u + 1, b + 1, -u^4 - u^3 + a + u + 1 \rangle$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^4 + u^3 - u - 1 \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^4 + u^3 - u \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^4 + u^2 - 1 \\ u^5 + u^4 - 2u^3 - u^2 + u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^4 + u^3 - u \\ -1 \end{pmatrix}$$

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

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

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.073950 - 0.558752I$ $a = -0.891622 + 0.818891I$ $b = -1.00000$	$-1.64493 - 5.69302I$	$-3.10838 + 7.09196I$
$u = -1.073950 + 0.558752I$ $a = -0.891622 - 0.818891I$ $b = -1.00000$	$-1.64493 + 5.69302I$	$-3.10838 - 7.09196I$
$u = -0.428243 - 0.664531I$ $a = -0.340228 + 0.298454I$ $b = -1.00000$	$0.245672 + 0.924305I$	$-1.11831 - 1.11590I$
$u = -0.428243 + 0.664531I$ $a = -0.340228 - 0.298454I$ $b = -1.00000$	$0.245672 - 0.924305I$	$-1.11831 + 1.11590I$
$u = 1.002193 - 0.295542I$ $a = -0.76815 - 1.65564I$ $b = -1.00000$	$-3.53554 + 0.92430I$	$-5.77331 + 0.83820I$
$u = 1.002193 + 0.295542I$ $a = -0.76815 + 1.65564I$ $b = -1.00000$	$-3.53554 - 0.92430I$	$-5.77331 - 0.83820I$

$$\text{II. } I_2^u = \langle u^{17} - 2u^{16} + \dots + u + 1, -44u^{16} - 153u^{15} + \dots + 4229b + 2570, -15u^{16} - 2455u^{15} + \dots + 4229a - 4314 \rangle$$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.00354694u^{16} + 0.580515u^{15} + \dots - 1.76046u + 1.02010 \\ 0.0104044u^{16} + 0.0361788u^{15} + \dots + 1.16931u - 0.607709 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.00685741u^{16} + 0.544337u^{15} + \dots - 2.92977u + 1.62781 \\ 0.0104044u^{16} + 0.0361788u^{15} + \dots + 1.16931u - 0.607709 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0300307u^{16} - 0.581698u^{15} + \dots + 3.23859u + 0.163159 \\ 0.301490u^{16} + 0.343817u^{15} + \dots - 0.639395u - 0.291558 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0134784u^{16} - 0.205959u^{15} + \dots + 2.68976u - 0.0763774 \\ 0.0520218u^{16} + 0.180894u^{15} + \dots - 0.153464u - 0.0385434 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0245921u^{16} + 0.641759u^{15} + \dots - 3.12745u + 1.52731 \\ -0.0416174u^{16} - 0.144715u^{15} + \dots + 1.32277u - 0.569165 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.933318u^{16} - 0.913691u^{15} + \dots + 2.09671u - 0.377867 \\ 0.895956u^{16} - 0.361788u^{15} + \dots - 1.69307u - 0.922913 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.933318u^{16} - 0.913691u^{15} + \dots + 2.09671u - 0.377867 \\ 0.895956u^{16} - 0.361788u^{15} + \dots - 1.69307u - 0.922913 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.38223 - 0.54918I$ $a = 1.50860 - 1.17337I$ $b = 2.09111 + 0.05760I$	$-18.3031 - 1.7986I$	$-5.37966 + 0.73401I$
$u = -1.38223 + 0.54918I$ $a = 1.50860 + 1.17337I$ $b = 2.09111 - 0.05760I$	$-18.3031 + 1.7986I$	$-5.37966 - 0.73401I$
$u = -1.11899$ $a = -3.55652$ $b = -1.14890$	$-3.74765$	$10.6759$
$u = -0.977894 - 0.194640I$ $a = 0.644273 + 0.271764I$ $b = -0.074423 - 0.157594I$	$-1.75571 - 0.69092I$	$-4.20927 - 0.03881I$
$u = -0.977894 + 0.194640I$ $a = 0.644273 - 0.271764I$ $b = -0.074423 + 0.157594I$	$-1.75571 + 0.69092I$	$-4.20927 + 0.03881I$
$u = -0.225548 - 0.312459I$ $a = 1.92533 + 0.42540I$ $b = -1.028559 - 0.314868I$	$-1.91105 - 0.93427I$	$-3.47646 + 1.18545I$
$u = -0.225548 + 0.312459I$ $a = 1.92533 - 0.42540I$ $b = -1.028559 + 0.314868I$	$-1.91105 + 0.93427I$	$-3.47646 - 1.18545I$
$u = -0.007198 - 1.101267I$ $a = 0.0948459 - 0.0860640I$ $b = 2.00423 + 0.17609I$	$-14.0076 - 4.0781I$	$-2.81048 + 2.03189I$
$u = -0.007198 + 1.101267I$ $a = 0.0948459 + 0.0860640I$ $b = 2.00423 - 0.17609I$	$-14.0076 + 4.0781I$	$-2.81048 - 2.03189I$
$u = 0.397422 - 0.534657I$ $a = 0.841166 + 0.259861I$ $b = 0.289585 - 0.225601I$	$1.46199 - 0.53067I$	$6.34861 + 0.44801I$

Solution to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.397422 + 0.534657I$		
$a = 0.841166 - 0.259861I$	$1.46199 + 0.53067I$	$6.34861 - 0.44801I$
$b = 0.289585 + 0.225601I$		
$u = 1.094409 - 0.448256I$		
$a = 0.297387 + 0.400102I$	$-0.57451 + 4.58866I$	$-0.38155 - 5.05474I$
$b = 0.394810 + 0.688088I$		
$u = 1.094409 + 0.448256I$		
$a = 0.297387 - 0.400102I$	$-0.57451 - 4.58866I$	$-0.38155 + 5.05474I$
$b = 0.394810 - 0.688088I$		
$u = 1.279611 - 0.127778I$		
$a = -1.75394 + 0.15484I$	$-6.36531 + 2.55518I$	$-9.15621 - 3.45666I$
$b = -1.65978 + 0.99674I$		
$u = 1.279611 + 0.127778I$		
$a = -1.75394 - 0.15484I$	$-6.36531 - 2.55518I$	$-9.15621 + 3.45666I$
$b = -1.65978 - 0.99674I$		
$u = 1.38093 - 0.53931I$		
$a = 1.72060 + 1.08326I$	$-18.3559 + 9.9055I$	$-5.27294 - 4.68483I$
$b = 2.05747 - 0.40594I$		
$u = 1.38093 + 0.53931I$		
$a = 1.72060 - 1.08326I$	$-18.3559 - 9.9055I$	$-5.27294 + 4.68483I$
$b = 2.05747 + 0.40594I$		

### III. u-Polynomials

Crossings	u-Polynomials at each crossings
$c_1, c_4$	$(u^6 - u^5 + \dots - u + 1)(u^{17} + 2u^{16} + \dots + u - 1)$
$c_2$	$(u^6 + 3u^5 + \dots + u + 1)(u^{17} + 12u^{16} + \dots - u + 1)$
$c_3, c_6$	$(u^6 + u^5 + \dots + u + 1)(u^{17} + 2u^{16} + \dots + u + 1)$
$c_5, c_{10}$	$u^6(u^{17} + 3u^{16} + \dots + 128u - 64)$
$c_7$	$(u^6 - 3u^5 + \dots - u + 1)(u^{17} + 6u^{16} + \dots + 3897u + 1609)$
$c_8, c_9, c_{11}$	$(u - 1)^6(u^{17} + 7u^{16} + \dots - 18u^2 - 1)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
$c_1, c_4$	$(y^6 - 3y^5 + \dots - y + 1)(y^{17} - 12y^{16} + \dots - y - 1)$
$c_2$	$(y^6 + y^5 + \dots + 3y + 1)(y^{17} - 12y^{16} + \dots - 77y - 1)$
$c_3, c_6$	$(y^6 - 3y^5 + \dots - y + 1)(y^{17} + 18y^{15} + \dots - y - 1)$
$c_5, c_{10}$	$y^6(y^{17} + 39y^{16} + \dots + 8192y - 4096)$
$c_7$	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)$ $(y^{17} + 68y^{16} + \dots - 35776857y - 2588881)$
$c_8, c_9, c_{11}$	$(y - 1)^6(y^{17} - 31y^{16} + \dots - 36y - 1)$