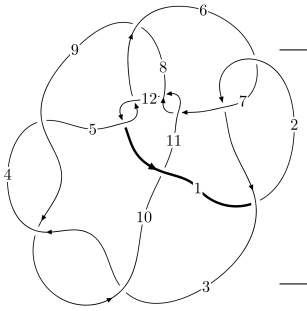
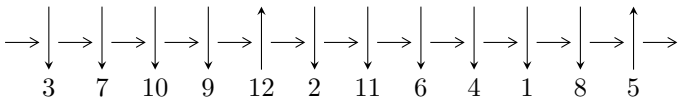
$12a_{0638}$ $(K12a_{0638})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3.88047 \times 10^{205} u^{89} + 4.82669 \times 10^{205} u^{88} + \cdots + 8.17391 \times 10^{204} b + 1.54211 \times 10^{206},$$
$$2.69752 \times 10^{206} u^{89} - 3.08673 \times 10^{206} u^{88} + \cdots + 8.17391 \times 10^{204} a - 1.57877 \times 10^{207},\ u^{90} - u^{89} + \cdots - 13u$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 90 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. $\boldsymbol{I_1^u = \langle -3.88 \times 10^{205} u^{89} + 4.83 \times 10^{205} u^{88} + \cdots + 8.17 \times 10^{204} b + 1.54 \times 10^{206},\ 2.70 \times 10^{206} u^{89} - 3.09 \times 10^{206} u^{88} + \cdots + 8.17 \times 10^{204} a - 1.58 \times 10^{207},\ u^{90} - u^{89} + \cdots - 13u - 1 \rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -33.0016u^{89} + 37.7631u^{88} + \cdots + 1468.09u + 193.147 \\ 4.74738u^{89} - 5.90500u^{88} + \cdots - 173.610u - 18.8662 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -8.45664u^{89} + 11.0243u^{88} + \cdots + 256.917u + 9.20347 \\ -6.17248u^{89} + 7.40897u^{88} + \cdots + 257.954u + 31.5861 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -14.6291u^{89} + 18.4333u^{88} + \cdots + 514.871u + 40.7896 \\ -6.17248u^{89} + 7.40897u^{88} + \cdots + 257.954u + 31.5861 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 17.7342u^{89} - 28.6739u^{88} + \cdots - 80.1654u + 48.2554 \\ 10.8888u^{89} - 13.4259u^{88} + \cdots - 401.828u - 45.1321 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -23.5669u^{89} + 26.3603u^{88} + \cdots + 1121.51u + 150.471 \\ -0.908820u^{89} + 0.780287u^{88} + \cdots + 61.0914u + 11.0352 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -10.0388u^{89} + 4.07039u^{88} + \cdots + 1067.53u + 183.313 \\ 9.64910u^{89} - 12.1029u^{88} + \cdots - 343.266u - 36.0497 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -9.59366u^{89} + 12.3295u^{88} + \cdots + 310.049u + 14.7507 \\ -5.77007u^{89} + 6.89531u^{88} + \cdots + 241.600u + 29.5670 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 31.5469u^{89} - 41.0990u^{88} + \cdots - 989.110u - 113.884$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{90}+35u^{89}+\cdots+223u+9$
c_2, c_6	$u^{90}-3u^{89}+\cdots-19u+3$
c_3, c_4, c_9	$u^{90}+u^{89}+\cdots+13u-1$
c_5, c_{12}	$u^{90}-3u^{89}+\cdots-19u+3$
c_7, c_{11}	$u^{90}+u^{89}+\cdots-17u-1$
c_8	$1089(1089u^{90}+7095u^{89}+\cdots+166909u-7597)$
c_{10}	$1089(1089u^{90}+5709u^{89}+\cdots+497255u+37873)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{90} + 41y^{89} + \cdots + 119237y + 81$
c_2, c_6	$y^{90} - 35y^{89} + \cdots - 223y + 9$
c_3, c_4, c_9	$y^{90} + 89y^{89} + \cdots - 83y + 1$
c_5, c_{12}	$y^{90} + 57y^{89} + \cdots + 65y + 9$
c_7, c_{11}	$y^{90} - 63y^{89} + \cdots - 275y + 1$
c_8	1185921 $\cdot (1185921y^{90} - 32124411y^{89} + \cdots - 5463038131y + 57714409)$
c_{10}	1185921 $\cdot (1185921y^{90} + 31046301y^{89} + \cdots - 127015229803y + 1434364129)$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.884407+0.552119I$		
$a=$	$0.67651-1.37576I$	$-5.7142-13.3590I$	0
$b=$	$1.101550+0.648053I$		
$u=$	$0.884407-0.552119I$		
$a=$	$0.67651+1.37576I$	$-5.7142+13.3590I$	0
$b=$	$1.101550-0.648053I$		
$u=$	$0.601482+0.851986I$		
$a=$	$0.21021-1.43020I$	$-8.19443+0.91794I$	0
$b=$	$1.058390+0.151927I$		
$u=$	$0.601482-0.851986I$		
$a=$	$0.21021+1.43020I$	$-8.19443-0.91794I$	0
$b=$	$1.058390-0.151927I$		
$u=$	$-0.814653+0.489377I$		
$a=$	$-0.491507-1.062780I$	$-3.95289-2.63059I$	0
$b=$	$-0.465241+0.591482I$		
$u=$	$-0.814653-0.489377I$		
$a=$	$-0.491507+1.062780I$	$-3.95289+2.63059I$	0
$b=$	$-0.465241-0.591482I$		
$u=$	$-0.771114+0.546663I$		
$a=$	$-0.422283-0.500726I$	$-3.81555+7.81863I$	0
$b=$	$0.466094+0.844275I$		
$u=$	$-0.771114-0.546663I$		
$a=$	$-0.422283+0.500726I$	$-3.81555-7.81863I$	0
$b=$	$0.466094-0.844275I$		
$u=$	$0.900983+0.596501I$		
$a=$	$-0.093843+0.502442I$	$0.35978-1.93194I$	0
$b=$	$0.675937-0.597711I$		
$u=$	$0.900983-0.596501I$		
$a=$	$-0.093843-0.502442I$	$0.35978+1.93194I$	0
$b=$	$0.675937+0.597711I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.098559 + 1.088140I$ $a = 0.503311 + 0.971372I$ $b = 0.794285 + 0.078555I$	$-0.372000 - 0.941624I$	0
$u = 0.098559 - 1.088140I$ $a = 0.503311 - 0.971372I$ $b = 0.794285 - 0.078555I$	$-0.372000 + 0.941624I$	0
$u = 0.552124 + 0.658398I$ $a = -0.58144 + 1.50903I$ $b = -0.934698 - 0.601704I$	$1.69508 - 3.63423I$	0
$u = 0.552124 - 0.658398I$ $a = -0.58144 - 1.50903I$ $b = -0.934698 + 0.601704I$	$1.69508 + 3.63423I$	0
$u = -0.302255 + 0.800949I$ $a = 0.372411 + 0.562512I$ $b = -0.686516 - 0.599127I$	$2.40975 - 1.13743I$	0
$u = -0.302255 - 0.800949I$ $a = 0.372411 - 0.562512I$ $b = -0.686516 + 0.599127I$	$2.40975 + 1.13743I$	0
$u = -1.076480 + 0.436655I$ $a = 0.595229 + 1.070310I$ $b = 0.954303 - 0.607541I$	$-0.46815 + 6.73608I$	0
$u = -1.076480 - 0.436655I$ $a = 0.595229 - 1.070310I$ $b = 0.954303 + 0.607541I$	$-0.46815 - 6.73608I$	0
$u = 0.960861 + 0.666348I$ $a = -0.021599 - 0.436431I$ $b = -1.029310 + 0.585367I$	$-5.49644 + 7.35262I$	0
$u = 0.960861 - 0.666348I$ $a = -0.021599 + 0.436431I$ $b = -1.029310 - 0.585367I$	$-5.49644 - 7.35262I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.761360 + 0.304996I$ $a = -0.866787 + 0.057866I$ $b = -1.213130 + 0.029847I$	$-9.78593 - 5.59963I$	0
$u = 0.761360 - 0.304996I$ $a = -0.866787 - 0.057866I$ $b = -1.213130 - 0.029847I$	$-9.78593 + 5.59963I$	0
$u = -0.609807 + 0.522517I$ $a = -0.83495 - 1.34108I$ $b = -1.111850 + 0.628955I$	$-1.34383 + 8.34560I$	0
$u = -0.609807 - 0.522517I$ $a = -0.83495 + 1.34108I$ $b = -1.111850 - 0.628955I$	$-1.34383 - 8.34560I$	0
$u = -0.023627 + 1.287760I$ $a = -0.321563 + 0.311867I$ $b = -0.825395 - 0.322297I$	$2.72401 - 1.49869I$	0
$u = -0.023627 - 1.287760I$ $a = -0.321563 - 0.311867I$ $b = -0.825395 + 0.322297I$	$2.72401 + 1.49869I$	0
$u = -0.623609 + 0.336920I$ $a = 0.405546 + 0.480688I$ $b = 0.992798 + 0.546801I$	$-1.81658 - 4.27889I$	$-8.84469 + 3.54931I$
$u = -0.623609 - 0.336920I$ $a = 0.405546 - 0.480688I$ $b = 0.992798 - 0.546801I$	$-1.81658 + 4.27889I$	$-8.84469 - 3.54931I$
$u = -0.683352 + 0.035665I$ $a = -1.15998 - 1.27267I$ $b = -0.737342 - 0.023719I$	$-3.54008 - 2.29909I$	$-15.6562 + 3.4828I$
$u = -0.683352 - 0.035665I$ $a = -1.15998 + 1.27267I$ $b = -0.737342 + 0.023719I$	$-3.54008 + 2.29909I$	$-15.6562 - 3.4828I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.020939+1.317360I$ $a=\ \ 0.841938-0.798254I$ $b=-1.48993+0.39916I$	$-1.52334+1.49242I$	0
$u=-0.020939-1.317360I$ $a=\ \ 0.841938+0.798254I$ $b=-1.48993-0.39916I$	$-1.52334-1.49242I$	0
$u=\ \ 0.399308+0.534416I$ $a=\ \ 0.379511-0.330704I$ $b=-0.385031+0.822298I$	$0.75694-2.95526I$	$-5.08894+6.31612I$
$u=\ \ 0.399308-0.534416I$ $a=\ \ 0.379511+0.330704I$ $b=-0.385031-0.822298I$	$0.75694+2.95526I$	$-5.08894-6.31612I$
$u=-0.012917+1.352440I$ $a=-0.573501+0.807296I$ $b=-1.029960-0.423805I$	$2.50328-1.37457I$	0
$u=-0.012917-1.352440I$ $a=-0.573501-0.807296I$ $b=-1.029960+0.423805I$	$2.50328+1.37457I$	0
$u=\ \ 0.067251+1.357430I$ $a=\ \ 0.84277+1.88859I$ $b=-1.16317-0.98650I$	$-0.36011-4.01830I$	0
$u=\ \ 0.067251-1.357430I$ $a=\ \ 0.84277-1.88859I$ $b=-1.16317+0.98650I$	$-0.36011+4.01830I$	0
$u=-0.222723+1.348860I$ $a=\ \ 0.456670+0.372203I$ $b=\ \ 1.086160-0.137606I$	$0.79911+5.51509I$	0
$u=-0.222723-1.348860I$ $a=\ \ 0.456670-0.372203I$ $b=\ \ 1.086160+0.137606I$	$0.79911-5.51509I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.039927+1.392050I$ $a=\ \ 0.95543-2.34340I$ $b=-0.900060+0.718184I$	$2.99123+2.77285I$	0
$u=-0.039927-1.392050I$ $a=\ \ 0.95543+2.34340I$ $b=-0.900060-0.718184I$	$2.99123-2.77285I$	0
$u=-0.10475+1.41483I$ $a=\ \ 0.33002-1.70854I$ $b=-0.443610+1.191010I$	$2.41571+5.48154I$	0
$u=-0.10475-1.41483I$ $a=\ \ 0.33002+1.70854I$ $b=-0.443610-1.191010I$	$2.41571-5.48154I$	0
$u=\ \ 0.558853+0.067857I$ $a=\ \ 1.216400-0.107507I$ $b=\ \ 0.626395+0.443533I$	$-0.656767-0.000726I$	$-8.13427+0.83328I$
$u=\ \ 0.558853-0.067857I$ $a=\ \ 1.216400+0.107507I$ $b=\ \ 0.626395-0.443533I$	$-0.656767+0.000726I$	$-8.13427-0.83328I$
$u=\ \ 0.26542+1.41434I$ $a=-0.232973-0.565179I$ $b=\ \ 1.314000+0.089191I$	$-4.30452-9.26784I$	0
$u=\ \ 0.26542-1.41434I$ $a=-0.232973+0.565179I$ $b=\ \ 1.314000-0.089191I$	$-4.30452+9.26784I$	0
$u=\ \ 0.08745+1.44566I$ $a=\ \ 0.198476+0.968695I$ $b=-0.218782-0.796710I$	$5.30144-2.85258I$	0
$u=\ \ 0.08745-1.44566I$ $a=\ \ 0.198476-0.968695I$ $b=-0.218782+0.796710I$	$5.30144+2.85258I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.327818 + 0.441969I$ $a = -0.099545 + 0.451228I$ $b = 0.301109 + 0.375256I$	$-0.66813 - 1.43680I$	$-6.16617 + 3.83190I$
$u = 0.327818 - 0.441969I$ $a = -0.099545 - 0.451228I$ $b = 0.301109 - 0.375256I$	$-0.66813 + 1.43680I$	$-6.16617 - 3.83190I$
$u = -0.11891 + 1.46792I$ $a = 0.057526 + 0.678177I$ $b = -0.137007 + 0.135778I$	$1.87058 + 0.46637I$	0
$u = -0.11891 - 1.46792I$ $a = 0.057526 - 0.678177I$ $b = -0.137007 - 0.135778I$	$1.87058 - 0.46637I$	0
$u = 0.13768 + 1.49636I$ $a = -0.74996 + 1.34987I$ $b = 0.498210 - 1.062710I$	$7.38590 - 4.95511I$	0
$u = 0.13768 - 1.49636I$ $a = -0.74996 - 1.34987I$ $b = 0.498210 + 1.062710I$	$7.38590 + 4.95511I$	0
$u = -0.100131 + 0.471351I$ $a = 2.11220 - 3.32866I$ $b = -0.964049 + 0.377227I$	$-3.14756 + 1.44573I$	$-4.22503 - 4.02855I$
$u = -0.100131 - 0.471351I$ $a = 2.11220 + 3.32866I$ $b = -0.964049 - 0.377227I$	$-3.14756 - 1.44573I$	$-4.22503 + 4.02855I$
$u = -0.20992 + 1.51115I$ $a = -0.21381 + 1.85989I$ $b = 1.164280 - 0.730065I$	$5.30348 + 11.36100I$	0
$u = -0.20992 - 1.51115I$ $a = -0.21381 - 1.85989I$ $b = 1.164280 + 0.730065I$	$5.30348 - 11.36100I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.362356+0.280081I$ $a=-0.184823+0.658930I$ $b=\ \ 0.618686-0.922375I$	$-3.02034+3.80722I$	$-12.3901-12.2378I$
$u=-0.362356-0.280081I$ $a=-0.184823-0.658930I$ $b=\ \ 0.618686+0.922375I$	$-3.02034-3.80722I$	$-12.3901+12.2378I$
$u=-0.455545$ $a=\ \ 0.918271$ $b=\ \ 1.29804$	-5.21822	-21.4390
$u=-0.12637+1.54084I$ $a=-0.84741-1.23122I$ $b=\ \ 0.664543+0.856677I$	$9.93804+0.62946I$	0
$u=-0.12637-1.54084I$ $a=-0.84741+1.23122I$ $b=\ \ 0.664543-0.856677I$	$9.93804-0.62946I$	0
$u=\ \ 0.19712+1.53432I$ $a=-0.17189-1.88654I$ $b=\ \ 1.026710+0.716217I$	$8.81454-6.47340I$	0
$u=\ \ 0.19712-1.53432I$ $a=-0.17189+1.88654I$ $b=\ \ 1.026710-0.716217I$	$8.81454+6.47340I$	0
$u=-0.27087+1.53581I$ $a=\ \ 0.91848+1.15081I$ $b=-0.528265-0.960828I$	$2.96732+11.64670I$	0
$u=-0.27087-1.53581I$ $a=\ \ 0.91848-1.15081I$ $b=-0.528265+0.960828I$	$2.96732-11.64670I$	0
$u=\ \ 0.28495+1.54061I$ $a=\ \ 0.816840-0.991181I$ $b=-0.614552+0.823078I$	$7.24264-6.09297I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.28495 - 1.54061I$ $a = 0.816840 + 0.991181I$ $b = -0.614552 - 0.823078I$	$7.24264 + 6.09297I$	0
$u = -0.35868 + 1.53724I$ $a = -0.07238 - 1.83005I$ $b = -1.041090 + 0.690643I$	$5.94783 + 11.76030I$	0
$u = -0.35868 - 1.53724I$ $a = -0.07238 + 1.83005I$ $b = -1.041090 - 0.690643I$	$5.94783 - 11.76030I$	0
$u = 0.419234$ $a = 1.19049$ $b = 0.448220$	-0.837454	-11.3960
$u = 0.31347 + 1.55118I$ $a = 0.04378 + 1.98364I$ $b = -1.129830 - 0.708605I$	$1.1030 - 17.7385I$	0
$u = 0.31347 - 1.55118I$ $a = 0.04378 - 1.98364I$ $b = -1.129830 + 0.708605I$	$1.1030 + 17.7385I$	0
$u = -0.07791 + 1.59074I$ $a = -0.60632 + 1.82194I$ $b = 0.858650 - 0.560842I$	$3.81494 + 2.23955I$	0
$u = -0.07791 - 1.59074I$ $a = -0.60632 - 1.82194I$ $b = 0.858650 + 0.560842I$	$3.81494 - 2.23955I$	0
$u = 0.396844 + 0.087718I$ $a = 0.682314 - 0.970412I$ $b = 1.179620 + 0.687311I$	$-4.83227 - 2.51063I$	$-22.5849 + 6.6629I$
$u = 0.396844 - 0.087718I$ $a = 0.682314 + 0.970412I$ $b = 1.179620 - 0.687311I$	$-4.83227 + 2.51063I$	$-22.5849 - 6.6629I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.59605 + 1.47867I$ $a = -0.16897 + 1.46056I$ $b = -0.905517 - 0.603390I$	$2.62833 - 4.59705I$	0
$u = 0.59605 - 1.47867I$ $a = -0.16897 - 1.46056I$ $b = -0.905517 + 0.603390I$	$2.62833 + 4.59705I$	0
$u = -0.44828 + 1.59412I$ $a = 0.455290 + 0.803082I$ $b = -0.769954 - 0.583754I$	$3.05678 - 0.13018I$	0
$u = -0.44828 - 1.59412I$ $a = 0.455290 - 0.803082I$ $b = -0.769954 + 0.583754I$	$3.05678 + 0.13018I$	0
$u = -0.248734 + 0.077419I$ $a = -1.68658 - 13.39090I$ $b = -0.778966 - 0.491080I$	$-3.15248 - 2.07759I$	$-32.3205 - 12.9726I$
$u = -0.248734 - 0.077419I$ $a = -1.68658 + 13.39090I$ $b = -0.778966 + 0.491080I$	$-3.15248 + 2.07759I$	$-32.3205 + 12.9726I$
$u = -0.05012 + 1.79536I$ $a = -0.41783 + 1.36347I$ $b = 0.843814 - 0.588669I$	$3.71537 + 2.33713I$	0
$u = -0.05012 - 1.79536I$ $a = -0.41783 - 1.36347I$ $b = 0.843814 + 0.588669I$	$3.71537 - 2.33713I$	0
$u = -0.195407 + 0.024903I$ $a = 3.63408 + 5.14416I$ $b = 0.904589 - 0.529555I$	$-1.74724 + 2.04591I$	$-12.42551 - 2.83945I$
$u = -0.195407 - 0.024903I$ $a = 3.63408 - 5.14416I$ $b = 0.904589 + 0.529555I$	$-1.74724 - 2.04591I$	$-12.42551 + 2.83945I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^{90}+35u^{89}+\cdots+223u+9$
c_2, c_6	$u^{90}-3u^{89}+\cdots-19u+3$
c_3, c_4, c_9	$u^{90}+u^{89}+\cdots+13u-1$
c_5, c_{12}	$u^{90}-3u^{89}+\cdots-19u+3$
c_7, c_{11}	$u^{90}+u^{89}+\cdots-17u-1$
c_8	$1089(1089u^{90}+7095u^{89}+\cdots+166909u-7597)$
c_{10}	$1089(1089u^{90}+5709u^{89}+\cdots+497255u+37873)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^{90}+41y^{89}+\cdots+119237y+81$
c_2, c_6	$y^{90}-35y^{89}+\cdots-223y+9$
c_3, c_4, c_9	$y^{90}+89y^{89}+\cdots-83y+1$
c_5, c_{12}	$y^{90}+57y^{89}+\cdots+65y+9$
c_7, c_{11}	$y^{90}-63y^{89}+\cdots-275y+1$
c_8	1185921 $\cdot(1185921y^{90}-32124411y^{89}+\cdots-5463038131y+57714409)$
c_{10}	1185921 $\cdot(1185921y^{90}+31046301y^{89}+\cdots-127015229803y+1434364129)$