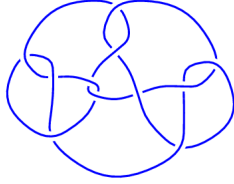
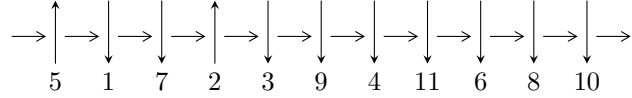


11a₂ (K11a₂)

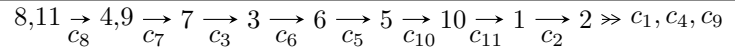


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = \bigcap_{i=1}^2 I_i^u \bigcap I_1^v$$

$$\begin{aligned} I_1^u &= \langle u^5 + u^4 - 2u^3 - u^2 + u - 1, u^4 + u^3 - 2u^2 + b + 1, u^4 + u^3 - 2u^2 + a - u + 1 \rangle \\ I_2^u &= \langle u^{79} - 2u^{78} + \dots + 224u - 64, \\ &\quad - 8.43927 \times 10^{171}u^{78} + 2.64783 \times 10^{171}u^{77} + \dots + 7.93337 \times 10^{172}b - 3.91116 \times 10^{172}, \\ &\quad 1.84133 \times 10^{172}u^{78} - 2.17887 \times 10^{172}u^{77} + \dots + 1.58667 \times 10^{173}a + 2.00553 \times 10^{174} \rangle \\ I_1^v &= \langle b^6 + 3b^5 + 7b^4 + 4b^3 + b^2 + 2b + 1, -19b^5 - 45b^4 - 105b^3 - 11b^2 - 15b + v - 30, a \rangle \end{aligned}$$

There are 3 irreducible components with 90 representations.

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

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

I.

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} -u^4 - u^3 + 2u^2 + u - 1 \\ -u^4 - u^3 + 2u^2 - 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^4 - u^3 + 2u^2 + u - 1 \\ -u^4 - u^3 + 2u^2 + u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -u^4 - u^3 + 2u^2 + u - 1 \\ -u^4 - u^3 + 2u^2 + u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = $-2u^4 - 7u^3 + 7u^2 + 13u - 18$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.41878 - 0.21917I$		
$a = 0.688402 - 0.106340I$	$-7.51750 - 4.40083I$	$-11.07763 + 5.80708I$
$b = 2.10719 + 0.11282I$		
$u = -1.41878 + 0.21917I$		
$a = 0.688402 + 0.106340I$	$-7.51750 + 4.40083I$	$-11.07763 - 5.80708I$
$b = 2.10719 - 0.11282I$		
$u = 0.309916 - 0.549911I$		
$a = -0.77780 - 1.38013I$	$-1.97403 + 1.53058I$	$-13.5086 - 9.8710I$
$b = -1.087720 - 0.830216I$		
$u = 0.309916 + 0.549911I$		
$a = -0.77780 + 1.38013I$	$-1.97403 - 1.53058I$	$-13.5086 + 9.8710I$
$b = -1.087720 + 0.830216I$		
$u = 1.21774$		
$a = -0.821196$	-4.04602	-8.82744
$b = -2.03893$		

$$\text{II. } I_2^u = \langle u^{79} - 2u^{78} + \dots + 224u - 64, -8.44 \times 10^{171}u^{78} + 2.65 \times 10^{171}u^{77} + \dots + 7.93 \times 10^{172}b - 3.91 \times 10^{172}, 1.84 \times 10^{172}u^{78} - 2.18 \times 10^{172}u^{77} + \dots + 1.59 \times 10^{173}a + 2.01 \times 10^{174} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_8 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.116050u^{78} + 0.137323u^{77} + \dots + 16.3774u - 12.6398 \\ 0.106377u^{78} - 0.0333758u^{77} + \dots - 13.4505u + 0.493002 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0.297582u^{78} - 0.224335u^{77} + \dots - 42.5264u + 8.27904 \\ 0.116482u^{78} - 0.0664093u^{77} + \dots - 15.4362u + 3.29792 \end{pmatrix} \\ a_7 &= \begin{pmatrix} u \\ u \end{pmatrix} \\ a_3 &= \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix} \\ a_6 &= \begin{pmatrix} 0.0639269u^{78} - 0.137592u^{77} + \dots - 19.1719u + 15.3200 \\ 0.00882792u^{78} + 0.0326580u^{77} + \dots + 0.490610u - 2.76833 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.0620635u^{78} + 0.0175727u^{77} + \dots + 2.17576u + 8.91653 \\ -0.0451651u^{78} + 0.0470808u^{77} + \dots + 4.36971u - 2.56012 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -0.116050u^{78} + 0.137323u^{77} + \dots + 16.3774u - 12.6398 \\ 0.213093u^{78} - 0.119947u^{77} + \dots - 27.2532u + 6.55867 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.0550990u^{78} + 0.170250u^{77} + \dots + 19.6625u - 18.0883 \\ -0.0719973u^{78} + 0.140741u^{77} + \dots + 17.4685u - 6.61163 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.388594u^{78} + 0.461693u^{77} + \dots + 69.1127u - 21.9844 \\ 0.0383085u^{78} - 0.113726u^{77} + \dots - 15.8618u + 8.96884 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.388594u^{78} + 0.461693u^{77} + \dots + 69.1127u - 21.9844 \\ 0.0383085u^{78} - 0.113726u^{77} + \dots - 15.8618u + 8.96884 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-0.0683647u^{78} - 0.114454u^{77} + \dots + 17.3139u - 1.86024$

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.51845 - 0.02075I$		
$a = -0.691436 + 0.234583I$	$-8.17783 + 5.50134I$	$-13.0406 - 8.3885I$
$b = -2.41269 + 0.11398I$		
$u = -1.51845 + 0.02075I$		
$a = -0.691436 - 0.234583I$	$-8.17783 - 5.50134I$	$-13.0406 + 8.3885I$
$b = -2.41269 - 0.11398I$		
$u = -1.49958 - 0.33987I$		
$a = -0.569907 + 0.299347I$	$-7.50417 - 3.65998I$	$-10.01456 - 4.03431I$
$b = -2.18671 - 0.02310I$		
$u = -1.49958 + 0.33987I$		
$a = -0.569907 - 0.299347I$	$-7.50417 + 3.65998I$	$-10.01456 + 4.03431I$
$b = -2.18671 + 0.02310I$		
$u = -1.218664 - 0.679170I$		
$a = -0.951769 + 0.018317I$	$-0.31155 - 11.22024I$	$-6.70594 + 6.91214I$
$b = -2.75391 - 0.03013I$		
$u = -1.218664 + 0.679170I$		
$a = -0.951769 - 0.018317I$	$-0.31155 + 11.22024I$	$-6.70594 - 6.91214I$
$b = -2.75391 + 0.03013I$		
$u = -1.208388 - 0.353192I$		
$a = 0.965910 + 0.132672I$	$-7.01716 - 1.79468I$	$-14.2576 + 1.1537I$
$b = 2.19860 - 0.73537I$		
$u = -1.208388 + 0.353192I$		
$a = 0.965910 - 0.132672I$	$-7.01716 + 1.79468I$	$-14.2576 - 1.1537I$
$b = 2.19860 + 0.73537I$		
$u = -1.192527 - 0.590288I$		
$a = 0.909137 + 0.049809I$	$-5.05086 - 9.82294I$	$-11.04349 + 7.66234I$
$b = 2.13189 - 0.77257I$		
$u = -1.192527 + 0.590288I$		
$a = 0.909137 - 0.049809I$	$-5.05086 + 9.82294I$	$-11.04349 - 7.66234I$
$b = 2.13189 + 0.77257I$		

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.136342 - 0.085967I$ $a = 0.195566 - 0.628494I$ $b = -0.324737 + 0.076268I$	$-4.51217 + 2.77386I$	$-11.59447 - 4.04086I$
$u = -1.136342 + 0.085967I$ $a = 0.195566 + 0.628494I$ $b = -0.324737 - 0.076268I$	$-4.51217 - 2.77386I$	$-11.59447 + 4.04086I$
$u = -1.104971 - 0.414939I$ $a = 0.205520 - 0.713739I$ $b = -0.426233 + 0.181669I$	$-3.45530 - 4.80167I$	$-10.06922 + 3.52658I$
$u = -1.104971 + 0.414939I$ $a = 0.205520 + 0.713739I$ $b = -0.426233 - 0.181669I$	$-3.45530 + 4.80167I$	$-10.06922 - 3.52658I$
$u = -1.098622 - 0.654049I$ $a = 0.128401 + 0.751267I$ $b = 0.091849 + 0.495135I$	$2.17633 - 5.60365I$	$-3.63487 + 3.38656I$
$u = -1.098622 + 0.654049I$ $a = 0.128401 - 0.751267I$ $b = 0.091849 - 0.495135I$	$2.17633 + 5.60365I$	$-3.63487 - 3.38656I$
$u = -1.074319 - 0.446434I$ $a = -1.052823 - 0.121601I$ $b = -2.85558 - 0.20174I$	$1.85989 - 8.01595I$	$-6.53864 + 8.31085I$
$u = -1.074319 + 0.446434I$ $a = -1.052823 + 0.121601I$ $b = -2.85558 + 0.20174I$	$1.85989 + 8.01595I$	$-6.53864 - 8.31085I$
$u = -1.067751 - 0.420888I$ $a = 0.983397 - 0.564861I$ $b = 2.15062 + 0.42118I$	$-3.40761 - 2.20375I$	$-7.83498 + 3.34864I$
$u = -1.067751 + 0.420888I$ $a = 0.983397 + 0.564861I$ $b = 2.15062 - 0.42118I$	$-3.40761 + 2.20375I$	$-7.83498 - 3.34864I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.913716 - 0.570561I$		
$a = 0.007077 + 0.822092I$	$3.68282 - 2.87436I$	$-2.70760 + 3.79640I$
$b = -0.212863 + 0.802242I$		
$u = -0.913716 + 0.570561I$		
$a = 0.007077 - 0.822092I$	$3.68282 + 2.87436I$	$-2.70760 - 3.79640I$
$b = -0.212863 - 0.802242I$		
$u = -0.653865 - 0.591272I$		
$a = -1.218034 - 0.159214I$	$4.46313 - 1.71758I$	$-1.99294 + 3.91162I$
$b = -0.621978 - 0.030654I$		
$u = -0.653865 + 0.591272I$		
$a = -1.218034 + 0.159214I$	$4.46313 + 1.71758I$	$-1.99294 - 3.91162I$
$b = -0.621978 + 0.030654I$		
$u = -0.567410 - 0.878865I$		
$a = -0.856749 + 0.015799I$	$3.87103 - 0.09665I$	$-1.28070 + 1.54941I$
$b = -0.805642 - 0.221778I$		
$u = -0.567410 + 0.878865I$		
$a = -0.856749 - 0.015799I$	$3.87103 + 0.09665I$	$-1.28070 - 1.54941I$
$b = -0.805642 + 0.221778I$		
$u = -0.516322 - 0.514627I$		
$a = -0.23299 + 1.66774I$	$3.64506 + 4.10175I$	$-3.50068 + 0.16550I$
$b = -0.111050 - 0.456570I$		
$u = -0.516322 + 0.514627I$		
$a = -0.23299 - 1.66774I$	$3.64506 - 4.10175I$	$-3.50068 - 0.16550I$
$b = -0.111050 + 0.456570I$		
$u = -0.491993 - 0.193491I$		
$a = 1.67997 - 0.26421I$	$-1.20246 + 1.70054I$	$-18.7053 + 3.5277I$
$b = 3.03909 - 1.23311I$		
$u = -0.491993 + 0.193491I$		
$a = 1.67997 + 0.26421I$	$-1.20246 - 1.70054I$	$-18.7053 - 3.5277I$
$b = 3.03909 + 1.23311I$		

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.453727 - 0.479176I$ $a = 1.18000 - 1.23073I$ $b = 2.10762 - 0.28643I$	$-1.61075 - 1.37550I$	$1.06828 + 3.88421I$
$u = -0.453727 + 0.479176I$ $a = 1.18000 + 1.23073I$ $b = 2.10762 + 0.28643I$	$-1.61075 + 1.37550I$	$1.06828 - 3.88421I$
$u = -0.404716 - 1.023830I$ $a = 0.158547 + 1.092025I$ $b = 0.058892 - 0.715461I$	$2.22736 + 5.03014I$	$-4.21808 - 4.05748I$
$u = -0.404716 + 1.023830I$ $a = 0.158547 - 1.092025I$ $b = 0.058892 + 0.715461I$	$2.22736 - 5.03014I$	$-4.21808 + 4.05748I$
$u = -0.320495 - 0.912395I$ $a = -0.049007 - 1.122260I$ $b = -0.937426 + 0.073421I$	$-2.34704 + 4.31468I$	$-10.21762 - 4.57210I$
$u = -0.320495 + 0.912395I$ $a = -0.049007 + 1.122260I$ $b = -0.937426 - 0.073421I$	$-2.34704 - 4.31468I$	$-10.21762 + 4.57210I$
$u = 0.125465 - 0.835214I$ $a = -0.446998 - 1.279444I$ $b = -1.341251 - 0.112364I$	$-2.81805 - 2.16506I$	$-9.87540 + 5.61737I$
$u = 0.125465 + 0.835214I$ $a = -0.446998 + 1.279444I$ $b = -1.341251 + 0.112364I$	$-2.81805 + 2.16506I$	$-9.87540 - 5.61737I$
$u = 0.170048 - 1.184850I$ $a = -0.293008 + 0.905851I$ $b = -0.223332 - 0.790801I$	$-1.69051 - 1.86503I$	$-9.69807 + 2.55941I$
$u = 0.170048 + 1.184850I$ $a = -0.293008 - 0.905851I$ $b = -0.223332 + 0.790801I$	$-1.69051 + 1.86503I$	$-9.69807 - 2.55941I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.195618 - 0.552066I$		
$a = 0.184894 - 0.062373I$	$-0.36323 + 1.66196I$	$-2.66065 - 3.49504I$
$b = 0.436250 - 0.577778I$		
$u = 0.195618 + 0.552066I$		
$a = 0.184894 + 0.062373I$	$-0.36323 - 1.66196I$	$-2.66065 + 3.49504I$
$b = 0.436250 + 0.577778I$		
$u = 0.384773$		
$a = -1.60078$	-0.986513	-9.91204
$b = 0.383322$		
$u = 0.440363 - 0.912546I$		
$a = 0.650010 + 0.341713I$	$-0.27585 + 2.15811I$	$-6.86313 - 4.29711I$
$b = 0.728978 - 0.462953I$		
$u = 0.440363 + 0.912546I$		
$a = 0.650010 - 0.341713I$	$-0.27585 - 2.15811I$	$-6.86313 + 4.29711I$
$b = 0.728978 + 0.462953I$		
$u = 0.441408 - 0.647966I$		
$a = -0.219536 - 1.160933I$	$-0.501227 - 0.231040I$	$-6.51195 + 0.36059I$
$b = 0.730862 - 0.017852I$		
$u = 0.441408 + 0.647966I$		
$a = -0.219536 + 1.160933I$	$-0.501227 + 0.231040I$	$-6.51195 - 0.36059I$
$b = 0.730862 + 0.017852I$		
$u = 0.484551 - 1.171975I$		
$a = -0.091088 + 0.985706I$	$-0.30685 - 9.73004I$	$-8.37978 + 7.87966I$
$b = -0.030468 - 0.808721I$		
$u = 0.484551 + 1.171975I$		
$a = -0.091088 - 0.985706I$	$-0.30685 + 9.73004I$	$-8.37978 - 7.87966I$
$b = -0.030468 + 0.808721I$		
$u = 0.543636 - 0.978739I$		
$a = 0.756890 - 0.030922I$	$1.84084 - 4.64712I$	$-4.66771 + 3.52711I$
$b = 0.905676 - 0.260182I$		

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.543636 + 0.978739I$ $a = 0.756890 + 0.030922I$ $b = 0.905676 + 0.260182I$	$1.84084 + 4.64712I$	$-4.66771 - 3.52711I$
$u = 0.725121 - 0.392006I$ $a = -1.179478 - 0.121443I$ $b = -2.35002 - 1.04466I$	$-0.64046 + 2.98061I$	$-8.98738 - 7.04047I$
$u = 0.725121 + 0.392006I$ $a = -1.179478 + 0.121443I$ $b = -2.35002 + 1.04466I$	$-0.64046 - 2.98061I$	$-8.98738 + 7.04047I$
$u = 0.743273 - 0.192362I$ $a = 0.92061 + 1.35743I$ $b = 0.319989 - 0.366693I$	$2.43852 - 0.18703I$	$-11.37446 - 3.74898I$
$u = 0.743273 + 0.192362I$ $a = 0.92061 - 1.35743I$ $b = 0.319989 + 0.366693I$	$2.43852 + 0.18703I$	$-11.37446 + 3.74898I$
$u = 0.809973 - 0.391729I$ $a = 1.215869 - 0.511528I$ $b = 0.582088 + 0.138055I$	$2.91495 + 6.10945I$	$-7.82272 - 8.97445I$
$u = 0.809973 + 0.391729I$ $a = 1.215869 + 0.511528I$ $b = 0.582088 - 0.138055I$	$2.91495 - 6.10945I$	$-7.82272 + 8.97445I$
$u = 0.853592 - 0.508882I$ $a = 0.114535 + 0.855414I$ $b = 0.505531 + 0.956227I$	$2.66697 - 2.36282I$	$-4.65001 + 1.65972I$
$u = 0.853592 + 0.508882I$ $a = 0.114535 - 0.855414I$ $b = 0.505531 - 0.956227I$	$2.66697 + 2.36282I$	$-4.65001 - 1.65972I$
$u = 0.890520 - 0.328701I$ $a = -0.301645 - 0.712109I$ $b = 0.463992 + 0.093193I$	$-1.024933 + 0.378054I$	$-6.69847 + 0.35322I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.890520 + 0.328701I$ $a = -0.301645 + 0.712109I$ $b = 0.463992 - 0.093193I$	$-1.024933 - 0.378054I$	$-6.69847 - 0.35322I$
$u = 1.045419 - 0.303052I$ $a = 1.056540 - 0.243963I$ $b = 2.82773 - 0.36509I$	$1.18747 + 2.48169I$	$-7.98413 - 3.19776I$
$u = 1.045419 + 0.303052I$ $a = 1.056540 + 0.243963I$ $b = 2.82773 + 0.36509I$	$1.18747 - 2.48169I$	$-7.98413 + 3.19776I$
$u = 1.101139 - 0.524739I$ $a = -0.955623 + 0.039759I$ $b = -2.16178 - 0.80099I$	$-2.56199 + 4.84000I$	$-8.25132 - 4.21664I$
$u = 1.101139 + 0.524739I$ $a = -0.955623 - 0.039759I$ $b = -2.16178 + 0.80099I$	$-2.56199 - 4.84000I$	$-8.25132 + 4.21664I$
$u = 1.148700 - 0.510777I$ $a = -0.106998 + 0.695028I$ $b = 0.057422 + 0.331697I$	$-2.69356 + 2.85282I$	$-9.72728 - 2.04655I$
$u = 1.148700 + 0.510777I$ $a = -0.106998 - 0.695028I$ $b = 0.057422 - 0.331697I$	$-2.69356 - 2.85282I$	$-9.72728 + 2.04655I$
$u = 1.160928 - 0.693518I$ $a = -0.153650 + 0.738362I$ $b = -0.171940 + 0.425247I$	$-0.15331 + 10.78920I$	$-6.70310 - 7.12590I$
$u = 1.160928 + 0.693518I$ $a = -0.153650 - 0.738362I$ $b = -0.171940 - 0.425247I$	$-0.15331 - 10.78920I$	$-6.70310 + 7.12590I$
$u = 1.187715 - 0.505810I$ $a = -0.901438 - 0.549355I$ $b = -2.08930 + 0.46477I$	$-5.97333 + 6.98094I$	$-10.91087 - 6.44808I$

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.187715 + 0.505810I$ $a = -0.901438 + 0.549355I$ $b = -2.08930 - 0.46477I$	$-5.97333 - 6.98094I$	$-10.91087 + 6.44808I$
$u = 1.214390 - 0.237157I$ $a = -0.972916 - 0.428041I$ $b = -2.18543 + 0.53298I$	$-7.51790 - 0.99407I$	$-14.02940 + 0.20317I$
$u = 1.214390 + 0.237157I$ $a = -0.972916 + 0.428041I$ $b = -2.18543 - 0.53298I$	$-7.51790 + 0.99407I$	$-14.02940 - 0.20317I$
$u = 1.25392 - 0.74743I$ $a = 0.927599 + 0.046899I$ $b = 2.72842 - 0.00275I$	$-2.7949 + 16.5881I$	$-9.42605 - 10.34760I$
$u = 1.25392 + 0.74743I$ $a = 0.927599 - 0.046899I$ $b = 2.72842 + 0.00275I$	$-2.7949 - 16.5881I$	$-9.42605 + 10.34760I$
$u = 1.32645 - 0.58089I$ $a = 0.902959 - 0.034437I$ $b = 2.70344 - 0.07895I$	$-5.48277 + 8.06356I$	$-12.43638 - 5.40136I$
$u = 1.32645 + 0.58089I$ $a = 0.902959 + 0.034437I$ $b = 2.70344 + 0.07895I$	$-5.48277 - 8.06356I$	$-12.43638 + 5.40136I$
$u = 1.387237 - 0.184587I$ $a = 0.652050 + 0.327969I$ $b = 2.24174 + 0.16120I$	$-4.07832 - 1.19726I$	$-7.59680 + 5.55973I$
$u = 1.387237 + 0.184587I$ $a = 0.652050 - 0.327969I$ $b = 2.24174 - 0.16120I$	$-4.07832 + 1.19726I$	$-7.59680 - 5.55973I$

$$\text{III. } I_1^v = \langle b^6 + 3b^5 + 7b^4 + 4b^3 + b^2 + 2b + 1, -19b^5 + v + \dots - 15b - 30, a \rangle$$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 19b^5 + 45b^4 + 105b^3 + 11b^2 + 15b + 30 \\ 0 \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} 19b^5 + 45b^4 + 105b^3 + 11b^2 + 15b + 30 \\ 8b^5 + 19b^4 + 44b^3 + 4b^2 + 5b + 12 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 19b^5 + 45b^4 + 105b^3 + 11b^2 + 15b + 30 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -12b^5 - 27b^4 - 63b^3 + b^2 - 9b - 18 \\ -14b^5 - 33b^4 - 77b^3 - 7b^2 - 11b - 21 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -26b^5 - 60b^4 - 140b^3 - 6b^2 - 20b - 39 \\ -14b^5 - 33b^4 - 77b^3 - 7b^2 - 11b - 21 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -32b^5 - 75b^4 - 175b^3 - 14b^2 - 25b - 50 \\ b \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 12b^5 + 27b^4 + 63b^3 - b^2 + 9b + 18 \\ 14b^5 + 33b^4 + 77b^3 + 7b^2 + 11b + 21 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 42b^5 + 98b^4 + 228b^3 + 14b^2 + 28b + 64 \\ 14b^5 + 33b^4 + 77b^3 + 7b^2 + 11b + 22 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 42b^5 + 98b^4 + 228b^3 + 14b^2 + 28b + 64 \\ 14b^5 + 33b^4 + 77b^3 + 7b^2 + 11b + 22 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = $37b^5 + 86b^4 + 199b^3 + 11b^2 + 20b + 49$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.162359 + 0.281214I$		
$a = 0$	$-1.11345 - 2.02988I$	$-15.8142 + 11.5861I$
$b = -1.16236 - 2.01326I$		
$v = -0.162359 - 0.281214I$		
$a = 0$	$-1.11345 + 2.02988I$	$-15.8142 - 11.5861I$
$b = -1.16236 + 2.01326I$		
$v = 1.31813 - 1.15851I$		
$a = 0$	$3.02413 + 0.79824I$	$-4.05323 - 2.24743I$
$b = -0.655769 - 0.011266I$		
$v = 1.31813 + 1.15851I$		
$a = 0$	$3.02413 - 0.79824I$	$-4.05323 + 2.24743I$
$b = -0.655769 + 0.011266I$		
$v = 0.34423 - 1.72078I$		
$a = 0$	$3.02413 - 4.85801I$	$-7.63258 + 5.38377I$
$b = 0.318128 - 0.573545I$		
$v = 0.34423 + 1.72078I$		
$a = 0$	$3.02413 + 4.85801I$	$-7.63258 - 5.38377I$
$b = 0.318128 + 0.573545I$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^2 + u + 1)^3(u^5 - u^4 + \dots + u - 1)(u^{79} + 5u^{78} + \dots + 12u + 1)$
c_2	$(u^2 + u + 1)^3(u^5 + 3u^4 + \dots - u - 1)(u^{79} + 39u^{78} + \dots + 42u - 1)$
c_3	$u^6(u^5 + u^4 + \dots + u - 1)(u^{79} + 2u^{78} + \dots + 224u + 64)$
c_4	$(u^2 - u + 1)^3(u^5 + u^4 + \dots + u + 1)(u^{79} + 5u^{78} + \dots + 12u + 1)$
c_5	$(u^2 + u + 1)^3(u^5 - u^4 - 2u^3 + u^2 + u + 1)$ $(u^{79} + 5u^{78} + \dots + 14176u - 3137)$
c_6	$u^5(-1 + 2u - u^2 + u^3)^2(u^{79} + 3u^{78} + \dots - 192u - 32)$
c_7	$u^6(u^5 - u^4 + \dots + u + 1)(u^{79} + 2u^{78} + \dots + 224u + 64)$
c_8	$(u - 1)^5(u^3 + u^2 - 1)^2(u^{79} + 8u^{78} + \dots - 5u - 1)$
c_9	$u^5(1 + 2u + u^2 + u^3)^2(u^{79} + 3u^{78} + \dots - 192u - 32)$
c_{10}	$(u + 1)^5(u^3 - u^2 + 1)^2(u^{79} + 8u^{78} + \dots - 5u - 1)$
c_{11}	$(u + 1)^5(1 + 2u + u^2 + u^3)^2(u^{79} + 38u^{78} + \dots - 137u + 1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y^2 + y + 1)^3(y^5 + 3y^4 + \dots - y - 1)(y^{79} + 39y^{78} + \dots + 42y - 1)$
c_2	$(y^2 + y + 1)^3(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)$ $(y^{79} + 7y^{78} + \dots + 2238y - 1)$
c_3, c_7	$y^6(y^5 - 5y^4 + \dots - y - 1)(y^{79} - 40y^{78} + \dots + 91136y - 4096)$
c_5	$(y^2 + y + 1)^3(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)$ $(y^{79} - 25y^{78} + \dots + 636907866y - 9840769)$
c_6, c_9	$y^5(-1 + 2y + 3y^2 + y^3)^2(y^{79} + 39y^{78} + \dots - 15872y - 1024)$
c_8, c_{10}	$(y - 1)^5(-1 + 2y - y^2 + y^3)^2(y^{79} - 38y^{78} + \dots - 137y - 1)$
c_{11}	$(y - 1)^5(-1 + 2y + 3y^2 + y^3)^2(y^{79} + 14y^{78} + \dots + 11687y - 1)$