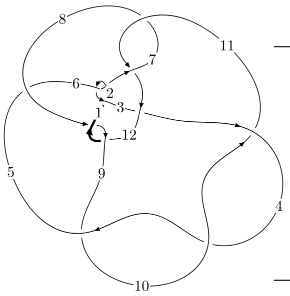
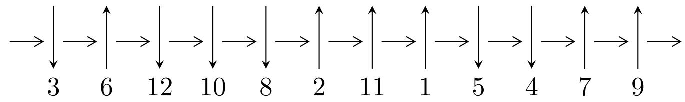
$12a_{0494}$ ($K12a_{0494}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 2.59322 \times 10^{61} u^{45} - 6.46819 \times 10^{61} u^{44} + \cdots + 5.94180 \times 10^{62} b - 7.19573 \times 10^{62}, \\
& -5.17566 \times 10^{61} u^{45} + 1.21957 \times 10^{62} u^{44} + \cdots + 4.75344 \times 10^{63} a - 2.87479 \times 10^{61}, \\
& u^{46} - 3u^{45} + \cdots - 224u + 32 \rangle \\
I_2^u = \langle & 95u^{32} a - 243u^{32} + \cdots + 483a - 3272,\ 30u^{32} a - 55u^{32} + \cdots + 33a - 86,\ u^{33} + u^{32} + \cdots + 3u + 1 \rangle \\
I_3^u = \langle & -u^5 + b - u,\ u^5 - 4u^4 - u^3 - 3u^2 + 7a + 4u - 9,\ u^6 + u^4 + 2u^2 + 1 \rangle \\
I_4^u = \langle & b - 1,\ 8a^2 - 2au + 24a - 3u + 17,\ u^2 + 2 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b + 1,\ 4v^2 - 2v + 1 \rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 124 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. $\boldsymbol{I^u_1 = \langle 2.59\times 10^{61}u^{45} - 6.47\times 10^{61}u^{44} + \cdots + 5.94\times 10^{62}b - 7.20\times 10^{62},\ -5.18\times 10^{61}u^{45} + 1.22\times 10^{62}u^{44} + \cdots + 4.75\times 10^{63}a - 2.87\times 10^{61},\ u^{46} - 3u^{45} + \cdots - 224u + 32\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0108883u^{45} - 0.0256565u^{44} + \cdots + 2.71425u + 0.00604782 \\ -0.0436437u^{45} + 0.108859u^{44} + \cdots - 11.8294u + 1.21104 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0327555u^{45} + 0.0832026u^{44} + \cdots - 9.11514u + 1.21708 \\ -0.0436437u^{45} + 0.108859u^{44} + \cdots - 11.8294u + 1.21104 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0404758u^{45} - 0.0994274u^{44} + \cdots + 13.5494u - 2.27268 \\ -0.0314148u^{45} + 0.0849635u^{44} + \cdots - 11.6220u + 2.15240 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0566730u^{45} - 0.138814u^{44} + \cdots + 15.7651u - 1.42925 \\ 0.0599305u^{45} - 0.148388u^{44} + \cdots + 18.2271u - 2.43384 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0811578u^{45} + 0.209282u^{44} + \cdots - 28.8041u + 5.12908 \\ -0.0530046u^{45} + 0.138397u^{44} + \cdots - 20.3166u + 3.95052 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0304632u^{45} - 0.0783396u^{44} + \cdots + 13.8672u - 3.59282 \\ -0.0360975u^{45} + 0.0959193u^{44} + \cdots - 13.5985u + 1.99297 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.00825991u^{45} - 0.0153222u^{44} + \cdots + 0.388121u + 0.488092 \\ 0.0450341u^{45} - 0.106499u^{44} + \cdots + 11.3574u - 1.03163 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.447426u^{45} - 1.30981u^{44} + \cdots + 236.624u - 56.0043$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{46} + 24u^{45} + \cdots + 1295u + 576$
c_2, c_6	$u^{46} - 2u^{45} + \cdots - 71u + 24$
c_3, c_5	$64(64u^{46} - 160u^{45} + \cdots + 146u + 11)$
c_4, c_9, c_{10}	$u^{46} + 3u^{45} + \cdots + 224u + 32$
c_7, c_8, c_{11} c_{12}	$u^{46} + 2u^{45} + \cdots + 8u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{46} + 16y^{44} + \cdots + 13494815y + 331776$
c_2, c_6	$y^{46} + 24y^{45} + \cdots + 1295y + 576$
c_3, c_5	$4096(4096y^{46} + 60416y^{45} + \cdots + 3104y + 121)$
c_4, c_9, c_{10}	$y^{46} + 41y^{45} + \cdots - 5120y + 1024$
c_7, c_8, c_{11} c_{12}	$y^{46} + 14y^{45} + \cdots + 302y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.879927 + 0.422250I$ $a = -1.002480 - 0.651826I$ $b = 0.561540 - 1.266480I$	$-5.3080 - 13.9989I$	$-4.18038 + 9.68220I$
$u = 0.879927 - 0.422250I$ $a = -1.002480 + 0.651826I$ $b = 0.561540 + 1.266480I$	$-5.3080 + 13.9989I$	$-4.18038 - 9.68220I$
$u = -0.884396 + 0.372933I$ $a = -0.864488 + 0.759473I$ $b = 0.533136 + 1.175940I$	$-2.75455 + 8.29717I$	$-1.70737 - 6.58630I$
$u = -0.884396 - 0.372933I$ $a = -0.864488 - 0.759473I$ $b = 0.533136 - 1.175940I$	$-2.75455 - 8.29717I$	$-1.70737 + 6.58630I$
$u = 1.005690 + 0.347417I$ $a = -0.592795 - 0.569917I$ $b = 0.354628 - 1.155160I$	$-8.53774 - 4.63661I$	$-7.26779 + 6.24429I$
$u = 1.005690 - 0.347417I$ $a = -0.592795 + 0.569917I$ $b = 0.354628 + 1.155160I$	$-8.53774 + 4.63661I$	$-7.26779 - 6.24429I$
$u = 0.757476 + 0.798859I$ $a = -0.138023 + 0.165827I$ $b = -0.458745 - 1.156100I$	$-4.22061 + 8.47102I$	$-3.55506 - 6.39259I$
$u = 0.757476 - 0.798859I$ $a = -0.138023 - 0.165827I$ $b = -0.458745 + 1.156100I$	$-4.22061 - 8.47102I$	$-3.55506 + 6.39259I$
$u = -0.677203 + 0.890151I$ $a = -0.1047750 - 0.0770628I$ $b = -0.426999 + 1.020500I$	$-1.24313 - 2.90152I$	$0. + 4.04088I$
$u = -0.677203 - 0.890151I$ $a = -0.1047750 + 0.0770628I$ $b = -0.426999 - 1.020500I$	$-1.24313 + 2.90152I$	$0. - 4.04088I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.754848+0.065218I$ $a=-0.005515+1.244420I$ $b=\ \ 0.435207+0.754548I$	$0.39391+4.28987I$	$-0.46705-7.97221I$
$u=-0.754848-0.065218I$ $a=-0.005515-1.244420I$ $b=\ \ 0.435207-0.754548I$	$0.39391-4.28987I$	$-0.46705+7.97221I$
$u=-0.899443+0.871931I$ $a=\ \ 0.417382-0.332407I$ $b=-0.087635-0.831168I$	$-5.56613+3.24368I$	0
$u=-0.899443-0.871931I$ $a=\ \ 0.417382+0.332407I$ $b=-0.087635+0.831168I$	$-5.56613-3.24368I$	0
$u=\ \ 0.053471+1.326470I$ $a=-2.00960-0.27769I$ $b=\ \ 1.397470+0.175373I$	$5.26321+1.38773I$	0
$u=\ \ 0.053471-1.326470I$ $a=-2.00960+0.27769I$ $b=\ \ 1.397470-0.175373I$	$5.26321-1.38773I$	0
$u=\ \ 0.348272+1.303000I$ $a=\ \ 1.089410+0.524655I$ $b=-0.515748+0.904481I$	$4.21026-2.45289I$	0
$u=\ \ 0.348272-1.303000I$ $a=\ \ 1.089410-0.524655I$ $b=-0.515748-0.904481I$	$4.21026+2.45289I$	0
$u=\ \ 0.785322+1.112070I$ $a=-0.189157+0.017429I$ $b=-0.244145-0.990574I$	$-6.40579-1.59325I$	0
$u=\ \ 0.785322-1.112070I$ $a=-0.189157-0.017429I$ $b=-0.244145+0.990574I$	$-6.40579+1.59325I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.146892 + 1.387240I$ $a = -1.75835 - 0.81715I$ $b = 1.34196 + 0.58047I$	$6.66740 - 4.38324I$	0
$u = 0.146892 - 1.387240I$ $a = -1.75835 + 0.81715I$ $b = 1.34196 - 0.58047I$	$6.66740 + 4.38324I$	0
$u = -0.34923 + 1.38244I$ $a = 1.349640 - 0.348220I$ $b = -0.570864 - 1.015940I$	$5.05332 + 8.42012I$	0
$u = -0.34923 - 1.38244I$ $a = 1.349640 + 0.348220I$ $b = -0.570864 + 1.015940I$	$5.05332 - 8.42012I$	0
$u = -0.12544 + 1.43283I$ $a = -1.49007 + 0.74151I$ $b = 1.133480 - 0.604428I$	$8.14786 - 0.11264I$	0
$u = -0.12544 - 1.43283I$ $a = -1.49007 - 0.74151I$ $b = 1.133480 + 0.604428I$	$8.14786 + 0.11264I$	0
$u = 0.545297 + 0.078664I$ $a = 0.83525 + 1.15694I$ $b = 0.339032 + 0.466799I$	$0.445010 - 1.185620I$	$-1.75729 - 0.29982I$
$u = 0.545297 - 0.078664I$ $a = 0.83525 - 1.15694I$ $b = 0.339032 - 0.466799I$	$0.445010 + 1.185620I$	$-1.75729 + 0.29982I$
$u = -0.05409 + 1.45463I$ $a = -0.840100 - 0.001476I$ $b = 0.128963 + 0.320779I$	$4.81424 - 1.83892I$	0
$u = -0.05409 - 1.45463I$ $a = -0.840100 + 0.001476I$ $b = 0.128963 - 0.320779I$	$4.81424 + 1.83892I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.271343 + 0.437430I$		
$a = 0.674777 + 0.345785I$	$0.079000 - 0.909335I$	$2.05664 + 7.20006I$
$b = -0.143974 + 0.371385I$		
$u = 0.271343 - 0.437430I$		
$a = 0.674777 - 0.345785I$	$0.079000 + 0.909335I$	$2.05664 - 7.20006I$
$b = -0.143974 - 0.371385I$		
$u = -0.287009 + 0.385178I$		
$a = 0.422708 - 0.041305I$	$2.29870 - 1.77899I$	$6.01313 - 3.03294I$
$b = -0.918597 + 0.410101I$		
$u = -0.287009 - 0.385178I$		
$a = 0.422708 + 0.041305I$	$2.29870 + 1.77899I$	$6.01313 + 3.03294I$
$b = -0.918597 - 0.410101I$		
$u = -0.33737 + 1.48238I$		
$a = 1.70844 + 0.12166I$	$3.20888 + 12.70970I$	0
$b = -0.646202 - 1.244350I$		
$u = -0.33737 - 1.48238I$		
$a = 1.70844 - 0.12166I$	$3.20888 - 12.70970I$	0
$b = -0.646202 + 1.244350I$		
$u = -0.06899 + 1.52703I$		
$a = -0.969248 + 0.549033I$	$7.27063 - 1.16863I$	0
$b = 0.669287 - 0.651303I$		
$u = -0.06899 - 1.52703I$		
$a = -0.969248 - 0.549033I$	$7.27063 + 1.16863I$	0
$b = 0.669287 + 0.651303I$		
$u = 0.38401 + 1.48415I$		
$a = 1.41083 - 0.19362I$	$-2.67740 - 9.58899I$	0
$b = -0.513706 + 1.238240I$		
$u = 0.38401 - 1.48415I$		
$a = 1.41083 + 0.19362I$	$-2.67740 + 9.58899I$	0
$b = -0.513706 - 1.238240I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.33179 + 1.50033I$ $a = 1.78862 - 0.24742I$ $b = -0.66692 + 1.30465I$	$0.8798 - 18.3922I$	0
$u = 0.33179 - 1.50033I$ $a = 1.78862 + 0.24742I$ $b = -0.66692 - 1.30465I$	$0.8798 + 18.3922I$	0
$u = 0.349735 + 0.181130I$ $a = 0.516188 + 0.059087I$ $b = -1.173810 - 0.239503I$	$1.57408 - 2.45072I$	$-5.4120 + 13.0814I$
$u = 0.349735 - 0.181130I$ $a = 0.516188 - 0.059087I$ $b = -1.173810 + 0.239503I$	$1.57408 + 2.45072I$	$-5.4120 - 13.0814I$
$u = 0.07879 + 1.62688I$ $a = -0.623636 - 0.621149I$ $b = 0.472651 + 0.872181I$	$4.50126 + 5.50730I$	0
$u = 0.07879 - 1.62688I$ $a = -0.623636 + 0.621149I$ $b = 0.472651 - 0.872181I$	$4.50126 - 5.50730I$	0

II. $\boldsymbol{I_2^u = \langle 95u^{32}a - 243u^{32} + \cdots + 483a - 3272,\ 30u^{32}a - 55u^{32} + \cdots + 33a - 86,\ u^{33} + u^{32} + \cdots + 3u + 1 \rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -0.0387913au^{32} + 0.0992242u^{32} + \cdots - 0.197223a + 1.33606 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0387913au^{32} + 0.0992242u^{32} + \cdots + 0.802777a + 1.33606 \\ -0.0387913au^{32} + 0.0992242u^{32} + \cdots - 0.197223a + 1.33606 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.86661au^{32} - 0.313779u^{32} + \cdots + 2.56744a - 3.08421 \\ 0.138832au^{32} + 0.469443u^{32} + \cdots + 0.0216415a + 3.39377 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.0387913au^{32} - 2.56744u^{32} + \cdots - 1.19722a - 2.99728 \\ 0.0604328au^{32} - 0.0387913u^{32} + \cdots + 0.138832a - 1.19722 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.191779au^{32} + 2.84161u^{32} + \cdots + 3.35048a - 3.60410 \\ -0.277664au^{32} + 1.72778u^{32} + \cdots - 0.0432830a + 2.54580 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.748741au^{32} - 1.53391u^{32} + \cdots + 2.41377a + 0.163831 \\ -0.246223au^{32} - 0.731591u^{32} + \cdots - 0.241323a + 1.84184 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0992242au^{32} - 2.52865u^{32} + \cdots - 1.33606a - 3.80005 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{32} - 4u^{31} - 64u^{30} - 56u^{29} - 448u^{28} - 340u^{27} - 1788u^{26} - 1156u^{25} - 4432u^{24} - 2356u^{23} - 6940u^{22} - 2804u^{21} - 6652u^{20} - 1616u^{19} - 3660u^{18} - 8u^{17} - 1380u^{16} + 364u^{15} - 932u^{14} + 156u^{13} - 380u^{12} + 360u^{11} + 224u^{10} + 328u^{9} + 40u^{8} + 4u^{7} - 56u^{6} - 4u^{5} + 48u^{4} + 32u^{3} - 12u^{2} - 20u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{33} + 15u^{32} + \cdots + u - 1)^2$
c_2, c_6	$(u^{33} - u^{32} + \cdots - u + 1)^2$
c_3, c_5	$9(9u^{66} + 129u^{65} + \cdots + 233684u + 29567)$
c_4, c_9, c_{10}	$(u^{33} - u^{32} + \cdots + 3u - 1)^2$
c_7, c_8, c_{11} c_{12}	$u^{66} - 5u^{65} + \cdots - 804u + 125$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{33} + 7y^{32} + \cdots + 17y - 1)^2$
c_2, c_6	$(y^{33} + 15y^{32} + \cdots + y - 1)^2$
c_3, c_5	$81(81y^{66} - 1701y^{65} + \cdots - 4.02404 \times 10^{10}y + 8.74207 \times 10^{8})$
c_4, c_9, c_{10}	$(y^{33} + 31y^{32} + \cdots + y - 1)^2$
c_7, c_8, c_{11} c_{12}	$y^{66} + 39y^{65} + \cdots + 129584y + 15625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.138722 + 1.178260I$ $a = 0.646725 + 0.922454I$ $b = -0.34986 - 1.41730I$	$-3.68002 + 0.57246I$	$-4.31906 - 0.48605I$
$u = 0.138722 + 1.178260I$ $a = 1.89541 - 0.83665I$ $b = -0.620802 + 1.176010I$	$-3.68002 + 0.57246I$	$-4.31906 - 0.48605I$
$u = 0.138722 - 1.178260I$ $a = 0.646725 - 0.922454I$ $b = -0.34986 + 1.41730I$	$-3.68002 - 0.57246I$	$-4.31906 + 0.48605I$
$u = 0.138722 - 1.178260I$ $a = 1.89541 + 0.83665I$ $b = -0.620802 - 1.176010I$	$-3.68002 - 0.57246I$	$-4.31906 + 0.48605I$
$u = -0.679432 + 0.391507I$ $a = 0.967832 - 0.605627I$ $b = -0.580882 - 1.258950I$	$-1.82082 + 8.41845I$	$-1.65597 - 8.08731I$
$u = -0.679432 + 0.391507I$ $a = -0.492379 + 0.153513I$ $b = 1.009630 - 0.133152I$	$-1.82082 + 8.41845I$	$-1.65597 - 8.08731I$
$u = -0.679432 - 0.391507I$ $a = 0.967832 + 0.605627I$ $b = -0.580882 + 1.258950I$	$-1.82082 - 8.41845I$	$-1.65597 + 8.08731I$
$u = -0.679432 - 0.391507I$ $a = -0.492379 - 0.153513I$ $b = 1.009630 + 0.133152I$	$-1.82082 - 8.41845I$	$-1.65597 + 8.08731I$
$u = 0.649750 + 0.407780I$ $a = 0.961232 + 0.680322I$ $b = -0.526453 + 1.104150I$	$0.09121 - 3.30675I$	$1.55576 + 3.71770I$
$u = 0.649750 + 0.407780I$ $a = -0.320653 - 0.049837I$ $b = 0.822908 + 0.226871I$	$0.09121 - 3.30675I$	$1.55576 + 3.71770I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.649750 - 0.407780I$ $a = 0.961232 - 0.680322I$ $b = -0.526453 - 1.104150I$	$0.09121 + 3.30675I$	$1.55576 - 3.71770I$
$u = 0.649750 - 0.407780I$ $a = -0.320653 + 0.049837I$ $b = 0.822908 - 0.226871I$	$0.09121 + 3.30675I$	$1.55576 - 3.71770I$
$u = -0.552937 + 0.519363I$ $a = 0.910395 + 0.295741I$ $b = 0.356991 - 1.066940I$	$-1.29130 - 4.30723I$	$-0.15179 + 2.03529I$
$u = -0.552937 + 0.519363I$ $a = 0.72843 - 1.28598I$ $b = -0.613572 - 0.123118I$	$-1.29130 - 4.30723I$	$-0.15179 + 2.03529I$
$u = -0.552937 - 0.519363I$ $a = 0.910395 - 0.295741I$ $b = 0.356991 + 1.066940I$	$-1.29130 + 4.30723I$	$-0.15179 - 2.03529I$
$u = -0.552937 - 0.519363I$ $a = 0.72843 + 1.28598I$ $b = -0.613572 + 0.123118I$	$-1.29130 + 4.30723I$	$-0.15179 - 2.03529I$
$u = 0.578988 + 0.474023I$ $a = 0.703739 + 0.930950I$ $b = -0.406968 + 0.442807I$	$0.382723 - 0.728314I$	$2.50985 + 3.12560I$
$u = 0.578988 + 0.474023I$ $a = 0.566060 + 0.034191I$ $b = 0.338945 + 0.776348I$	$0.382723 - 0.728314I$	$2.50985 + 3.12560I$
$u = 0.578988 - 0.474023I$ $a = 0.703739 - 0.930950I$ $b = -0.406968 - 0.442807I$	$0.382723 + 0.728314I$	$2.50985 - 3.12560I$
$u = 0.578988 - 0.474023I$ $a = 0.566060 - 0.034191I$ $b = 0.338945 - 0.776348I$	$0.382723 + 0.728314I$	$2.50985 - 3.12560I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.214004 + 1.270020I$ $a = -0.191089 + 0.920763I$ $b = -0.12595 - 1.55585I$	$-2.78381 - 6.56196I$	$-2.35976 + 7.19745I$
$u = 0.214004 + 1.270020I$ $a = 2.06381 - 0.68885I$ $b = -0.847874 + 0.939274I$	$-2.78381 - 6.56196I$	$-2.35976 + 7.19745I$
$u = 0.214004 - 1.270020I$ $a = -0.191089 - 0.920763I$ $b = -0.12595 + 1.55585I$	$-2.78381 + 6.56196I$	$-2.35976 - 7.19745I$
$u = 0.214004 - 1.270020I$ $a = 2.06381 + 0.68885I$ $b = -0.847874 - 0.939274I$	$-2.78381 + 6.56196I$	$-2.35976 - 7.19745I$
$u = -0.150986 + 1.283520I$ $a = 0.004911 - 0.404260I$ $b = -0.139375 + 1.388990I$	$-0.32048 + 2.39560I$	$1.63078 - 3.31266I$
$u = -0.150986 + 1.283520I$ $a = 2.00230 + 0.72485I$ $b = -0.620697 - 0.904803I$	$-0.32048 + 2.39560I$	$1.63078 - 3.31266I$
$u = -0.150986 - 1.283520I$ $a = 0.004911 + 0.404260I$ $b = -0.139375 - 1.388990I$	$-0.32048 - 2.39560I$	$1.63078 + 3.31266I$
$u = -0.150986 - 1.283520I$ $a = 2.00230 - 0.72485I$ $b = -0.620697 + 0.904803I$	$-0.32048 - 2.39560I$	$1.63078 + 3.31266I$
$u = -0.596688 + 0.315979I$ $a = -0.801138 - 0.348679I$ $b = 0.610189 + 0.315745I$	$-4.72027 + 1.50384I$	$-5.59059 - 3.60616I$
$u = -0.596688 + 0.315979I$ $a = 0.819943 - 0.823377I$ $b = -0.174356 - 1.263120I$	$-4.72027 + 1.50384I$	$-5.59059 - 3.60616I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.596688 - 0.315979I$ $a = -0.801138 + 0.348679I$ $b = 0.610189 - 0.315745I$	$-4.72027 - 1.50384I$	$-5.59059 + 3.60616I$
$u = -0.596688 - 0.315979I$ $a = 0.819943 + 0.823377I$ $b = -0.174356 + 1.263120I$	$-4.72027 - 1.50384I$	$-5.59059 + 3.60616I$
$u = 0.632184 + 0.066503I$ $a = -0.489244 + 0.745012I$ $b = 0.34059 + 1.39699I$	$-6.89729 - 3.47782I$	$-8.61515 + 4.95314I$
$u = 0.632184 + 0.066503I$ $a = -1.058740 - 0.395233I$ $b = 0.599015 - 1.162350I$	$-6.89729 - 3.47782I$	$-8.61515 + 4.95314I$
$u = 0.632184 - 0.066503I$ $a = -0.489244 - 0.745012I$ $b = 0.34059 - 1.39699I$	$-6.89729 + 3.47782I$	$-8.61515 - 4.95314I$
$u = 0.632184 - 0.066503I$ $a = -1.058740 + 0.395233I$ $b = 0.599015 + 1.162350I$	$-6.89729 + 3.47782I$	$-8.61515 - 4.95314I$
$u = -0.036115 + 1.379920I$ $a = -0.14525 + 3.73600I$ $b = -0.071145 + 1.092410I$	$1.67010 + 2.19825I$	$4.55384 - 3.61625I$
$u = -0.036115 + 1.379920I$ $a = 4.97603 + 1.10355I$ $b = -0.123593 - 0.912424I$	$1.67010 + 2.19825I$	$4.55384 - 3.61625I$
$u = -0.036115 - 1.379920I$ $a = -0.14525 - 3.73600I$ $b = -0.071145 - 1.092410I$	$1.67010 - 2.19825I$	$4.55384 + 3.61625I$
$u = -0.036115 - 1.379920I$ $a = 4.97603 - 1.10355I$ $b = -0.123593 + 0.912424I$	$1.67010 - 2.19825I$	$4.55384 + 3.61625I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.22801+1.42935I$ $a=\ 1.328190-0.115314I$ $b=-0.917469+0.029790I$	$0.90165+4.53523I$	$0.-3.09222I$
$u=-0.22801+1.42935I$ $a=-1.40186-0.44308I$ $b=\ 0.474786+1.262170I$	$0.90165+4.53523I$	$0.-3.09222I$
$u=-0.22801-1.42935I$ $a=\ 1.328190+0.115314I$ $b=-0.917469-0.029790I$	$0.90165-4.53523I$	$0.+3.09222I$
$u=-0.22801-1.42935I$ $a=-1.40186+0.44308I$ $b=\ 0.474786-1.262170I$	$0.90165-4.53523I$	$0.+3.09222I$
$u=\ 0.24113+1.46019I$ $a=\ 1.27404+0.62357I$ $b=-1.073110-0.325646I$	$6.10656-6.56751I$	$5.02440+3.41838I$
$u=\ 0.24113+1.46019I$ $a=-1.72095+0.33539I$ $b=\ 0.730734-1.186940I$	$6.10656-6.56751I$	$5.02440+3.41838I$
$u=\ 0.24113-1.46019I$ $a=\ 1.27404-0.62357I$ $b=-1.073110+0.325646I$	$6.10656+6.56751I$	$5.02440-3.41838I$
$u=\ 0.24113-1.46019I$ $a=-1.72095-0.33539I$ $b=\ 0.730734+1.186940I$	$6.10656+6.56751I$	$5.02440-3.41838I$
$u=-0.25408+1.45840I$ $a=\ 1.47015-0.66625I$ $b=-1.199750+0.285349I$	$4.13478+11.82880I$	$0.-7.75337I$
$u=-0.25408+1.45840I$ $a=-1.79532-0.46400I$ $b=\ 0.77918+1.28933I$	$4.13478+11.82880I$	$0.-7.75337I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.25408 - 1.45840I$ $a = 1.47015 + 0.66625I$ $b = -1.199750 - 0.285349I$	$4.13478 - 11.82880I$	$0. + 7.75337I$
$u = -0.25408 - 1.45840I$ $a = -1.79532 + 0.46400I$ $b = 0.77918 - 1.28933I$	$4.13478 - 11.82880I$	$0. + 7.75337I$
$u = 0.20598 + 1.46844I$ $a = 0.604492 + 0.502279I$ $b = -0.688196 - 0.471575I$	$6.63262 - 3.59396I$	$5.77642 + 3.03909I$
$u = 0.20598 + 1.46844I$ $a = -1.45652 - 0.02095I$ $b = 0.563003 - 0.876122I$	$6.63262 - 3.59396I$	$5.77642 + 3.03909I$
$u = 0.20598 - 1.46844I$ $a = 0.604492 - 0.502279I$ $b = -0.688196 + 0.471575I$	$6.63262 + 3.59396I$	$5.77642 - 3.03909I$
$u = 0.20598 - 1.46844I$ $a = -1.45652 + 0.02095I$ $b = 0.563003 + 0.876122I$	$6.63262 + 3.59396I$	$5.77642 - 3.03909I$
$u = -0.18821 + 1.47294I$ $a = -1.203080 + 0.217482I$ $b = 0.423043 + 0.674782I$	$5.11137 - 1.63491I$	$3.54097 + 0.I$
$u = -0.18821 + 1.47294I$ $a = 0.116775 - 0.439727I$ $b = -0.444172 + 0.582855I$	$5.11137 - 1.63491I$	$3.54097 + 0.I$
$u = -0.18821 - 1.47294I$ $a = -1.203080 - 0.217482I$ $b = 0.423043 - 0.674782I$	$5.11137 + 1.63491I$	$3.54097 + 0.I$
$u = -0.18821 - 1.47294I$ $a = 0.116775 + 0.439727I$ $b = -0.444172 - 0.582855I$	$5.11137 + 1.63491I$	$3.54097 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.514867$ $a=-1.33310+1.24762I$ $b=\ \ 0.300224+1.127120I$	-4.29591	-5.72740
$u=-0.514867$ $a=-1.33310-1.24762I$ $b=\ \ 0.300224-1.127120I$	-4.29591	-5.72740
$u=-0.216864+0.450093I$ $a=\ \ 3.54053+0.64125I$ $b=-0.082306-1.166920I$	$-3.83648+1.45331I$	$-1.02647-4.36257I$
$u=-0.216864+0.450093I$ $a=\ \ 0.66167-3.58318I$ $b=-0.242715+0.837214I$	$-3.83648+1.45331I$	$-1.02647-4.36257I$
$u=-0.216864-0.450093I$ $a=\ \ 3.54053-0.64125I$ $b=-0.082306+1.166920I$	$-3.83648-1.45331I$	$-1.02647+4.36257I$
$u=-0.216864-0.450093I$ $a=\ \ 0.66167+3.58318I$ $b=-0.242715-0.837214I$	$-3.83648-1.45331I$	$-1.02647+4.36257I$

III. $\boldsymbol{I_3^u = \langle -u^5 + b - u,\ u^5 - 4u^4 - u^3 - 3u^2 + 7a + 4u - 9,\ u^6 + u^4 + 2u^2 + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -\frac{1}{7}u^5 + \frac{4}{7}u^4 + \cdots - \frac{4}{7}u + \frac{9}{7} \\ u^5 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{6}{7}u^5 + \frac{4}{7}u^4 + \cdots + \frac{3}{7}u + \frac{9}{7} \\ u^5 + u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} \frac{29}{49}u^4 + \frac{6}{49}u^2 + u + \frac{60}{49} \\ \frac{4}{7}u^5 - \frac{2}{7}u^4 + \cdots + \frac{16}{7}u - \frac{1}{7} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{6}{7}u^5 + \frac{3}{7}u^4 + \cdots + \frac{10}{7}u + \frac{5}{7} \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{4}{7}u^5 + \frac{20}{49}u^4 + \cdots + \frac{9}{7}u + \frac{38}{49} \\ \frac{3}{7}u^5 - \frac{5}{7}u^4 + \cdots + \frac{12}{7}u - \frac{6}{7} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{7}u^5 + \frac{3}{49}u^4 + \cdots + \frac{3}{7}u + \frac{40}{49} \\ \frac{5}{7}u^5 + \frac{1}{7}u^4 + \cdots + \frac{13}{7}u + \frac{4}{7} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{6}{7}u^5 + \frac{3}{7}u^4 + \cdots + \frac{10}{7}u + \frac{5}{7} \\ 2u^5 + u^3 + u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^4 + 4u^2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^3-3u^2+2u+1)^2$
c_2	$(u^3+u^2+2u+1)^2$
c_3	$49(49u^6+14u^5-68u^4-30u^3+35u^2+12u+5)$
c_4, c_9, c_{10}	$u^6+u^4+2u^2+1$
c_5	$49(49u^6-14u^5-68u^4+30u^3+35u^2-12u+5)$
c_6	$(u^3-u^2+2u-1)^2$
c_7, c_8, c_{11} c_{12}	$(u^2+1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^3 - 5y^2 + 10y - 1)^2$
c_2, c_6	$(y^3 + 3y^2 + 2y - 1)^2$
c_3, c_5	$2401(2401y^6 - 6860y^5 + \cdots + 206y + 25)$
c_4, c_9, c_{10}	$(y^3 + y^2 + 2y + 1)^2$
c_7, c_8, c_{11} c_{12}	$(y + 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.744862 + 0.877439I$ $a = -0.262343 + 0.117844I$ $b = -1.000000I$	$-6.31400 - 2.82812I$	$-7.50976 + 2.97945I$
$u = 0.744862 - 0.877439I$ $a = -0.262343 - 0.117844I$ $b = 1.000000I$	$-6.31400 + 2.82812I$	$-7.50976 - 2.97945I$
$u = -0.744862 + 0.877439I$ $a = 0.749579 - 0.359957I$ $b = -1.000000I$	$-6.31400 + 2.82812I$	$-7.50976 - 2.97945I$
$u = -0.744862 - 0.877439I$ $a = 0.749579 + 0.359957I$ $b = 1.000000I$	$-6.31400 - 2.82812I$	$-7.50976 + 2.97945I$
$u = 0.754878I$ $a = 1.227050 - 0.527828I$ $b = 1.000000I$	-2.17641	-0.980490
$u = -0.754878I$ $a = 1.227050 + 0.527828I$ $b = -1.000000I$	-2.17641	-0.980490

IV. $\boldsymbol{I_4^u = \langle b-1,\ 8a^2-2au+24a-3u+17,\ u^2+2\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a+1 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2au+\frac{1}{2}a+\frac{25}{8}u+\frac{3}{4} \\ -au-2u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a+2 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -au+\frac{1}{2}a-\frac{15}{8}u+\frac{3}{4} \\ -au-u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2au+2a+\frac{23}{8}u+\frac{7}{2} \\ -au-2a-\frac{3}{2}u-\frac{5}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a+1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8au-12u+4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u^2 - u + 1)^2$
c_3	$16(16u^4 + 16u^3 + 28u^2 + 12u + 3)$
c_4, c_9, c_{10}	$(u^2 + 2)^2$
c_5	$16(16u^4 - 16u^3 + 28u^2 - 12u + 3)$
c_6	$(u^2 + u + 1)^2$
c_7, c_8	$(u - 1)^4$
c_{11}, c_{12}	$(u + 1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$(y^2 + y + 1)^2$
c_3, c_5	$256(256y^4 + 640y^3 + 496y^2 + 24y + 9)$
c_4, c_9, c_{10}	$(y + 2)^4$
c_7, c_8, c_{11} c_{12}	$(y - 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.414210I$ $a = -1.193810 + 0.176777I$ $b = 1.00000$	$6.57974 + 2.02988I$	$6.00000 - 3.46410I$
$u = 1.414210I$ $a = -1.80619 + 0.17678I$ $b = 1.00000$	$6.57974 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.414210I$ $a = -1.193810 - 0.176777I$ $b = 1.00000$	$6.57974 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.414210I$ $a = -1.80619 - 0.17678I$ $b = 1.00000$	$6.57974 + 2.02988I$	$6.00000 - 3.46410I$

V. $I_1^v = \langle a,\ b+1,\ 4v^2-2v+1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

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

$$a_3 = \begin{pmatrix} v \\ -v \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 3v \\ v \end{pmatrix}$$

$$a_2 = \begin{pmatrix} v-\frac{3}{2} \\ -v-\frac{1}{2} \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7v - \frac{1}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^2 - u + 1$
c_2	$u^2 + u + 1$
c_3	$4(4u^2 + 2u + 1)$
c_4, c_9, c_{10}	u^2
c_5	$4(4u^2 - 2u + 1)$
c_7, c_8	$(u+1)^2$
c_{11}, c_{12}	$(u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$y^2 + y + 1$
c_3, c_5	$16(16y^2 + 4y + 1)$
c_4, c_9, c_{10}	y^2
c_7, c_8, c_{11} c_{12}	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.250000 + 0.433013I$ $a = 0$ $b = -1.00000$	$1.64493 - 2.02988I$	$-2.25000 - 3.03109I$
$v = 0.250000 - 0.433013I$ $a = 0$ $b = -1.00000$	$1.64493 + 2.02988I$	$-2.25000 + 3.03109I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^3)(u^3-3u^2+2u+1)^2(u^{33}+15u^{32}+\cdots+u-1)^2$ $\cdot(u^{46}+24u^{45}+\cdots+1295u+576)$
c_2	$((u^2-u+1)^2)(u^2+u+1)(u^3+u^2+2u+1)^2(u^{33}-u^{32}+\cdots-u+1)^2$ $\cdot(u^{46}-2u^{45}+\cdots-71u+24)$
c_3	$1806336(4u^2+2u+1)(16u^4+16u^3+28u^2+12u+3)$ $\cdot(49u^6+14u^5-68u^4-30u^3+35u^2+12u+5)$ $\cdot(64u^{46}-160u^{45}+\cdots+146u+11)$ $\cdot(9u^{66}+129u^{65}+\cdots+233684u+29567)$
c_4, c_9, c_{10}	$u^2(u^2+2)^2(u^6+u^4+2u^2+1)(u^{33}-u^{32}+\cdots+3u-1)^2$ $\cdot(u^{46}+3u^{45}+\cdots+224u+32)$
c_5	$1806336(4u^2-2u+1)(16u^4-16u^3+28u^2-12u+3)$ $\cdot(49u^6-14u^5-68u^4+30u^3+35u^2-12u+5)$ $\cdot(64u^{46}-160u^{45}+\cdots+146u+11)$ $\cdot(9u^{66}+129u^{65}+\cdots+233684u+29567)$
c_6	$(u^2-u+1)(u^2+u+1)^2(u^3-u^2+2u-1)^2(u^{33}-u^{32}+\cdots-u+1)^2$ $\cdot(u^{46}-2u^{45}+\cdots-71u+24)$
c_7, c_8	$((u-1)^4)(u+1)^2(u^2+1)^3(u^{46}+2u^{45}+\cdots+8u+3)$ $\cdot(u^{66}-5u^{65}+\cdots-804u+125)$
c_{11}, c_{12}	$((u-1)^2)(u+1)^4(u^2+1)^3(u^{46}+2u^{45}+\cdots+8u+3)$ $\cdot(u^{66}-5u^{65}+\cdots-804u+125)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^3)(y^3-5y^2+10y-1)^2(y^{33}+7y^{32}+\cdots+17y-1)^2$ $\cdot\,(y^{46}+16y^{44}+\cdots+13494815y+331776)$
c_2, c_6	$((y^2+y+1)^3)(y^3+3y^2+2y-1)^2(y^{33}+15y^{32}+\cdots+y-1)^2$ $\cdot\,(y^{46}+24y^{45}+\cdots+1295y+576)$
c_3, c_5	$3262849744896(16y^2+4y+1)(256y^4+640y^3+\cdots+24y+9)$ $\cdot\,(2401y^6-6860y^5+8894y^4-5506y^3+1265y^2+206y+25)$ $\cdot\,(4096y^{46}+60416y^{45}+\cdots+3104y+121)$ $\cdot\,(81y^{66}-1701y^{65}+\cdots-40240423876y+874207489)$
c_4, c_9, c_{10}	$y^2(y+2)^4(y^3+y^2+2y+1)^2(y^{33}+31y^{32}+\cdots+y-1)^2$ $\cdot\,(y^{46}+41y^{45}+\cdots-5120y+1024)$
c_7, c_8, c_{11} c_{12}	$((y-1)^6)(y+1)^6(y^{46}+14y^{45}+\cdots+302y+9)$ $\cdot\,(y^{66}+39y^{65}+\cdots+129584y+15625)$