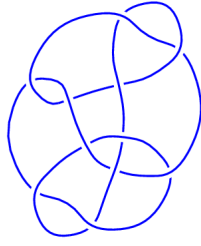
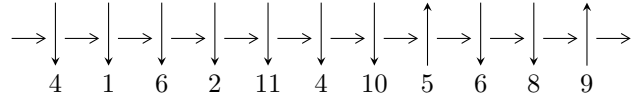


11n<sub>35</sub> (K11n<sub>35</sub>)

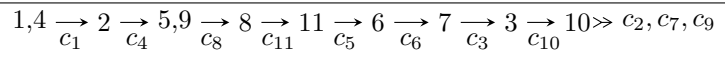


1

**Arc Sequences**



**Solving Sequence**



**Representation Ideals**

$$I = \bigcap_{i=1}^3 I_i^u$$

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

$$I_2^u = \langle u^2 + u - 1, b, a + 3u + 5 \rangle$$

$$I_3^u = \langle u^{51} + 7u^{50} + \dots - 81u^2 + 1, 2.47871 \times 10^{39}u^{50} + 1.88813 \times 10^{40}u^{49} + \dots + 2.18939 \times 10^{39}a + 1.19965 \times 10^{40} \\ 7.64232 \times 10^{39}u^{50} + 4.53219 \times 10^{40}u^{49} + \dots + 8.75756 \times 10^{39}b + 1.97436 \times 10^{40} \rangle$$

There are 3 irreducible components with 58 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>”

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

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} b^4 + 2b^2 + 2 \\ b \end{pmatrix}$$

$$a_8 = \begin{pmatrix} b^4 + 2b^2 - b + 2 \\ b \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -b^4 - b^2 + b \\ b^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -b^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ -b^4 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} b^4 + 2b^2 + 2 \\ -b^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} b^4 + 2b^2 + 2 \\ -b^4 \end{pmatrix}$$

(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
$u = 1.00000$ $a = 3.52181$ $b = -0.766826$	$-4.04602$	$-2.99735$
$u = 1.00000$ $a = -0.142272 - 0.509071I$ $b = -0.455697 - 1.200152I$	$-7.51750 + 4.40083I$	$-22.0438 - 5.2094I$
$u = 1.00000$ $a = -0.142272 + 0.509071I$ $b = -0.455697 + 1.200152I$	$-7.51750 - 4.40083I$	$-22.0438 + 5.2094I$
$u = 1.00000$ $a = 0.881366 - 0.489365I$ $b = 0.339110 - 0.822375I$	$-1.97403 - 1.53058I$	$-13.4575 + 4.4032I$
$u = 1.00000$ $a = 0.881366 + 0.489365I$ $b = 0.339110 + 0.822375I$	$-1.97403 + 1.53058I$	$-13.4575 - 4.4032I$

$$\text{II. } I_2^u = \langle u^2 + u - 1, b, a + 3u + 5 \rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ -u + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -3u - 5 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2u - 4 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1 \\ -u + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -2u - 3 \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u - 3 \\ -1 \end{pmatrix}$$

(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
$u = -1.61803$ $a = -0.145898$ $b = 0$	-10.5276	-61.0000
$u = 0.618034$ $a = -6.85410$ $b = 0$	-2.63189	-61.0000

$$\text{III. } I_3^u = \langle u^{51} + 7u^{50} + \dots - 81u^2 + 1, 2.48 \times 10^{39}u^{50} + 1.89 \times 10^{40}u^{49} + \dots + 2.19 \times 10^{39}a + 1.20 \times 10^{39}, 7.64 \times 10^{39}u^{50} + 4.53 \times 10^{40}u^{49} + \dots + 8.76 \times 10^{39}b + 1.97 \times 10^{40} \rangle$$

(i) Arc colorings

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

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

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

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

$$a_9 = \begin{pmatrix} -1.13215u^{50} - 8.62401u^{49} + \dots + 75.3242u - 0.547939 \\ -0.872654u^{50} - 5.17518u^{49} + \dots + 5.03419u - 2.25447 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.36430u^{50} - 9.37394u^{49} + \dots + 72.3435u + 0.0541095 \\ -2.27233u^{50} - 13.7744u^{49} + \dots + 8.24704u - 3.73165 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2.21621u^{50} - 14.3423u^{49} + \dots + 4.63645u - 11.0109 \\ 0.0694094u^{50} - 0.202698u^{49} + \dots + 9.54759u - 1.43747 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.109838u^{50} + 0.455800u^{49} + \dots - 35.3698u + 2.83830 \\ 2.10336u^{50} + 11.3955u^{49} + \dots - 4.83182u + 1.99352 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.109838u^{50} + 0.455800u^{49} + \dots - 35.3698u + 2.83830 \\ 1.41865u^{50} + 6.00756u^{49} + \dots - 4.72198u + 0.768857 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -2.02006u^{50} - 13.1436u^{49} + \dots + 56.6295u - 3.02939 \\ -3.40837u^{50} - 22.0852u^{49} + \dots + 10.9393u - 5.67809 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.02006u^{50} - 13.1436u^{49} + \dots + 56.6295u - 3.02939 \\ -3.40837u^{50} - 22.0852u^{49} + \dots + 10.9393u - 5.67809 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.64237$ $a = 0.00866580$ $b = -0.265959$	-10.4502	42.5646
$u = -1.227371 - 0.667999I$ $a = -0.663202 - 0.675600I$ $b = 0.918945 - 0.630687I$	$1.87901 - 7.98783I$	$-8.12954 + 7.19035I$
$u = -1.227371 + 0.667999I$ $a = -0.663202 + 0.675600I$ $b = 0.918945 + 0.630687I$	$1.87901 + 7.98783I$	$-8.12954 - 7.19035I$
$u = -1.213469 - 0.718395I$ $a = 1.34702 + 0.86109I$ $b = -1.31215 + 1.04774I$	$0.8642 - 15.7945I$	$-8.70527 + 8.85601I$
$u = -1.213469 + 0.718395I$ $a = 1.34702 - 0.86109I$ $b = -1.31215 - 1.04774I$	$0.8642 + 15.7945I$	$-8.70527 - 8.85601I$
$u = -1.086370 - 0.734156I$ $a = -1.44695 - 0.84504I$ $b = 1.53144 - 1.12477I$	$4.63878 - 8.97661I$	$-6.03126 + 7.51919I$
$u = -1.086370 + 0.734156I$ $a = -1.44695 + 0.84504I$ $b = 1.53144 + 1.12477I$	$4.63878 + 8.97661I$	$-6.03126 - 7.51919I$
$u = -1.035773 - 0.809017I$ $a = 0.932196 + 0.624404I$ $b = -0.826302 + 0.379791I$	$4.27954 - 3.84215I$	$-4.79842 + 0.74687I$
$u = -1.035773 + 0.809017I$ $a = 0.932196 - 0.624404I$ $b = -0.826302 - 0.379791I$	$4.27954 + 3.84215I$	$-4.79842 - 0.74687I$
$u = -0.993259 - 0.639230I$ $a = -0.579456 + 0.533405I$ $b = -0.83461 - 1.79554I$	$-0.91339 - 6.46505I$	$-11.09691 + 8.15111I$

Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.993259 + 0.639230I$ $a = -0.579456 - 0.533405I$ $b = -0.83461 + 1.79554I$	$-0.91339 + 6.46505I$	$-11.09691 - 8.15111I$
$u = -0.923670 - 0.689242I$ $a = -0.789827 + 1.033602I$ $b = 0.495586 + 0.521010I$	$1.01385 - 3.52246I$	$-1.47352 - 5.19905I$
$u = -0.923670 + 0.689242I$ $a = -0.789827 - 1.033602I$ $b = 0.495586 - 0.521010I$	$1.01385 + 3.52246I$	$-1.47352 + 5.19905I$
$u = -0.872616 - 0.581002I$ $a = 1.29175 + 1.14812I$ $b = -1.88392 + 0.37218I$	$-2.26568 - 2.29719I$	$-12.40272 + 3.03914I$
$u = -0.872616 + 0.581002I$ $a = 1.29175 - 1.14812I$ $b = -1.88392 - 0.37218I$	$-2.26568 + 2.29719I$	$-12.40272 - 3.03914I$
$u = -0.834183 - 0.022964I$ $a = -0.240873 - 0.744504I$ $b = -0.447898 - 1.297843I$	$-7.16136 + 4.34566I$	$0.37647 - 1.57270I$
$u = -0.834183 + 0.022964I$ $a = -0.240873 + 0.744504I$ $b = -0.447898 + 1.297843I$	$-7.16136 - 4.34566I$	$0.37647 + 1.57270I$
$u = -0.788139 - 0.707702I$ $a = -0.54082 - 1.43941I$ $b = 0.259903 - 0.709097I$	$1.43007 - 1.84298I$	$-5.28738 + 8.98031I$
$u = -0.788139 + 0.707702I$ $a = -0.54082 + 1.43941I$ $b = 0.259903 + 0.709097I$	$1.43007 + 1.84298I$	$-5.28738 - 8.98031I$
$u = -0.719478 - 1.003154I$ $a = 0.872802 + 0.173176I$ $b = -1.015781 - 0.052361I$	$5.28316 - 2.70789I$	$-3.72797 + 4.62977I$



Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.719478 + 1.003154I$ $a = 0.872802 - 0.173176I$ $b = -1.015781 + 0.052361I$	$5.28316 + 2.70789I$	$-3.72797 - 4.62977I$
$u = -0.665417 - 0.633317I$ $a = 1.341349 + 0.037908I$ $b = -0.20863 + 1.70015I$	$0.08535 + 1.42859I$	$-8.20291 - 2.86015I$
$u = -0.665417 + 0.633317I$ $a = 1.341349 - 0.037908I$ $b = -0.20863 - 1.70015I$	$0.08535 - 1.42859I$	$-8.20291 + 2.86015I$
$u = -0.603362 - 0.919845I$ $a = -0.955773 - 0.890743I$ $b = 1.53585 + 0.75787I$	$6.12236 + 2.89222I$	$-3.53220 - 2.32311I$
$u = -0.603362 + 0.919845I$ $a = -0.955773 + 0.890743I$ $b = 1.53585 - 0.75787I$	$6.12236 - 2.89222I$	$-3.53220 + 2.32311I$
$u = -0.437529 - 1.071434I$ $a = 1.073637 + 0.605444I$ $b = -1.30783 - 0.82877I$	$3.27749 + 9.36362I$	$-6.17125 - 5.41405I$
$u = -0.437529 + 1.071434I$ $a = 1.073637 - 0.605444I$ $b = -1.30783 + 0.82877I$	$3.27749 - 9.36362I$	$-6.17125 + 5.41405I$
$u = -0.359247 - 0.982542I$ $a = -0.744457 - 0.170926I$ $b = 1.095466 + 0.271570I$	$4.54085 + 1.95941I$	$-3.52747 - 2.51429I$
$u = -0.359247 + 0.982542I$ $a = -0.744457 + 0.170926I$ $b = 1.095466 - 0.271570I$	$4.54085 - 1.95941I$	$-3.52747 + 2.51429I$
$u = -0.218706 - 0.056088I$ $a = 2.35076 + 2.94041I$ $b = 0.149528 + 0.895127I$	$-0.61038 + 1.48999I$	$-4.46560 - 4.54978I$

Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.218706 + 0.056088I$ $a = 2.35076 - 2.94041I$ $b = 0.149528 - 0.895127I$	$-0.61038 - 1.48999I$	$-4.46560 + 4.54978I$
$u = 0.0948151$ $a = 11.7096$ $b = -0.594393$	$-2.29513$	$-1.15087$
$u = 0.650449$ $a = 1.17006$ $b = -0.110617$	$-1.00288$	$-10.0668$
$u = 0.709519 - 0.862840I$ $a = 0.751349 - 0.774960I$ $b = -0.855985 + 0.416787I$	$-1.46329 - 2.48395I$	$-7.42637 + 4.33344I$
$u = 0.709519 + 0.862840I$ $a = 0.751349 + 0.774960I$ $b = -0.855985 - 0.416787I$	$-1.46329 + 2.48395I$	$-7.42637 - 4.33344I$
$u = 0.742417 - 0.124155I$ $a = 2.43511 - 6.15388I$ $b = -0.012912 - 0.273501I$	$-2.64938 + 0.11132I$	$-58.9394 - 3.8883I$
$u = 0.742417 + 0.124155I$ $a = 2.43511 + 6.15388I$ $b = -0.012912 + 0.273501I$	$-2.64938 - 0.11132I$	$-58.9394 + 3.8883I$
$u = 0.744937 - 0.557874I$ $a = -1.79438 - 0.06696I$ $b = 1.049408 + 0.670680I$	$0.62734 + 3.24727I$	$-5.87868 - 5.45997I$
$u = 0.744937 + 0.557874I$ $a = -1.79438 + 0.06696I$ $b = 1.049408 - 0.670680I$	$0.62734 - 3.24727I$	$-5.87868 + 5.45997I$
$u = 0.923570 - 0.305757I$ $a = 0.416243 - 1.068126I$ $b = -0.620880 + 0.980403I$	$-3.69039 + 2.13393I$	$-15.8264 - 4.5625I$

Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.923570 + 0.305757I$		
$a = 0.416243 + 1.068126I$	$-3.69039 - 2.13393I$	$-15.8264 + 4.5625I$
$b = -0.620880 - 0.980403I$		
$u = 0.990585 - 0.737126I$		
$a = 1.46798 - 0.33121I$	$-2.32039 + 8.39966I$	$-9.43233 - 7.03660I$
$b = -1.072347 - 0.755687I$		
$u = 0.990585 + 0.737126I$		
$a = 1.46798 + 0.33121I$	$-2.32039 - 8.39966I$	$-9.43233 + 7.03660I$
$b = -1.072347 + 0.755687I$		
$u = 1.051020 - 0.519122I$		
$a = -0.212768 + 0.967576I$	$-0.294650 + 1.061436I$	$-4.84581 - 2.42805I$
$b = 0.806427 - 0.022325I$		
$u = 1.051020 + 0.519122I$		
$a = -0.212768 - 0.967576I$	$-0.294650 - 1.061436I$	$-4.84581 + 2.42805I$
$b = 0.806427 + 0.022325I$		
$u = 1.073296 - 0.130259I$		
$a = 2.73037 - 1.97243I$	$-4.21875 - 0.45905I$	$-12.7704 + 7.0072I$
$b = -0.752137 - 0.540476I$		
$u = 1.073296 + 0.130259I$		
$a = 2.73037 + 1.97243I$	$-4.21875 + 0.45905I$	$-12.7704 - 7.0072I$
$b = -0.752137 + 0.540476I$		
$u = 1.222938 - 0.084782I$		
$a = 0.687532 + 0.411301I$	$-1.13007 + 1.28368I$	$-3.18177 - 0.90248I$
$b = 0.715736 + 0.439898I$		
$u = 1.222938 + 0.084782I$		
$a = 0.687532 - 0.411301I$	$-1.13007 - 1.28368I$	$-3.18177 + 0.90248I$
$b = 0.715736 - 0.439898I$		
$u = 1.46886 - 0.10563I$		
$a = -0.173747 + 0.050346I$	$-3.74009 - 5.32281I$	$-9.19635 + 5.98834I$
$b = -0.921422 + 0.643101I$		
Solution to $I_3^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.46886 + 0.10563I$		
$a = -0.173747 - 0.050346I$	$-3.74009 + 5.32281I$	$-9.19635 - 5.98834I$
$b = -0.921422 - 0.643101I$		

#### IV. u-Polynomials

Crossings	u-Polynomials at each crossings
$c_1$	$(u-1)^5(u^2+u-1)(u^{51}+7u^{50}+\dots-81u^2+1)$
$c_2$	$(u+1)^5(u^2+3u+1)(u^{51}+23u^{50}+\dots+162u+1)$
$c_3$	$u^5(u^2+u-1)(u^{51}+2u^{50}+\dots-96u+32)$
$c_4$	$(u+1)^5(u^2-u-1)(u^{51}+7u^{50}+\dots-81u^2+1)$
$c_5$	$(u^2+3u+1)(u^5-3u^4+\dots-u+1)(u^{51}+3u^{50}+\dots+2u+1)$
$c_6$	$u^5(u^2-u-1)(u^{51}+2u^{50}+\dots-96u+32)$
$c_7$	$(u-1)^2(u^5+u^4+\dots+u-1)(u^{51}+4u^{50}+\dots-87u-1)$
$c_8$	$(u^2+3u+1)(u^5+u^4+\dots+u+1)(u^{51}+u^{50}+\dots-4u+31)$
$c_9$	$(u^2+3u+1)(u^5-u^4+\dots+u+1)(u^{51}+5u^{50}+\dots-402u-137)$
$c_{10}$	$(u+1)^2(u^5-u^4+\dots+u+1)(u^{51}+4u^{50}+\dots-87u-1)$
$c_{11}$	$u^2(u^5+u^4+\dots+u+1)(u^{51}+8u^{50}+\dots+64u+4)$

## V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
$c_1, c_4$	$(y - 1)^5(y^2 - 3y + 1)(y^{51} - 23y^{50} + \dots + 162y - 1)$
$c_2$	$(y - 1)^5(y^2 - 7y + 1)(y^{51} + 17y^{50} + \dots + 12790y - 1)$
$c_3, c_6$	$y^5(y^2 - 3y + 1)(y^{51} + 30y^{50} + \dots - 8704y - 1024)$
$c_5$	$(y^2 - 7y + 1)(y^5 - y^4 + \dots + 3y - 1)(y^{51} - 15y^{50} + \dots + 20y - 1)$
$c_7, c_{10}$	$(y - 1)^2(y^5 - 5y^4 + \dots - y - 1)(y^{51} - 30y^{50} + \dots + 6683y - 1)$
$c_8$	$(y^2 - 7y + 1)(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)$ $(y^{51} + 29y^{50} + \dots + 22708y - 961)$
$c_9$	$(y^2 - 7y + 1)(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)$ $(y^{51} + 37y^{50} + \dots + 211472y - 18769)$
$c_{11}$	$y^2(y^5 + 3y^4 + \dots - y - 1)(y^{51} - 12y^{50} + \dots + 1272y - 16)$