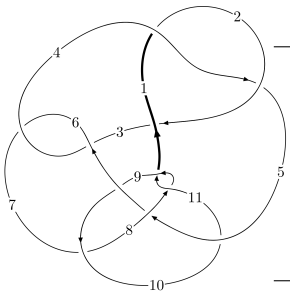
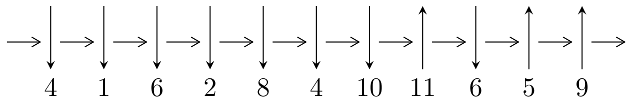
$11n_{46}$ $(K11n_{46})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -5.02472 \times 10^{36} u^{46} - 3.62196 \times 10^{37} u^{45} + \cdots + 8.54755 \times 10^{36} b - 2.09417 \times 10^{36},$$
$$- 5.51836 \times 10^{36} u^{46} - 4.22287 \times 10^{37} u^{45} + \cdots + 8.54755 \times 10^{36} a + 5.43355 \times 10^{37},\ u^{47} + 8u^{46} + \cdots + 7u -$$
$$I_2^u = \langle b - a + 1,\ a^6 - 5a^5 + 9a^4 - 8a^3 + 5a^2 - 2a + 1,\ u - 1 \rangle$$
$$I_3^u = \langle b - 1,\ a + 4u + 7,\ u^2 + u - 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 55 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.

$\boldsymbol{I_1^u = \langle -5.02\times 10^{36}u^{46} - 3.62\times 10^{37}u^{45} + \cdots + 8.55\times 10^{36}b - 2.09\times 10^{36},\ -5.52\times 10^{36}u^{46} - 4.22\times 10^{37}u^{45} + \cdots + 8.55\times 10^{36}a + 5.43\times 10^{37},\ u^{47} + 8u^{46} + \cdots + 7u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.645608u^{46} + 4.94044u^{45} + \cdots - 39.0274u - 6.35686 \\ 0.587855u^{46} + 4.23742u^{45} + \cdots + 6.17462u + 0.245002 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.809363u^{46} + 5.77890u^{45} + \cdots + 51.2482u + 7.31402 \\ 0.917596u^{46} + 6.82877u^{45} + \cdots + 8.41124u + 2.05442 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1.08058u^{46} + 8.14247u^{45} + \cdots + 9.68656u - 1.51066 \\ 0.508743u^{46} + 3.94324u^{45} + \cdots + 9.53527u + 1.05799 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.377639u^{46} + 2.54848u^{45} + \cdots - 12.1966u - 0.249306 \\ 0.653298u^{46} + 5.04572u^{45} + \cdots + 6.43493u + 1.03094 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.444835u^{46} + 2.50822u^{45} + \cdots + 42.3670u + 5.69307 \\ 2.59653u^{46} + 19.3282u^{45} + \cdots + 20.1382u + 4.02983 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.377639u^{46} + 2.54848u^{45} + \cdots - 12.1966u - 0.249306 \\ 1.15585u^{46} + 8.72441u^{45} + \cdots + 9.36570u + 1.50357 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.377639u^{46} + 2.54848u^{45} + \cdots - 12.1966u - 0.249306 \\ 1.15585u^{46} + 8.72441u^{45} + \cdots + 9.36570u + 1.50357 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -7.05583u^{46} - 61.7041u^{45} + \cdots + 99.8008u + 14.7497$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{47} - 8u^{46} + \cdots + 7u - 1$
c_2	$u^{47} + 18u^{46} + \cdots - 3u + 1$
c_3, c_6	$u^{47} - 2u^{46} + \cdots - 64u - 64$
c_5	$u^{47} - 3u^{46} + \cdots + 2u - 1$
c_7	$u^{47} - 8u^{46} + \cdots + 48u + 4$
c_8, c_{11}	$u^{47} + 4u^{46} + \cdots - 11u - 1$
c_9	$u^{47} - u^{46} + \cdots - 3568u - 5873$
c_{10}	$u^{47} + 3u^{46} + \cdots + 698u + 191$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{47} - 18y^{46} + \cdots - 3y - 1$
c_2	$y^{47} + 30y^{46} + \cdots - 1935y - 1$
c_3, c_6	$y^{47} + 36y^{46} + \cdots - 61440y - 4096$
c_5	$y^{47} + y^{46} + \cdots + 8y - 1$
c_7	$y^{47} + 12y^{46} + \cdots + 1080y - 16$
c_8, c_{11}	$y^{47} - 38y^{46} + \cdots + 407y - 1$
c_9	$y^{47} - 19y^{46} + \cdots + 74984424y - 34492129$
c_{10}	$y^{47} - 59y^{46} + \cdots + 1536176y - 36481$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.033480 + 0.093725I$ $a = -3.27954 + 1.31288I$ $b = -1.081150 + 0.125029I$	$0.321927 - 0.588102I$	$-6.8283 - 18.9142I$
$u = 1.033480 - 0.093725I$ $a = -3.27954 - 1.31288I$ $b = -1.081150 - 0.125029I$	$0.321927 + 0.588102I$	$-6.8283 + 18.9142I$
$u = -0.757104 + 0.786690I$ $a = -0.425941 + 0.514521I$ $b = -0.456029 + 0.425744I$	$3.72033 + 1.52573I$	$-5.00000 - 4.80548I$
$u = -0.757104 - 0.786690I$ $a = -0.425941 - 0.514521I$ $b = -0.456029 - 0.425744I$	$3.72033 - 1.52573I$	$-5.00000 + 4.80548I$
$u = 0.764975 + 0.478588I$ $a = 0.406292 - 0.390089I$ $b = -0.198952 + 0.856716I$	$-1.05831 - 3.36011I$	$-6.88945 + 7.26716I$
$u = 0.764975 - 0.478588I$ $a = 0.406292 + 0.390089I$ $b = -0.198952 - 0.856716I$	$-1.05831 + 3.36011I$	$-6.88945 - 7.26716I$
$u = -0.698652 + 0.895191I$ $a = -0.430113 - 0.271427I$ $b = -0.379185 + 1.269650I$	$4.30107 - 2.55894I$	0
$u = -0.698652 - 0.895191I$ $a = -0.430113 + 0.271427I$ $b = -0.379185 - 1.269650I$	$4.30107 + 2.55894I$	0
$u = 1.202260 + 0.035924I$ $a = -1.167100 - 0.796046I$ $b = -0.058543 - 0.584512I$	$-2.41059 + 1.46028I$	0
$u = 1.202260 - 0.035924I$ $a = -1.167100 + 0.796046I$ $b = -0.058543 + 0.584512I$	$-2.41059 - 1.46028I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.898968 + 0.805280I$ $a = 2.53734 - 1.10815I$ $b = -1.178330 - 0.064139I$	$5.31855 + 3.02042I$	0
$u = -0.898968 - 0.805280I$ $a = 2.53734 + 1.10815I$ $b = -1.178330 + 0.064139I$	$5.31855 - 3.02042I$	0
$u = -0.778806 + 0.103648I$ $a = 0.189578 + 0.862116I$ $b = 1.032870 + 0.611950I$	$-1.17157 + 5.91398I$	$2.20637 - 8.69493I$
$u = -0.778806 - 0.103648I$ $a = 0.189578 - 0.862116I$ $b = 1.032870 - 0.611950I$	$-1.17157 - 5.91398I$	$2.20637 + 8.69493I$
$u = 0.855886 + 0.862796I$ $a = -1.72616 - 0.65853I$ $b = 1.38287 - 0.35151I$	$3.93862 - 7.66972I$	0
$u = 0.855886 - 0.862796I$ $a = -1.72616 + 0.65853I$ $b = 1.38287 + 0.35151I$	$3.93862 + 7.66972I$	0
$u = -0.998921 + 0.724997I$ $a = -0.024266 - 0.535985I$ $b = -0.154567 - 0.525352I$	$2.96538 + 4.21460I$	0
$u = -0.998921 - 0.724997I$ $a = -0.024266 + 0.535985I$ $b = -0.154567 + 0.525352I$	$2.96538 - 4.21460I$	0
$u = -0.861156 + 0.894994I$ $a = 0.955021 - 0.682279I$ $b = -1.71720 + 0.56072I$	$8.18563 + 0.96335I$	0
$u = -0.861156 - 0.894994I$ $a = 0.955021 + 0.682279I$ $b = -1.71720 - 0.56072I$	$8.18563 - 0.96335I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.690875 + 0.281167I$ $a = -1.112220 + 0.602692I$ $b = -0.131471 - 0.129043I$	$-0.875787 - 0.039510I$	$-8.12380 - 0.07387I$
$u = 0.690875 - 0.281167I$ $a = -1.112220 - 0.602692I$ $b = -0.131471 + 0.129043I$	$-0.875787 + 0.039510I$	$-8.12380 + 0.07387I$
$u = -0.565814 + 1.147400I$ $a = -1.365050 + 0.208322I$ $b = 1.51205 - 0.45021I$	$10.31450 - 8.43955I$	0
$u = -0.565814 - 1.147400I$ $a = -1.365050 - 0.208322I$ $b = 1.51205 + 0.45021I$	$10.31450 + 8.43955I$	0
$u = -0.969617 + 0.854773I$ $a = 1.38412 - 1.02994I$ $b = -1.59947 - 0.76351I$	$7.84802 + 5.50326I$	0
$u = -0.969617 - 0.854773I$ $a = 1.38412 + 1.02994I$ $b = -1.59947 + 0.76351I$	$7.84802 - 5.50326I$	0
$u = 0.687161$ $a = 14.6161$ $b = -1.01048$	0.618242	−202.120
$u = 0.989321 + 0.869498I$ $a = -1.23050 - 0.78743I$ $b = 1.314120 + 0.116801I$	$3.55960 + 1.25869I$	0
$u = 0.989321 - 0.869498I$ $a = -1.23050 + 0.78743I$ $b = 1.314120 - 0.116801I$	$3.55960 - 1.25869I$	0
$u = -0.526112 + 1.208050I$ $a = -1.351960 + 0.132410I$ $b = 1.41271 - 0.07084I$	$9.82610 + 0.01608I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.526112 - 1.208050I$ $a = -1.351960 - 0.132410I$ $b = 1.41271 + 0.07084I$	$9.82610 - 0.01608I$	0
$u = -1.065440 + 0.776679I$ $a = 0.770185 - 0.171718I$ $b = -0.125387 - 1.358280I$	$3.17396 + 8.77694I$	0
$u = -1.065440 - 0.776679I$ $a = 0.770185 + 0.171718I$ $b = -0.125387 + 1.358280I$	$3.17396 - 8.77694I$	0
$u = -0.626077 + 0.139965I$ $a = -0.423419 + 1.223810I$ $b = 0.546092 + 0.803481I$	$-2.68564 - 0.62982I$	$-2.91172 - 0.97884I$
$u = -0.626077 - 0.139965I$ $a = -0.423419 - 1.223810I$ $b = 0.546092 - 0.803481I$	$-2.68564 + 0.62982I$	$-2.91172 + 0.97884I$
$u = -1.21414 + 0.79886I$ $a = -1.25398 + 1.21055I$ $b = 1.47839 + 0.56828I$	$8.2500 + 15.4047I$	0
$u = -1.21414 - 0.79886I$ $a = -1.25398 - 1.21055I$ $b = 1.47839 - 0.56828I$	$8.2500 - 15.4047I$	0
$u = 0.434172 + 0.311062I$ $a = 2.92847 - 0.34363I$ $b = -1.301780 + 0.320230I$	$2.25397 - 1.36700I$	$1.30471 + 4.47621I$
$u = 0.434172 - 0.311062I$ $a = 2.92847 + 0.34363I$ $b = -1.301780 - 0.320230I$	$2.25397 + 1.36700I$	$1.30471 - 4.47621I$
$u = 0.525437$ $a = -1.29376$ $b = 0.0495953$	-0.954527	-10.1140

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.25537+0.82211I$ $a=-1.029400+0.931591I$ $b=\ \ 1.325300+0.255686I$	$7.53187+7.19737I$	0
$u=-1.25537-0.82211I$ $a=-1.029400-0.931591I$ $b=\ \ 1.325300-0.255686I$	$7.53187-7.19737I$	0
$u=\ \ 1.52770+0.06121I$ $a=-0.176143-0.258177I$ $b=\ \ 1.310570-0.250980I$	$1.89096-4.57089I$	0
$u=\ \ 1.52770-0.06121I$ $a=-0.176143+0.258177I$ $b=\ \ 1.310570+0.250980I$	$1.89096+4.57089I$	0
$u=-1.59066$ $a=-0.532274$ $b=\ \ 0.956868$	-7.32077	0
$u=-0.093469+0.137034I$ $a=-1.57024-5.43032I$ $b=-0.930912-0.387874I$	$1.82947+1.07812I$	$2.48829-1.79959I$
$u=-0.093469-0.137034I$ $a=-1.57024+5.43032I$ $b=-0.930912+0.387874I$	$1.82947-1.07812I$	$2.48829+1.79959I$

II. $I_2^u = \langle b - a + 1,\ a^6 - 5a^5 + 9a^4 - 8a^3 + 5a^2 - 2a + 1,\ u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ a - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a^2 - a + 1 \\ a^2 - 2a + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a^3 + 2a^2 - a + 1 \\ -a^3 + 3a^2 - 2a \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ a^5 - 4a^4 + 4a^3 + a^2 - 2a + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ a^2 - 2a + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ a^5 - 4a^4 + 4a^3 + a^2 - 2a + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ a^5 - 4a^4 + 4a^3 + a^2 - 2a + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3a^5 + 8a^4 - 3a^3 - 3a^2 + 3a - 13$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_6	y^6
c_5, c_{10}	$y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1$
c_7, c_8, c_9 c_{11}	$y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.571757 + 0.664531I$ $b = -0.428243 + 0.664531I$	$-3.53554 + 0.92430I$	$-13.12292 - 1.33143I$
$u = 1.00000$ $a = 0.571757 - 0.664531I$ $b = -0.428243 - 0.664531I$	$-3.53554 - 0.92430I$	$-13.12292 + 1.33143I$
$u = 1.00000$ $a = -0.073950 + 0.558752I$ $b = -1.073950 + 0.558752I$	$-1.64493 - 5.69302I$	$-11.70582 + 2.69056I$
$u = 1.00000$ $a = -0.073950 - 0.558752I$ $b = -1.073950 - 0.558752I$	$-1.64493 + 5.69302I$	$-11.70582 - 2.69056I$
$u = 1.00000$ $a = 2.00219 + 0.29554I$ $b = 1.002190 + 0.295542I$	$0.245672 + 0.924305I$	$-5.17126 - 7.13914I$
$u = 1.00000$ $a = 2.00219 - 0.29554I$ $b = 1.002190 - 0.295542I$	$0.245672 - 0.924305I$	$-5.17126 + 7.13914I$

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

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\-u+1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-4u-7\\1\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-4u-6\\1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1\\-u+1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u\\-u+1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-3u-5\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-1\\0\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 41$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6	$y^2 - 3y + 1$
c_2, c_5, c_9 c_{10}	$y^2 - 7y + 1$
c_7	y^2
c_8, c_{11}	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -9.47214$ $b = 1.00000$	0.657974	41.0000
$u = -1.61803$ $a = -0.527864$ $b = 1.00000$	−7.23771	41.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^2+u-1)(u^{47}-8u^{46}+\cdots+7u-1)$
c_2	$((u+1)^6)(u^2+3u+1)(u^{47}+18u^{46}+\cdots-3u+1)$
c_3	$u^6(u^2+u-1)(u^{47}-2u^{46}+\cdots-64u-64)$
c_4	$((u+1)^6)(u^2-u-1)(u^{47}-8u^{46}+\cdots+7u-1)$
c_5	$(u^2-3u+1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot(u^{47}-3u^{46}+\cdots+2u-1)$
c_6	$u^6(u^2-u-1)(u^{47}-2u^{46}+\cdots-64u-64)$
c_7	$u^2(u^6+u^5+\cdots+u+1)(u^{47}-8u^{46}+\cdots+48u+4)$
c_8	$((u+1)^2)(u^6-u^5+\cdots-u+1)(u^{47}+4u^{46}+\cdots-11u-1)$
c_9	$(u^2+3u+1)(u^6-u^5+\cdots-u+1)(u^{47}-u^{46}+\cdots-3568u-5873)$
c_{10}	$(u^2+3u+1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot(u^{47}+3u^{46}+\cdots+698u+191)$
c_{11}	$((u-1)^2)(u^6+u^5+\cdots+u+1)(u^{47}+4u^{46}+\cdots-11u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^6)(y^2-3y+1)(y^{47}-18y^{46}+\cdots-3y-1)$
c_2	$((y-1)^6)(y^2-7y+1)(y^{47}+30y^{46}+\cdots-1935y-1)$
c_3, c_6	$y^6(y^2-3y+1)(y^{47}+36y^{46}+\cdots-61440y-4096)$
c_5	$(y^2-7y+1)(y^6+y^5+\cdots+3y+1)(y^{47}+y^{46}+\cdots+8y-1)$
c_7	$y^2(y^6-3y^5+\cdots-y+1)(y^{47}+12y^{46}+\cdots+1080y-16)$
c_8, c_{11}	$(y-1)^2(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{47}-38y^{46}+\cdots+407y-1)$
c_9	$(y^2-7y+1)(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{47}-19y^{46}+\cdots+74984424y-34492129)$
c_{10}	$(y^2-7y+1)(y^6+y^5+5y^4+6y^2+3y+1)$ $\cdot(y^{47}-59y^{46}+\cdots+1536176y-36481)$