PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b) = (z, z^6 + z^4 + z^3 + 1)$

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Abstract. The continued fraction conjecture claims that the continued fraction defined by the (a,b)-Thue-Morse sequence is algebraic over $\mathbb{F}_2(x)$ for all pairs of distinct elements (a,b) in $\mathbb{F}_2[x] \setminus \mathbb{F}_2$. In this paper we prove the conjecture for $(a,b) = (z, z^6 + z^4 + z^3 + 1)$.

1. Introduction

Let $\mathbb{F}_2$ be the finite field of cardinality 2. Given a sequence of polynomials $\mathbf{a} = (a_0(z), a_1(z), a_2(z), \ldots)$ of elements from $\mathbb{F}_2[z] \setminus \mathbb{F}_2$, we define the infinite continued fraction

$$\mathrm{CF}(\mathbf{a}(z)) = \cfrac{1}{a_0(z) + \cfrac{1}{a_1(z) + \cfrac{1}{a_2(z) + \cfrac{1}{\ddots}}}} \tag{1.1}$$

as the limit of the finite continued fractions

$$\mathrm{CF}_n(\mathbf{a}(z)) = \cfrac{1}{a_0(z) + \cfrac{1}{a_1(z) + \cfrac{1}{\ddots + \cfrac{1}{a_n(z)}}}} \in \mathbb{F}_2((1/z)). \tag{1.2}$$

Conversely, each power series in $\mathbb{F}_2[[1/z]]$ without constant term

$$c_{-1}z^{-1} + c_{-2}z^{-2} + c_{-3}z^{-3} + \cdots \tag{1.3}$$

admits a continued fraction expansion of form (1.1).

Let a and b be two distinct elements from $\mathbb{F}_2[z] \setminus \mathbb{F}_2$. We consider the continued fraction (1.1) associated with the (a,b)-Thue-Morse sequence

$$\mathbf{t} = (t_0(z), t_1(z), t_2(z), \ldots) = (a, b, b, a, b, a, a, b, \ldots)$$

that we shall denote

$$\mathrm{CF}(a,b) := \mathrm{CF}(\mathbf{t}). \tag{1.4}$$

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Theorem 1.1. *When $(a,b) = (z, z^6+z^4+z^3+1)$, the two power series* $\mathrm{CF}(a,b)$ *and* $\mathrm{CF}(b,a)$ *are algebraic over* $\mathbb{F}_2(z)$*, with minimal polynomials of the form*

$$p_4(z)y^4 + p_3(z)y^3 + p_2(z)y^2 + p_1(z)y + p_0(z) = 0$$

where, for $\mathrm{CF}(a,b)$,

$$\begin{aligned}
p_0(z) &= z^{24}+z^{21}+z^{18}+z^{12}+z^8+z^5+z^4+z^2+z+1,\\
p_1(z) &= z^{27}+z^{25}+z^{22}+z^{15}+z^{13}+z^9+z^6+z^5+z^2+z,\\
p_2(z) &= z^{28}+z^{26}+z^{20}+z^{18}+z^{14}+z^{12}+z^{10}+z^2,\\
p_3(z) &= z^{27}+z^{25}+z^{22}+z^{15}+z^{13}+z^9+z^6+z^5+z^2+z,\\
p_4(z) &= z^{26}+z^{21}+z^{14}+z^{12}+z^{10}+z^8+z^5+z^4+z,
\end{aligned}$$

and for $\mathrm{CF}(b,a)$,

$$\begin{aligned}
p_0(z) &= z^{21}+z^{18}+z^{16}+z^8+z^5+z^2+z,\\
p_1(z) &= z^{27}+z^{25}+z^{22}+z^{15}+z^{13}+z^9+z^6+z^5+z^2+z,\\
p_2(z) &= z^{28}+z^{26}+z^{20}+z^{18}+z^{14}+z^{12}+z^{10}+z^2,\\
p_3(z) &= z^{27}+z^{25}+z^{22}+z^{15}+z^{13}+z^9+z^6+z^5+z^2+z,\\
p_4(z) &= z^{26}+z^{24}+z^{21}+z^{16}+z^{14}+z^{10}+z^8+z^5+z+1.
\end{aligned}$$

2. Proof

Define the sequences of polynomials $(P_n(z))_{n\geq 0}$ and $(Q_n(z))_{n\geq 0}$ by

$$\begin{pmatrix} P_n(z) & Q_n(z) \\ P_{n-1}(z) & Q_{n-1}(z)\end{pmatrix} := \begin{pmatrix} t_n(z) & 1 \\ 1 & 0\end{pmatrix}\begin{pmatrix} t_{n-1}(z) & 1 \\ 1 & 0\end{pmatrix}\cdots\begin{pmatrix} t_0(z) & 1 \\ 1 & 0\end{pmatrix}\begin{pmatrix} 0 & 1 \\ 1 & 0\end{pmatrix}.$$

By the basic properties of continued fractions, we have

$$\mathrm{CF}_n(a,b) = \frac{P_n(z)}{Q_n(z)} \in \mathbb{F}_2((1/z)). \tag{2.1}$$

As formula (2.1) is not efficient for calculating $\mathrm{CF}_n(a,b)$, a fast method is to be derived and described as follows. Define

$$\begin{aligned}
M_n(x) &= x^{\deg(t_{2^n-1})}\begin{pmatrix} t_{2^n-1}(1/x) & 1 \\ 1 & 0\end{pmatrix} \times x^{\deg(t_{2^n-2})}\begin{pmatrix} t_{2^n-2}(1/x) & 1 \\ 1 & 0\end{pmatrix} \times \\
&\qquad \cdots \times x^{\deg(t_0)}\begin{pmatrix} t_0(1/x) & 1 \\ 1 & 0\end{pmatrix},\\
W_n(x) &= x^{\deg(\bar t_{2^n-1})}\begin{pmatrix} \bar t_{2^n-1}(1/x) & 1 \\ 1 & 0\end{pmatrix} \times x^{\deg(\bar t_{2^n-2})}\begin{pmatrix} \bar t_{2^n-2}(1/x) & 1 \\ 1 & 0\end{pmatrix} \times \\
&\qquad \cdots \times x^{\deg(\bar t_0)}\begin{pmatrix} \bar t_0(1/x) & 1 \\ 1 & 0\end{pmatrix},
\end{aligned}$$

where $\bar{\mathbf{t}}$ is the (b,a)-Thue-Morse sequence. By the properties of the Thue-Morse sequence, we have for $n \geq 0$

$$\begin{aligned}
M_{n+1}(x) &= W_n(x)\cdot M_n(x),\\
W_{n+1}(x) &= M_n(x)\cdot W_n(x).
\end{aligned}$$

Let $x := 1/z$. For each non-zero polynomial $P(z)$, define $\tilde{P}(x)$ to be $P(1/x)$. Then,

$$\mathrm{CF}_n(a,b) = \frac{P_n(z)}{Q_n(z)} = \frac{\tilde{P}_n(x)}{\tilde{Q}_n(x)} \in \mathbb{F}_2((x)) = \mathbb{F}_2((1/z)).$$

Comparing the definition of $M_n(x)$ with the definition of $P_n(x)$ and $Q_n(x)$, we see that

$$M_n(x)_{0,1} = x^{d_n}\tilde{P}_{2^n-1}(x),$$
$$M_n(x)_{0,0} = x^{d_n}\tilde{Q}_{2^n-1}(x),$$

for some positive integer d_n. Hence,

$$\mathrm{CF}_{2^{2n}-1}(a,b) = \frac{\tilde{P}_{2^{2n}-1}(x)}{\tilde{Q}_{2^{2n}-1}(x)} = \frac{M_{2n}(x)_{0,1}}{M_{2n}(x)_{0,0}}. \tag{2.2}$$

Therefore, by the convergence theorem of continued fraction, the algebraicity of $\mathrm{CF}(a,b)$ will be established if it is shown that both $M_{2n}(x)_{0,1}$ and $M_{2n}(x)_{0,0}$ converge to algebraic series in $\mathbb{F}_2[[x]]$.

Actually, we will prove that for all $0 \le i,j \le 1$ the four sequences $(M_{2n}(x)_{i,j})_n$, $(M_{2n+1}(x)_{i,j})_n$, $(W_{2n}(x)_{i,j})_n$, and $(W_{2n+1}(x)_{i,j})_n$ converge to algebraic series in $\mathbb{F}_2[[x]]$. For this purpose, we define four 2×2 matrices M^e, M^o, W^e, W^o as follows: For each $T \in \{M^e, M^o, W^e, W^o\}$ and $0 \le i,j \le 1$, $T_{i,j}$ is defined to be the unique solution in $\mathbb{F}_2[[x]]$ of the polynomial $\phi(T,i,j)$ under certain initial conditions; the polynomials $\phi(T,i,j)$ and initial conditions are given in Section 3. We will prove that these four matrices, whose components are algebraic by definition, are the limits of $(M_{2n}(x))_n$, $(M_{2n+1}(x))_n$, $(W_{2n}(x))_n$, and $(W_{2n+1}(x))_n$.

Let us explain how the polynomials $\phi(T,i,j)$ and initial conditions are found, and why the solutions exist and are unique. For $0 \le i,j \le 1$, the the coefficients of the polynomial $\phi(M^e,i,j)$ (resp. $\phi(M^o,i,j)$, $\phi(W^e,i,j)$, and $\phi(W^o,i,j)$) are the Padé-Hermite approximants of type

$$(175, 175, 175, 175, 175)$$

of the vector

$$(1, T^3, T^6, T^9, T^{12}),$$

where $T = M_{12,i,j}$ (resp. $M_{11,i,j}$, $W_{12,i,j}$, and $W_{11,i,j}$), found by the Derksen algorithm. We take the first 8 terms of $M_{12,i,j}$ (resp. $M_{11,i,j}$, $W_{12,i,j}$, and $W_{11,i,j}$) as initial conditions for $\phi(M^e,i,j)$ (resp. $\phi(M^o,i,j)$, $\phi(W^e,i,j)$, and $\phi(W^o,i,j)$). The following fact will be used to ensure that the solution exists and is unique: let $P(x,y) \in \mathbb{F}_2[x,y]$ and for each series $f(x) = \sum_{n=0}^{\infty} a_n x^n \in \mathbb{F}_2[[x]]$ denote the partial sum $\sum_{j=0}^{n-1} a_j x^j$ by $f_n(x)$ for $n \ge 0$. If for some $n \ge 0$ and $a_0, a_1, \ldots, a_{n-1} \in \mathbb{F}_2$ $P(x, \sum_{j=0}^{n-1} a_j x^j) = O(x^n)$ and $Q(x,y) := P(x, \sum_{j=0}^{n-1} a_j x^j + x^n y)$ can be written as $x^m \sum_{j=0}^{\infty} q_j(x) y^j$ where $q_j(x)$ are polynomials for $j \ge 0$, $q_1(0) = 1$, and $q_j(0) = 0$ for $j > 1$, then there exists a unique solution $f(x) \in \mathbb{F}_2[[x]]$ of $P(x, f(x)) = 0$ that satisfies the initial condition $f_n(x) = \sum_{j=0}^{n-1} a_j x^j$.

We state two lemmas concerning the four matrices M^e, M^o, W^e, W^o. The first one is about relations between them; the second, about the structure of the each matrix.

Lemma 2.1. *We have*

$$M^e = W^o \cdot M^o, \tag{2.3}$$

$$M^o = W^e \cdot M^e, \tag{2.4}$$

$$W^e = M^o \cdot W^o, \tag{2.5}$$

$$W^o = M^e \cdot W^e. \tag{2.6}$$

Proof. We give the proof of the identity

$$M^e_{0,0} = W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0},$$

the proofs of the others being similar.

First, we compute the minimal polynomials of $W^o_{0,0} M^o_{0,0}$ and $W^o_{0,1} M^o_{1,0}$. We know that

$$P(x,y) = \mathrm{Res}_z \left(\phi(W^o,0,0)(x,z),\ z^{12} \cdot \phi(M^o,0,0)(x,y/z)\right)$$

is an annihilating polynomial of $W^o_{0,0} M^o_{0,0}$. We use Padé-Hermite approximation to find a candidate for the minimal polynomial of $W^o_{0,0} M^o_{0,0}$, that will be called $\phi_0(x,y)$. To prove that $\phi_0(x,y)$ is indeed the minimal polynomial, it suffices to prove that it is an irreducible factor of $P(x,y)$ of multiplicity m and that $Q(x,y) := P(x,y)/\phi_0(x,y)^m$ is not an annihilating polynomial of $W^o_{0,0} M^o_{0,0}$. We verify the first point directly. For the second point, we truncate $W^o_{0,0} M^o_{0,0}$ to order 630 and substitute it for y in $Q(x,y)$. We get a series of valuation less than 630, which proves that $Q(x,y)$ is not an annihilating polynomial of $W^o_{0,0} M^o_{0,0}$. We find the minimal polynomial $\phi_1(x,y)$ of $W^o_{0,1} M^o_{1,0}$ in a similar way.

Now we prove that $\phi(M^e,0,0)$ is the minimal polynomial of $W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0}$. We know that

$$S(x,y) = \mathrm{Res}_z \left(\phi_0(x,z),\ \phi_1(x,y+z)\right)$$

is an annihilating of $W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0}$. We verify that $\phi(M^e,0,0)$ is an irreducible factor of $S(x,y)$ of multiplicity μ, and that $Q(x,y) := S(x,y)/\phi(M^e,0,0)^\mu$ is not an annihilating polynomial of $W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0}$. To see the last point, we truncate $W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0}$ to order 770 and substitute it for y in $Q(x,y)$. We get a series of valuation less than 770, and therefore $Q(x,y)$ is not an annihilating polynomial of $W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0}$.

Finally, the first 16 terms of $M^e_{0,0}$ and $W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0}$ coincide. As these first terms determine a unique solution of $\phi(M^e,0,0)$, we know that the two series are one and the same. ☐

Define

$$R^e = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \qquad \text{and} \qquad R^o = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}.$$

Lemma 2.2. *For all integers $k \geq 2$ and $u = 2^{2k-1}$, the following identities hold.*

$$\begin{aligned} M^e[:14u] = {} & M^e[:7u] + x^{3u} M^e[:4u] + x^{5u} M^e[:2u] + x^{6u} M^e[:u] + x^{3u} M^e[:7u] \\ & + x^{6u} M^e[:4u] + x^{8u} M^e[:2u] + x^{9u} M^e[:u] + x^{5u} M^e[:7u] \\ & + x^{8u} M^e[:4u] + x^{10u} M^e[:2u] + x^{11u} M^e[:u] + x^{7u} M^e[:7u] \\ & + x^{10u} M^e[:4u] + x^{13u} M^e[:u] + x^{11u} M^e[:3u] \\ & + (x^{7u} + x^{10u} + x^{12u}) R^e, \end{aligned}$$

$$W^e[:14u] = W^e[:7u] + x^{3u} W^e[:4u] + x^{5u} W^e[:2u] + x^{6u} W^e[:u] + x^{3u} W^e[:7u]$$

$$
\begin{aligned}
&+ x^{6u}W^e[:4u] + x^{8u}W^e[:2u] + x^{9u}W^e[:u] + x^{5u}W^e[:7u] \\
&+ x^{8u}W^e[:4u] + x^{10u}W^e[:2u] + x^{11u}W^e[:u] + x^{7u}W^e[:7u] \\
&+ x^{10u}W^e[:4u] + x^{13u}W^e[:u] + x^{11u}W^e[:3u] \\
&+ (x^{7u} + x^{10u} + x^{12u})R^e.
\end{aligned}
$$

For all integers $k \geq 2$ and $u = 2^{2k}$, the following identities hold.

$$
\begin{aligned}
M^o[:14u] = {} & M^o[:7u] + x^{3u}M^o[:4u] + x^{5u}M^o[:2u] + x^{6u}M^o[:u] + x^{3u}M^o[:7u] \\
&+ x^{6u}M^o[:4u] + x^{8u}M^o[:2u] + x^{9u}M^o[:u] + x^{5u}M^o[:7u] \\
&+ x^{8u}M^o[:4u] + x^{10u}M^o[:2u] + x^{11u}M^o[:u] + x^{7u}M^o[:7u] \\
&+ x^{10u}M^o[:4u] + x^{13u}M^o[:u] + x^{11u}M^o[:3u] \\
&+ (x^{7u} + x^{10u} + x^{12u})R^o, \\
W^o[:14u] = {} & W^o[:7u] + x^{3u}W^o[:4u] + x^{5u}W^o[:2u] + x^{6u}W^o[:u] + x^{3u}W^o[:7u] \\
&+ x^{6u}W^o[:4u] + x^{8u}W^o[:2u] + x^{9u}W^o[:u] + x^{5u}W^o[:7u] \\
&+ x^{8u}W^o[:4u] + x^{10u}W^o[:2u] + x^{11u}W^o[:u] + x^{7u}W^o[:7u] \\
&+ x^{10u}W^o[:4u] + x^{13u}W^o[:u] + x^{11u}W^o[:3u] \\
&+ (x^{7u} + x^{10u} + x^{12u})R^o.
\end{aligned}
$$

Proof. To prove Lemma 2.2 we first construct an automaton for each sequence concerned, and then transform the conditions on infinitely many k's into finitely many conditions on the states of the automaton. In the following, we will prove that for $T = M^o_{0,0}$, for all integer $k \geq 2$ and $u = 2^{2k}$,

$$
\begin{aligned}
T[:14u] = {} & T[:7u] + x^{3u}T[:4u] + x^{5u}T[:2u] + x^{6u}T[:u] + x^{3u}T[:7u] + x^{6u}T[:4u] \\
&+ x^{8u}T[:2u] + x^{9u}T[:u] + x^{5u}T[:7u] + x^{8u}T[:4u] + x^{10u}T[:2u] \\
&+ x^{11u}T[:u] + x^{7u}T[:7u] + x^{10u}T[:4u] + x^{13u}T[:u] + x^{11u}T[:3u].
\end{aligned}
$$

The proof of the other 15 cases are similar. We break down the above identity into 7 parts:

$$
\begin{aligned}
0 &= x^{7u}T[:u] + x^{6u}T[u:2u] + x^{5u}T[2u:3u] + x^{3u}T[4u:5u] + T[7u:8u], \\
0 &= x^{7u}T[u:2u] + x^{6u}T[2u:3u] + x^{5u}T[3u:4u] + x^{3u}T[5u:6u] \\
&\quad + T[8u:9u], \\
0 &= x^{9u}T[:u] + x^{7u}T[2u:3u] + x^{6u}T[3u:4u] + x^{5u}T[4u:5u] \\
&\quad + x^{3u}T[6u:7u] + T[9u:10u], \\
0 &= x^{8u}T[2u:3u] + x^{7u}T[3u:4u] + x^{5u}T[5u:6u] + T[10u:11u], \\
0 &= x^{8u}T[3u:4u] + x^{7u}T[4u:5u] + x^{5u}T[6u:7u] + T[11u:12u], \\
0 &= x^{11u}T[u:2u] + x^{10u}T[2u:3u] + x^{7u}T[5u:6u] + T[12u:13u], \\
0 &= x^{13u}T[:u] + x^{11u}T[2u:3u] + x^{10u}T[3u:4u] + x^{7u}T[6u:7u] \\
&\quad + T[13u:14u],
\end{aligned}
$$

which can be rewritten as

$$
0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[111w]_2], \tag{2.7}
$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1000w]_2], \tag{2.8}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.9}$$

$$0 = T[[10w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1010w]_2], \tag{2.10}$$

$$0 = T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1011w]_2], \tag{2.11}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[101w]_2] + T[[1100w]_2], \tag{2.12}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.13}$$

for all binary word w of length $2k$ and $w \neq 0^{2k}$, and

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1000w]_2], \tag{2.15}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.16}$$

$$0 = T[[10w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1010w]_2], \tag{2.17}$$

$$0 = T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1011w]_2], \tag{2.18}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[101w]_2] + T[[1100w]_2], \tag{2.19}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.20}$$

for $w = 0^{2k}$.

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 3715 states; its transition function and output function can be found in the annex. Let $A(s, w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

$$E_{2k} = \{A(i, w) : |w| = 2k, w \neq 0^{2k}\}.$$

Identities (2.7) through (2.20) can be written as

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 1)) + \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 111)), \tag{2.21}$$

$$0 = \tau(A(s, 1)) + \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 101)) + \tau(A(s, 1000)), \tag{2.22}$$

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 100)) + \tau(A(s, 110)) + \tau(A(s, 1001)), \tag{2.23}$$

$$0 = \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 101)) + \tau(A(s, 1010)), \tag{2.24}$$

$$0 = \tau(A(s, 11)) + \tau(A(s, 100)) + \tau(A(s, 110)) + \tau(A(s, 1011)), \tag{2.25}$$

$$0 = \tau(A(s, 1)) + \tau(A(s, 10)) + \tau(A(s, 101)) + \tau(A(s, 1100)), \tag{2.26}$$

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 110)) + \tau(A(s, 1101)), \tag{2.27}$$

for all $s \in E_{2k}$, and

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 1)) + \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 111)), \tag{2.28}$$

$$\begin{aligned} 0 &= \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,101)) \\ &\quad + \tau(A(s,1000)), \end{aligned} \tag{2.29}$$

$$\begin{aligned} 0 &= \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ &\quad + \tau(A(s,110)) + \tau(A(s,1001)), \end{aligned} \tag{2.30}$$

$$0 = \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,101)) + \tau(A(s,1010)), \tag{2.31}$$

$$0 = \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,110)) + \tau(A(s,1011)), \tag{2.32}$$

$$0 = \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,101)) + \tau(A(s,1100)), \tag{2.33}$$

$$\begin{aligned} 0 &= \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,110)) \\ &\quad + \tau(A(s,1101)), \end{aligned} \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i, 0^{76}), E_{76}) = (A(i, 0^{16}), E_{16})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 38$, which turns out to be true. $\square$

In the following lemma, we express M_{2k}, M_{2k+1}, W_{2k}, and W_{2k+1} in terms of M^e, M^o, W^e, and W^o.

Lemma 2.3. *For all integer $k \ge 2$, and $u = 2^{2k-1}$,*

$$\begin{aligned} M_{2k} &= M^e[:7u] + x^{3u} M^e[:4u] + x^{5u} M^e[:2u] + x^{6u} M^e[:u] + x^{7u} R^e, \\ W_{2k} &= W^e[:7u] + x^{3u} W^e[:4u] + x^{5u} W^e[:2u] + x^{6u} W^e[:u] + x^{7u} R^e. \end{aligned}$$

For all integer $k \ge 2$, and $u = 2^{2k}$,

$$\begin{aligned} M_{2k+1} &= M^o[:7u] + x^{3u} M^o[:4u] + x^{5u} M^o[:2u] + x^{6u} M^o[:u] + x^{7u} R^o, \\ W_{2k+1} &= W^o[:7u] + x^{3u} W^o[:4u] + x^{5u} W^o[:2u] + x^{6u} W^o[:u] + x^{7u} R^o. \end{aligned}$$

Proof. We call the four identities in Lemma 2.3 also by the name M_{2k}, W_{2k}, M_{2k+1}, and W_{2k+1}. For $n = 2$, the identities can be verified directly. For $n \ge 2$, we claim that

$$\begin{aligned} M_{2k} \wedge W_{2k} &\Rightarrow M_{2k+1} \wedge W_{2k+1}, \\ M_{2k+1} \wedge W_{2k+1} &\Rightarrow M_{2k+2} \wedge W_{2k+2}. \end{aligned}$$

We give the proof of

$$M_{2k} \wedge W_{2k} \Rightarrow M_{2k+1},$$

the other ones being similar. Set $u = 2^{2k}$ and $v = 2^{2k-1}$. By definition and induction hypothesis, the left side of identity M_{2k+1} is equal to

$$\begin{aligned} W_{2k} M_{2k} = \big(& W^e[:7v] + x^{3v} W^e[:4v] + x^{5v} W^e[:2v] + x^{6v} W^e[:v] + x^{7u} R^e\big) \times \big(\\ & M^e[:7v] + x^{3v} M^e[:4v] + x^{5v} M^e[:2v] + x^{6v} M^e[:v] + x^{7u} R^e\big); \end{aligned} \tag{2.35}$$

Call this expression lhs. Note that both sides of identity M_{2k+1} have the same term of highest degree $x^{14v} R^o$. Therefore we only need to prove that their difference is $O(x^{14v})$. Using Lemma 2.1 it can be seen that the right side of identity M_{2k+1} is congruent, modulo x^{14v}, to

$$\begin{aligned} W^e[:14v] M^e[:14v] + x^{6v} W^e[:8v] M^e[:8v] + x^{10v} W^e[:4v] M^e[:4v] \\ + x^{12v} W^e[:2v] M^e[:2v]. \end{aligned}$$

For all $n \le 14$, replace the occurrences of $W^e[: n \cdot v]$ and $M^e[: n \cdot v]$ in the above expression by the reduction modulo $x^{n \cdot v}$ of the right side of the corresponding identity in Lemma 2.2 and get a new expression, which we call rhs. Define

$$\begin{aligned} X &:= x^v, \\ a_n &:= W^e[n \cdot v : (n+1) \cdot v]/X^n, \\ b_n &:= M^e[n \cdot v : (n+1) \cdot v]/X^n, \\ c &:= R^e. \end{aligned}$$

Using the notation introduced above, we can represent the expressions lhs (2.35) and rhs as polynomials in $\mathbb{F}_2[a_1, ..., a_{14}, b_1, ..., b_{14}, c][X]$. Note that it is not a problem that a_j commutes with b_k while W^e does not commute with M^e, because in the expressions concerned, the products of W^e-terms and M^e-terms are always in the same order. We let the computer do the simplification and check that the difference between these two polynomials is indeed $O(X^{14})$, which completes the proof. $\square$

Proof of Theorem 1.1. We prove the theorem for $\mathrm{CF}(a, b)$; for $\mathrm{CF}(b, a)$, the proof is similar. By Lemma 2.3, we have For all $0 \le j, k \le 1$,

$$\begin{aligned} \lim_{n\to\infty} M_{2n,j,k} &= M^e_{j,k}, \\ \lim_{n\to\infty} M_{2n+1,j,k} &= M^o_{j,k}, \\ \lim_{n\to\infty} W_{2n,j,k} &= W^e_{j,k}, \\ \lim_{n\to\infty} W_{2n+1,j,k} &= W^o_{j,k}. \end{aligned}$$

Let $z = 1/x$. By the convergence theorem and identity (2.2),

$$\mathrm{CF}(a, b) = \frac{M^e_{0,1}(x)}{M^e_{0,0}(x)}.$$

By definition, $\phi(M^e, 0, 1)$ and $\phi(M^e, 0, 0)$ are minimal polynomials of $M^e_{0,1}$ and $M^e_{0,0}$. Therefore

$$P(x, y) = \mathrm{Res}_t \left(\phi(M^e, 0, 1)(x, t), y^{12}\phi(M^e, 0, 1)(x, t/y)\right)$$

is an annihilating polynomial of $f(x) = M^e_{0,1}/M^e_{0,0}$.

Define

$$Q(x, y) = q_4(x)y^4 + q_3(x)y^3 + q_2(x)y^2 + q_1(x)y + q_0(x),$$

where

$$\begin{aligned} q_0(x) &= x^{28} + x^{27} + x^{26} + x^{24} + x^{23} + x^{20} + x^{16} + x^{10} + x^7 + x^4, \\ q_1(x) &= x^{27} + x^{26} + x^{23} + x^{22} + x^{19} + x^{15} + x^{13} + x^6 + x^3 + x, \\ q_2(x) &= x^{26} + x^{18} + x^{16} + x^{14} + x^{10} + x^8 + x^2 + 1, \\ q_3(x) &= x^{27} + x^{26} + x^{23} + x^{22} + x^{19} + x^{15} + x^{13} + x^6 + x^3 + x, \\ q_4(x) &= x^{27} + x^{24} + x^{23} + x^{20} + x^{18} + x^{16} + x^{14} + x^7 + x^2. \end{aligned}$$

The polynomial $Q(x, y)$ is the candidate for the minimal polynomial of $f(x)$ found by Padé-Hermite approximation. To prove that it is indeed the minimal polynomial of $f(x)$, we only need to prove that it is an irreducible factor of $P(x, y)$ of multiplicity m and $R(x, y) := P(x, y)/Q(x, y)^m$ is not an annihilating polynomial of $f(x)$. We verify the first point directly. For the second point, we find that when we truncate

$f(x)$ to order 216, and substitute it for y in $R(z,y)$, we get a series with valuation smaller than 216, which proves that $R(z,y)$ is not an annihilating polynomial of $f(x)$. Finally, $z^{12}Q(1/z,y)$ is the minimal polynomial of $\mathrm{CF}(a,b)=f(1/z)$. $\square$

3. Annexe

All 16 polynomials are of the form

$$p_0(x)+p_3(x)y^3+p_6(x)y^6+p_9(x)y^9+p_{12}(x)y^{12}.$$

The coefficients $p_j(x)$ and the 16 initial terms to determine the solutions uniquely are given below.

For $\phi(M^e,0,0)$:

$$\begin{aligned}
p_0(x) = {} & x^{162}+x^{156}+x^{154}+x^{150}+x^{148}+x^{146}+x^{142}+x^{138}+x^{134}+x^{128}\\
&+x^{122}+x^{120}+x^{116}+x^{110}+x^{106}+x^{104}+x^{102}+x^{100}+x^{96}+x^{94}\\
&+x^{88}+x^{86}+x^{82}+x^{78}+x^{74}+x^{70}+x^{64}+x^{62}+x^{54}+x^{48}+x^{44}\\
&+x^{42}+x^{40}+x^{36}+x^{32}+x^{22}+x^{12},\\
p_3(x) = {} & x^{156}+x^{152}+x^{150}+x^{148}+x^{146}+x^{138}+x^{132}+x^{130}+x^{128}+x^{126}\\
&+x^{120}+x^{118}+x^{116}+x^{108}+x^{106}+x^{104}+x^{98}+x^{96}+x^{94}+x^{92}\\
&+x^{90}+x^{80}+x^{78}+x^{74}+x^{70}+x^{48}+x^{46}+x^{44}+x^{42}+x^{40}+x^{38}\\
&+x^{34}+x^{22}+x^{8},\\
p_6(x) = {} & x^{158}+x^{156}+x^{154}+x^{148}+x^{140}+x^{138}+x^{134}+x^{132}+x^{130}+x^{128}\\
&+x^{124}+x^{122}+x^{112}+x^{108}+x^{104}+x^{100}+x^{96}+x^{94}+x^{92}+x^{88}\\
&+x^{78}+x^{74}+x^{72}+x^{70}+x^{68}+x^{66}+x^{64}+x^{54}+x^{46}+x^{42}+x^{32}\\
&+x^{30}+x^{28}+x^{14}+x^{10}+x^{4}+x^{2}+1,\\
p_9(x) = {} & x^{160}+x^{158}+x^{150}+x^{148}+x^{142}+x^{140}+x^{134}+x^{132}+x^{130}+x^{128}\\
&+x^{126}+x^{124}+x^{120}+x^{108}+x^{106}+x^{102}+x^{100}+x^{98}+x^{96}+x^{94}\\
&+x^{92}+x^{90}+x^{88}+x^{86}+x^{82}+x^{80}+x^{78}+x^{76}+x^{74}+x^{72}+x^{70}\\
&+x^{62}+x^{60}+x^{56}+x^{52}+x^{48}+x^{46}+x^{42}+x^{40}+x^{38}+x^{36}+x^{30}\\
&+x^{26}+x^{16}+x^{14}+x^{10}+x^{8}+x^{6}+x^{4}+x^{2},\\
p_{12}(x) = {} & x^{160}+x^{136}+x^{128}+x^{88}+x^{56}+x^{40}+x^{24}+1,
\end{aligned}$$

and the initial terms are [1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0].

For $\phi(M^e,0,1)$:

$$\begin{aligned}
p_0(x) = {} & x^{147}+x^{146}+x^{144}+x^{143}+x^{141}+x^{140}+x^{138}+x^{137}+x^{133}+x^{130}\\
&+x^{129}+x^{128}+x^{127}+x^{125}+x^{123}+x^{122}+x^{120}+x^{116}+x^{115}\\
&+x^{114}+x^{113}+x^{112}+x^{111}+x^{110}+x^{109}+x^{101}+x^{99}+x^{96}+x^{92}\\
&+x^{91}+x^{90}+x^{89}+x^{83}+x^{81}+x^{73}+x^{70}+x^{69}+x^{66}+x^{65}+x^{64}\\
&+x^{60}+x^{57}+x^{53}+x^{51}+x^{49}+x^{47}+x^{46}+x^{42}+x^{41}+x^{40}+x^{35}\\
&+x^{34}+x^{30}+x^{29}+x^{28}+x^{26}+x^{25}+x^{20}+x^{18},\\
p_3(x) = {} & x^{145}+x^{144}+x^{142}+x^{141}+x^{139}+x^{135}+x^{134}+x^{133}+x^{131}+x^{130}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{127} + x^{125} + x^{124} + x^{122} + x^{121} + x^{119} + x^{113} + x^{112} + x^{111}\\
&+ x^{109} + x^{108} + x^{104} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{95} + x^{90}\\
&+ x^{86} + x^{84} + x^{83} + x^{81} + x^{77} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67}\\
&+ x^{65} + x^{61} + x^{60} + x^{58} + x^{56} + x^{53} + x^{52} + x^{49} + x^{47} + x^{46} + x^{44}\\
&+ x^{43} + x^{41} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{31} + x^{29} + x^{28} + x^{26}\\
&+ x^{25} + x^{23} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{9},\\
p_6(x) = &x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{133}\\
&+ x^{131} + x^{128} + x^{126} + x^{123} + x^{120} + x^{119} + x^{116} + x^{115} + x^{112}\\
&+ x^{111} + x^{110} + x^{105} + x^{104} + x^{99} + x^{95} + x^{94} + x^{93} + x^{92} + x^{90}\\
&+ x^{89} + x^{88} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{74} + x^{73}\\
&+ x^{70} + x^{69} + x^{68} + x^{66} + x^{62} + x^{59} + x^{56} + x^{55} + x^{52} + x^{51} + x^{50}\\
&+ x^{45} + x^{44} + x^{42} + x^{40} + x^{37} + x^{33} + x^{32} + x^{31} + x^{25} + x^{21} + x^{20}\\
&+ x^{19} + x^{13} + x^{10} + x^{9} + x^{8} + x^{6},\\
p_9(x) = &x^{143} + x^{142} + x^{141} + x^{139} + x^{138} + x^{135} + x^{133} + x^{132} + x^{130} + x^{128}\\
&+ x^{125} + x^{124} + x^{123} + x^{122} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109}\\
&+ x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93}\\
&+ x^{89} + x^{86} + x^{82} + x^{80} + x^{79} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67}\\
&+ x^{64} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{47}\\
&+ x^{44} + x^{40} + x^{39} + x^{37} + x^{36} + x^{33} + x^{29} + x^{28} + x^{26} + x^{24} + x^{19}\\
&+ x^{16} + x^{15} + x^{14} + x^{9} + x^{6} + x^{3},\\
p_{12}(x) = &x^{142} + x^{139} + x^{138} + x^{136} + x^{130} + x^{127} + x^{124} + x^{123} + x^{122} + x^{120}\\
&+ x^{118} + x^{115} + x^{114} + x^{112} + x^{94} + x^{91} + x^{90} + x^{88} + x^{82} + x^{79}\\
&+ x^{76} + x^{75} + x^{74} + x^{72} + x^{70} + x^{67} + x^{66} + x^{64} + x^{62} + x^{59} + x^{58}\\
&+ x^{56} + x^{50} + x^{47} + x^{46} + x^{44} + x^{38} + x^{35} + x^{32} + x^{31} + x^{30} + x^{28}\\
&+ x^{22} + x^{19} + x^{16} + x^{15} + x^{12} + x^{11} + x^{10} + x^{8} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

and the initial terms are [0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0].

For $\phi(M^e, 1, 0)$:

$$
\begin{aligned}
p_0(x) = &x^{147} + x^{146} + x^{144} + x^{143} + x^{141} + x^{140} + x^{138} + x^{137} + x^{133} + x^{130}\\
&+ x^{129} + x^{128} + x^{127} + x^{125} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115}\\
&+ x^{114} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{101} + x^{99} + x^{96} + x^{92}\\
&+ x^{91} + x^{90} + x^{89} + x^{83} + x^{81} + x^{73} + x^{70} + x^{69} + x^{66} + x^{65} + x^{64}\\
&+ x^{60} + x^{57} + x^{53} + x^{51} + x^{49} + x^{47} + x^{46} + x^{42} + x^{41} + x^{40} + x^{35}\\
&+ x^{34} + x^{30} + x^{29} + x^{28} + x^{26} + x^{25} + x^{20} + x^{18},\\
p_3(x) = &x^{145} + x^{144} + x^{142} + x^{141} + x^{139} + x^{135} + x^{134} + x^{133} + x^{131} + x^{130}\\
&+ x^{127} + x^{125} + x^{124} + x^{122} + x^{121} + x^{119} + x^{113} + x^{112} + x^{111}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{109} + x^{108} + x^{104} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{95} + x^{90} \\
&+ x^{86} + x^{84} + x^{83} + x^{81} + x^{77} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67} \\
&+ x^{65} + x^{61} + x^{60} + x^{58} + x^{56} + x^{53} + x^{52} + x^{49} + x^{47} + x^{46} + x^{44} \\
&+ x^{43} + x^{41} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{31} + x^{29} + x^{28} + x^{26} \\
&+ x^{25} + x^{23} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{9}, \\
p_6(x) &= x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{133} \\
&+ x^{131} + x^{128} + x^{126} + x^{123} + x^{120} + x^{119} + x^{116} + x^{115} + x^{112} \\
&+ x^{111} + x^{110} + x^{105} + x^{104} + x^{99} + x^{95} + x^{94} + x^{93} + x^{92} + x^{90} \\
&+ x^{89} + x^{88} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{74} + x^{73} \\
&+ x^{70} + x^{69} + x^{68} + x^{66} + x^{62} + x^{59} + x^{56} + x^{55} + x^{52} + x^{51} + x^{50} \\
&+ x^{45} + x^{44} + x^{42} + x^{40} + x^{37} + x^{33} + x^{32} + x^{31} + x^{25} + x^{21} + x^{20} \\
&+ x^{19} + x^{13} + x^{10} + x^{9} + x^{8} + x^{6}, \\
p_9(x) &= x^{143} + x^{142} + x^{141} + x^{139} + x^{138} + x^{135} + x^{133} + x^{132} + x^{130} + x^{128} \\
&+ x^{125} + x^{124} + x^{123} + x^{122} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
&+ x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93} \\
&+ x^{89} + x^{86} + x^{82} + x^{80} + x^{79} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67} \\
&+ x^{64} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{47} \\
&+ x^{44} + x^{40} + x^{39} + x^{37} + x^{36} + x^{33} + x^{29} + x^{28} + x^{26} + x^{24} + x^{19} \\
&+ x^{16} + x^{15} + x^{14} + x^{9} + x^{6} + x^{3}, \\
p_{12}(x) &= x^{142} + x^{139} + x^{138} + x^{136} + x^{130} + x^{127} + x^{124} + x^{123} + x^{122} + x^{120} \\
&+ x^{118} + x^{115} + x^{114} + x^{112} + x^{94} + x^{91} + x^{90} + x^{88} + x^{82} + x^{79} \\
&+ x^{76} + x^{75} + x^{74} + x^{72} + x^{70} + x^{67} + x^{66} + x^{64} + x^{62} + x^{59} + x^{58} \\
&+ x^{56} + x^{50} + x^{47} + x^{46} + x^{44} + x^{38} + x^{35} + x^{32} + x^{31} + x^{30} + x^{28} \\
&+ x^{22} + x^{19} + x^{16} + x^{15} + x^{12} + x^{11} + x^{10} + x^{8} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

and the initial terms are [0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0].

For $\phi(M^e, 1, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{132} + x^{130} + x^{124} + x^{122} + x^{114} + x^{112} + x^{110} + x^{104} + x^{100} + x^{98} \\
&+ x^{94} + x^{90} + x^{88} + x^{80} + x^{78} + x^{76} + x^{72} + x^{66} + x^{64} + x^{62} + x^{54} \\
&+ x^{50} + x^{48} + x^{46} + x^{44} + x^{40} + x^{34} + x^{28} + x^{24}, \\
p_3(x) &= x^{126} + x^{124} + x^{122} + x^{120} + x^{118} + x^{110} + x^{108} + x^{106} + x^{100} + x^{90} \\
&+ x^{86} + x^{78} + x^{74} + x^{72} + x^{66} + x^{62} + x^{60} + x^{54} + x^{46} + x^{40} + x^{38} \\
&+ x^{36} + x^{30} + x^{28} + x^{26} + x^{24} + x^{22} + x^{20} + x^{18} + x^{14} + x^{8} + x^{6}, \\
p_6(x) &= x^{126} + x^{118} + x^{116} + x^{114} + x^{112} + x^{110} + x^{106} + x^{98} + x^{84} + x^{78} \\
&+ x^{74} + x^{72} + x^{70} + x^{68} + x^{66} + x^{64} + x^{60} + x^{58} + x^{54} + x^{48} + x^{46} \\
&+ x^{44} + x^{42} + x^{30} + x^{28} + x^{24} + x^{20} + x^{10} + x^{6} + x^{4} + x^{2} + 1,
\end{aligned}
$$

$$\begin{aligned}p_9(x) &= x^{124}+x^{122}+x^{118}+x^{110}+x^{108}+x^{106}+x^{102}+x^{100}+x^{94}+x^{88}\\&\quad+x^{86}+x^{84}+x^{76}+x^{68}+x^{62}+x^{60}+x^{58}+x^{52}+x^{48}+x^{46}+x^{42}\\&\quad+x^{34}+x^{32}+x^{24}+x^{18}+x^{16}+x^{10}+x^{8}+x^{4}+x^{2},\\p_{12}(x) &= x^{124}+x^{118}+x^{116}+x^{112}+x^{76}+x^{70}+x^{68}+x^{64}+x^{44}+x^{38}+x^{36}\\&\quad+x^{32}+x^{28}+x^{22}+x^{20}+x^{16}+x^{12}+x^{6}+x^{4}+1,\end{aligned}$$

and the initial terms are [0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0].

For $\phi(W^e,0,0)$:

$$\begin{aligned}p_0(x) &= x^{132}+x^{130}+x^{128}+x^{122}+x^{120}+x^{118}+x^{116}+x^{108}+x^{106}+x^{104}\\&\quad+x^{102}+x^{98}+x^{96}+x^{94}+x^{86}+x^{84}+x^{80}+x^{68}+x^{64}+x^{60}+x^{56}\\&\quad+x^{54}+x^{50}+x^{44}+x^{42}+x^{36}+x^{34}+x^{32}+x^{24}+x^{18}+x^{12},\\p_3(x) &= x^{126}+x^{124}+x^{114}+x^{112}+x^{110}+x^{108}+x^{106}+x^{104}+x^{102}+x^{100}\\&\quad+x^{98}+x^{96}+x^{90}+x^{88}+x^{86}+x^{84}+x^{82}+x^{68}+x^{66}+x^{64}+x^{58}\\&\quad+x^{46}+x^{40}+x^{32}+x^{28}+x^{26}+x^{22}+x^{18}+x^{16}+x^{12}+x^{10}+x^{8},\\p_6(x) &= x^{126}+x^{122}+x^{114}+x^{112}+x^{106}+x^{104}+x^{102}+x^{100}+x^{98}+x^{94}\\&\quad+x^{88}+x^{80}+x^{76}+x^{72}+x^{70}+x^{62}+x^{60}+x^{58}+x^{56}+x^{52}+x^{48}\\&\quad+x^{46}+x^{44}+x^{42}+x^{38}+x^{32}+x^{30}+x^{18}+x^{16}+x^{14}+x^{10}+x^{8}\\&\quad+x^{2}+1,\\p_9(x) &= x^{124}+x^{122}+x^{118}+x^{110}+x^{108}+x^{106}+x^{102}+x^{100}+x^{94}+x^{88}\\&\quad+x^{86}+x^{84}+x^{76}+x^{68}+x^{62}+x^{60}+x^{58}+x^{52}+x^{48}+x^{46}+x^{42}\\&\quad+x^{34}+x^{32}+x^{24}+x^{18}+x^{16}+x^{10}+x^{8}+x^{4}+x^{2},\\p_{12}(x) &= x^{124}+x^{118}+x^{116}+x^{112}+x^{76}+x^{70}+x^{68}+x^{64}+x^{44}+x^{38}+x^{36}\\&\quad+x^{32}+x^{28}+x^{22}+x^{20}+x^{16}+x^{12}+x^{6}+x^{4}+1,\end{aligned}$$

and the initial terms are [1, 0, 1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0].

For $\phi(W^e,0,1)$:

$$\begin{aligned}p_0(x) &= x^{147}+x^{145}+x^{144}+x^{143}+x^{142}+x^{140}+x^{139}+x^{136}+x^{135}+x^{131}\\&\quad+x^{129}+x^{126}+x^{125}+x^{124}+x^{123}+x^{122}+x^{119}+x^{113}+x^{112}\\&\quad+x^{110}+x^{109}+x^{107}+x^{106}+x^{102}+x^{99}+x^{98}+x^{95}+x^{92}+x^{89}\\&\quad+x^{88}+x^{87}+x^{86}+x^{83}+x^{82}+x^{79}+x^{77}+x^{74}+x^{73}+x^{72}+x^{70}\\&\quad+x^{67}+x^{66}+x^{64}+x^{63}+x^{61}+x^{58}+x^{56}+x^{53}+x^{52}+x^{50}+x^{49}\\&\quad+x^{48}+x^{45}+x^{44}+x^{43}+x^{42}+x^{39}+x^{38}+x^{36}+x^{35}+x^{33}+x^{32}\\&\quad+x^{27},\\p_3(x) &= x^{145}+x^{144}+x^{142}+x^{141}+x^{139}+x^{135}+x^{134}+x^{133}+x^{131}+x^{130}\\&\quad+x^{127}+x^{125}+x^{124}+x^{122}+x^{121}+x^{119}+x^{113}+x^{112}+x^{111}\\&\quad+x^{109}+x^{108}+x^{104}+x^{102}+x^{101}+x^{99}+x^{97}+x^{96}+x^{95}+x^{90}\\&\quad+x^{86}+x^{84}+x^{83}+x^{81}+x^{77}+x^{76}+x^{74}+x^{73}+x^{70}+x^{68}+x^{67}\end{aligned}$$

$$+ x^{65} + x^{61} + x^{60} + x^{58} + x^{56} + x^{53} + x^{52} + x^{49} + x^{47} + x^{46} + x^{44}$$
$$+ x^{43} + x^{41} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{31} + x^{29} + x^{28} + x^{26}$$
$$+ x^{25} + x^{23} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{9},$$

$$\begin{aligned}
p_6(x) = {} & x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{133} \\
& + x^{131} + x^{128} + x^{126} + x^{123} + x^{120} + x^{119} + x^{116} + x^{115} + x^{112} \\
& + x^{111} + x^{110} + x^{105} + x^{104} + x^{99} + x^{95} + x^{94} + x^{93} + x^{92} + x^{90} \\
& + x^{89} + x^{88} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{74} + x^{73} \\
& + x^{70} + x^{69} + x^{68} + x^{66} + x^{62} + x^{59} + x^{56} + x^{55} + x^{52} + x^{51} + x^{50} \\
& + x^{45} + x^{44} + x^{42} + x^{40} + x^{37} + x^{33} + x^{32} + x^{31} + x^{25} + x^{21} + x^{20} \\
& + x^{19} + x^{13} + x^{10} + x^{9} + x^{8} + x^{6},
\end{aligned}$$

$$\begin{aligned}
p_9(x) = {} & x^{143} + x^{142} + x^{141} + x^{139} + x^{138} + x^{135} + x^{133} + x^{132} + x^{130} + x^{128} \\
& + x^{125} + x^{124} + x^{123} + x^{122} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
& + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93} \\
& + x^{89} + x^{86} + x^{82} + x^{80} + x^{79} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67} \\
& + x^{64} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{47} \\
& + x^{44} + x^{40} + x^{39} + x^{37} + x^{36} + x^{33} + x^{29} + x^{28} + x^{26} + x^{24} + x^{19} \\
& + x^{16} + x^{15} + x^{14} + x^{9} + x^{6} + x^{3},
\end{aligned}$$

$$\begin{aligned}
p_{12}(x) = {} & x^{142} + x^{139} + x^{138} + x^{136} + x^{130} + x^{127} + x^{124} + x^{123} + x^{122} + x^{120} \\
& + x^{118} + x^{115} + x^{114} + x^{112} + x^{94} + x^{91} + x^{90} + x^{88} + x^{82} + x^{79} \\
& + x^{76} + x^{75} + x^{74} + x^{72} + x^{70} + x^{67} + x^{66} + x^{64} + x^{62} + x^{59} + x^{58} \\
& + x^{56} + x^{50} + x^{47} + x^{46} + x^{44} + x^{38} + x^{35} + x^{32} + x^{31} + x^{30} + x^{28} \\
& + x^{22} + x^{19} + x^{16} + x^{15} + x^{12} + x^{11} + x^{10} + x^{8} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 1, 1, 0, 1, 1, 1].

For $\phi(W^e, 1, 0)$:

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{145} + x^{144} + x^{143} + x^{142} + x^{140} + x^{139} + x^{136} + x^{135} + x^{131} \\
& + x^{129} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{119} + x^{113} + x^{112} \\
& + x^{110} + x^{109} + x^{107} + x^{106} + x^{102} + x^{99} + x^{98} + x^{95} + x^{92} + x^{89} \\
& + x^{88} + x^{87} + x^{86} + x^{83} + x^{82} + x^{79} + x^{77} + x^{74} + x^{73} + x^{72} + x^{70} \\
& + x^{67} + x^{66} + x^{64} + x^{63} + x^{61} + x^{58} + x^{56} + x^{53} + x^{52} + x^{50} + x^{49} \\
& + x^{48} + x^{45} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{36} + x^{35} + x^{33} + x^{32} \\
& + x^{27},
\end{aligned}$$

$$\begin{aligned}
p_3(x) = {} & x^{145} + x^{144} + x^{142} + x^{141} + x^{139} + x^{135} + x^{134} + x^{133} + x^{131} + x^{130} \\
& + x^{127} + x^{125} + x^{124} + x^{122} + x^{121} + x^{119} + x^{113} + x^{112} + x^{111} \\
& + x^{109} + x^{108} + x^{104} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{95} + x^{90} \\
& + x^{86} + x^{84} + x^{83} + x^{81} + x^{77} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{65} + x^{61} + x^{60} + x^{58} + x^{56} + x^{53} + x^{52} + x^{49} + x^{47} + x^{46} + x^{44}\\
&+ x^{43} + x^{41} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{31} + x^{29} + x^{28} + x^{26}\\
&+ x^{25} + x^{23} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{9},\\
p_6(x) =\ & x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{133}\\
&+ x^{131} + x^{128} + x^{126} + x^{123} + x^{120} + x^{119} + x^{116} + x^{115} + x^{112}\\
&+ x^{111} + x^{110} + x^{105} + x^{104} + x^{99} + x^{95} + x^{94} + x^{93} + x^{92} + x^{90}\\
&+ x^{89} + x^{88} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{74} + x^{73}\\
&+ x^{70} + x^{69} + x^{68} + x^{66} + x^{62} + x^{59} + x^{56} + x^{55} + x^{52} + x^{51} + x^{50}\\
&+ x^{45} + x^{44} + x^{42} + x^{40} + x^{37} + x^{33} + x^{32} + x^{31} + x^{25} + x^{21} + x^{20}\\
&+ x^{19} + x^{13} + x^{10} + x^{9} + x^{8} + x^{6},\\
p_9(x) =\ & x^{143} + x^{142} + x^{141} + x^{139} + x^{138} + x^{135} + x^{133} + x^{132} + x^{130} + x^{128}\\
&+ x^{125} + x^{124} + x^{123} + x^{122} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109}\\
&+ x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93}\\
&+ x^{89} + x^{86} + x^{82} + x^{80} + x^{79} + x^{76} + x^{74} + x^{73} + x^{70} + x^{68} + x^{67}\\
&+ x^{64} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{47}\\
&+ x^{44} + x^{40} + x^{39} + x^{37} + x^{36} + x^{33} + x^{29} + x^{28} + x^{26} + x^{24} + x^{19}\\
&+ x^{16} + x^{15} + x^{14} + x^{9} + x^{6} + x^{3},\\
p_{12}(x) =\ & x^{142} + x^{139} + x^{138} + x^{136} + x^{130} + x^{127} + x^{124} + x^{123} + x^{122} + x^{120}\\
&+ x^{118} + x^{115} + x^{114} + x^{112} + x^{94} + x^{91} + x^{90} + x^{88} + x^{82} + x^{79}\\
&+ x^{76} + x^{75} + x^{74} + x^{72} + x^{70} + x^{67} + x^{66} + x^{64} + x^{62} + x^{59} + x^{58}\\
&+ x^{56} + x^{50} + x^{47} + x^{46} + x^{44} + x^{38} + x^{35} + x^{32} + x^{31} + x^{30} + x^{28}\\
&+ x^{22} + x^{19} + x^{16} + x^{15} + x^{12} + x^{11} + x^{10} + x^{8} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 1, 1, 0, 1, 1, 1].

For $\phi(W^e, 1, 1)$:

$$
\begin{aligned}
p_0(x) =\ & x^{162} + x^{160} + x^{158} + x^{156} + x^{154} + x^{150} + x^{148} + x^{146} + x^{138} + x^{134}\\
&+ x^{132} + x^{126} + x^{124} + x^{122} + x^{120} + x^{118} + x^{116} + x^{112} + x^{106}\\
&+ x^{104} + x^{102} + x^{94} + x^{92} + x^{88} + x^{86} + x^{82} + x^{74} + x^{72} + x^{64} + x^{62}\\
&+ x^{60} + x^{54} + x^{52} + x^{48} + x^{42},\\
p_3(x) =\ & x^{158} + x^{154} + x^{144} + x^{142} + x^{138} + x^{136} + x^{122} + x^{120} + x^{118} + x^{116}\\
&+ x^{108} + x^{106} + x^{98} + x^{94} + x^{90} + x^{82} + x^{80} + x^{72} + x^{70} + x^{68} + x^{66}\\
&+ x^{60} + x^{56} + x^{52} + x^{40} + x^{38} + x^{36} + x^{26} + x^{22} + x^{20} + x^{16} + x^{14}\\
&+ x^{8} + x^{6},\\
p_6(x) =\ & x^{156} + x^{150} + x^{146} + x^{144} + x^{142} + x^{138} + x^{134} + x^{132} + x^{128} + x^{126}\\
&+ x^{124} + x^{120} + x^{116} + x^{100} + x^{94} + x^{84} + x^{82} + x^{76} + x^{72} + x^{70}\\
&+ x^{68} + x^{64} + x^{60} + x^{56} + x^{54} + x^{52} + x^{44} + x^{40} + x^{34} + x^{32} + x^{30}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{28} + x^{26} + x^{24} + x^{16} + x^{12} + x^{10} + x^{6} + x^{2} + 1,\\
p_9(x) &= x^{160} + x^{158} + x^{150} + x^{148} + x^{142} + x^{140} + x^{134} + x^{132} + x^{130} + x^{128}\\
&+ x^{126} + x^{124} + x^{120} + x^{108} + x^{106} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94}\\
&+ x^{92} + x^{90} + x^{88} + x^{86} + x^{82} + x^{80} + x^{78} + x^{76} + x^{74} + x^{72} + x^{70}\\
&+ x^{62} + x^{60} + x^{56} + x^{52} + x^{48} + x^{46} + x^{42} + x^{40} + x^{38} + x^{36} + x^{30}\\
&+ x^{26} + x^{16} + x^{14} + x^{10} + x^{8} + x^{6} + x^{4} + x^{2},\\
p_{12}(x) &= x^{160} + x^{136} + x^{128} + x^{88} + x^{56} + x^{40} + x^{24} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0].

For $\phi(M^o, 0, 0)$:

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{146} + x^{145} + x^{144} + x^{142} + x^{141} + x^{140} + x^{139} + x^{134} + x^{131}\\
&+ x^{129} + x^{128} + x^{127} + x^{125} + x^{123} + x^{121} + x^{120} + x^{117} + x^{115}\\
&+ x^{114} + x^{113} + x^{112} + x^{108} + x^{107} + x^{106} + x^{105} + x^{100} + x^{99} + x^{97}\\
&+ x^{96} + x^{95} + x^{94} + x^{91} + x^{90} + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{83}\\
&+ x^{81} + x^{80} + x^{79} + x^{73} + x^{72} + x^{71} + x^{68} + x^{65} + x^{64} + x^{63} + x^{61}\\
&+ x^{60} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42}\\
&+ x^{40} + x^{39} + x^{38} + x^{35} + x^{32} + x^{30} + x^{26} + x^{25} + x^{20} + x^{18} + x^{17}\\
&+ x^{15} + x^{12},\\
p_3(x) &= x^{146} + x^{145} + x^{144} + x^{143} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136}\\
&+ x^{130} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117}\\
&+ x^{115} + x^{112} + x^{111} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{103}\\
&+ x^{102} + x^{101} + x^{100} + x^{98} + x^{96} + x^{95} + x^{94} + x^{93} + x^{87} + x^{86} + x^{83}\\
&+ x^{79} + x^{78} + x^{74} + x^{72} + x^{71} + x^{69} + x^{68} + x^{63} + x^{61} + x^{59} + x^{54}\\
&+ x^{52} + x^{51} + x^{46} + x^{45} + x^{38} + x^{37} + x^{34} + x^{33} + x^{31} + x^{26} + x^{24}\\
&+ x^{21} + x^{20} + x^{17} + x^{16} + x^{13} + x^{11} + x^{8},\\
p_6(x) &= x^{146} + x^{145} + x^{144} + x^{143} + x^{139} + x^{138} + x^{137} + x^{133} + x^{132} + x^{129}\\
&+ x^{128} + x^{127} + x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{119} + x^{117}\\
&+ x^{115} + x^{113} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103}\\
&+ x^{102} + x^{101} + x^{96} + x^{95} + x^{93} + x^{91} + x^{90} + x^{89} + x^{88} + x^{86} + x^{85}\\
&+ x^{84} + x^{83} + x^{81} + x^{79} + x^{78} + x^{76} + x^{70} + x^{69} + x^{67} + x^{64} + x^{62}\\
&+ x^{60} + x^{58} + x^{57} + x^{55} + x^{54} + x^{52} + x^{48} + x^{43} + x^{41} + x^{40} + x^{39}\\
&+ x^{37} + x^{33} + x^{32} + x^{28} + x^{26} + x^{21} + x^{19} + x^{16} + x^{15} + x^{10} + x^{9}\\
&+ x^{7} + x^{6} + x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) &= x^{146} + x^{143} + x^{140} + x^{139} + x^{138} + x^{136} + x^{134} + x^{131} + x^{128} + x^{127}\\
&+ x^{126} + x^{124} + x^{122} + x^{119} + x^{118} + x^{116} + x^{98} + x^{95} + x^{92} + x^{91}\\
&+ x^{90} + x^{88} + x^{86} + x^{83} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74} + x^{71} + x^{70}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{68} + x^{66} + x^{63} + x^{60} + x^{59} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50} + x^{48}\\
&+ x^{46} + x^{43} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{32} + x^{30} + x^{27} + x^{24}\\
&+ x^{23} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} + x^{10} + x^{7} + x^{6} + x^{4},\\
p_{12}(x) &= x^{146} + x^{143} + x^{142} + x^{140} + x^{134} + x^{131} + x^{130} + x^{128} + x^{126} + x^{123}\\
&+ x^{120} + x^{119} + x^{116} + x^{115} + x^{114} + x^{112} + x^{98} + x^{95} + x^{94} + x^{92}\\
&+ x^{86} + x^{83} + x^{82} + x^{80} + x^{78} + x^{75} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64}\\
&+ x^{63} + x^{62} + x^{60} + x^{54} + x^{51} + x^{48} + x^{47} + x^{44} + x^{43} + x^{40} + x^{39}\\
&+ x^{38} + x^{36} + x^{34} + x^{31} + x^{28} + x^{27} + x^{24} + x^{23} + x^{22} + x^{20} + x^{14}\\
&+ x^{11} + x^{8} + x^{7} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}
$$

and the initial terms are [1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0].

For $\phi(M^o, 0, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{134} + x^{133} + x^{132}\\
&+ x^{127} + x^{126} + x^{124} + x^{119} + x^{118} + x^{117} + x^{112} + x^{110} + x^{109}\\
&+ x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{97} + x^{93} + x^{92} + x^{90} + x^{89}\\
&+ x^{88} + x^{85} + x^{84} + x^{83} + x^{81} + x^{77} + x^{75} + x^{70} + x^{68} + x^{67} + x^{65}\\
&+ x^{61} + x^{60} + x^{57} + x^{56} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{47} + x^{45}\\
&+ x^{42} + x^{41} + x^{40} + x^{37} + x^{36} + x^{34} + x^{33} + x^{32} + x^{31} + x^{28} + x^{27}\\
&+ x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18},\\
p_3(x) &= x^{137} + x^{136} + x^{133} + x^{132} + x^{129} + x^{127} + x^{126} + x^{125} + x^{122} + x^{119}\\
&+ x^{116} + x^{114} + x^{113} + x^{112} + x^{110} + x^{105} + x^{97} + x^{96} + x^{93} + x^{92}\\
&+ x^{88} + x^{87} + x^{86} + x^{84} + x^{82} + x^{81} + x^{78} + x^{77} + x^{76} + x^{73} + x^{72}\\
&+ x^{71} + x^{70} + x^{68} + x^{66} + x^{65} + x^{62} + x^{61} + x^{60} + x^{57} + x^{56} + x^{55}\\
&+ x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{40} + x^{37} + x^{36} + x^{33} + x^{31} + x^{30}\\
&+ x^{29} + x^{26} + x^{23} + x^{20} + x^{18} + x^{17} + x^{16} + x^{14} + x^{9},\\
p_6(x) &= x^{138} + x^{136} + x^{134} + x^{132} + x^{130} + x^{128} + x^{120} + x^{116} + x^{112} + x^{108}\\
&+ x^{102} + x^{96} + x^{92} + x^{90} + x^{86} + x^{80} + x^{78} + x^{74} + x^{70} + x^{66} + x^{56}\\
&+ x^{52} + x^{48} + x^{42} + x^{34} + x^{30} + x^{28} + x^{22} + x^{18} + x^{16} + x^{10} + x^{6},\\
p_9(x) &= x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{133} + x^{132} + x^{131} + x^{128}\\
&+ x^{126} + x^{125} + x^{124} + x^{122} + x^{120} + x^{115} + x^{91} + x^{90} + x^{89} + x^{88}\\
&+ x^{87} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{78} + x^{77} + x^{76} + x^{74} + x^{72}\\
&+ x^{67} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48}\\
&+ x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{39} + x^{38} + x^{37} + x^{36} + x^{32} + x^{30}\\
&+ x^{29} + x^{28} + x^{27} + x^{25} + x^{23} + x^{22} + x^{21} + x^{20} + x^{16} + x^{14} + x^{13}\\
&+ x^{12} + x^{10} + x^{8} + x^{3},\\
p_{12}(x) &= x^{140} + x^{128} + x^{120} + x^{116} + x^{112} + x^{92} + x^{80} + x^{72} + x^{68} + x^{64} + x^{60}
\end{aligned}
$$

$$+ x^{48} + x^{44} + x^{40} + x^{36} + x^{28} + x^{24} + x^{20} + x^{8} + x^{4} + 1,$$

and the initial terms are [0, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1].

For $\phi(M^o, 1, 0)$:

$$\begin{aligned}
p_0(x) = {} & x^{162} + x^{161} + x^{160} + x^{158} + x^{155} + x^{154} + x^{151} + x^{148} + x^{146} + x^{143} \\
& + x^{142} + x^{140} + x^{138} + x^{137} + x^{135} + x^{134} + x^{133} + x^{131} + x^{130} \\
& + x^{127} + x^{126} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{114} \\
& + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} + x^{101} + x^{99} + x^{97} \\
& + x^{96} + x^{95} + x^{90} + x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{80} + x^{79} + x^{78} \\
& + x^{77} + x^{76} + x^{75} + x^{71} + x^{70} + x^{67} + x^{66} + x^{65} + x^{64} + x^{63} + x^{62} \\
& + x^{60} + x^{59} + x^{57} + x^{54} + x^{52} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{42} \\
& + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{27}, \\
p_3(x) = {} & x^{161} + x^{160} + x^{157} + x^{156} + x^{153} + x^{151} + x^{150} + x^{148} + x^{146} + x^{143} \\
& + x^{139} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} + x^{122} + x^{119} \\
& + x^{118} + x^{114} + x^{111} + x^{109} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{94} \\
& + x^{92} + x^{90} + x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{81} + x^{80} + x^{76} + x^{74} \\
& + x^{73} + x^{72} + x^{71} + x^{70} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{54} + x^{53} \\
& + x^{49} + x^{48} + x^{47} + x^{46} + x^{43} + x^{41} + x^{39} + x^{38} + x^{36} + x^{35} + x^{34} \\
& + x^{32} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{16} + x^{14} \\
& + x^{9}, \\
p_6(x) = {} & x^{162} + x^{160} + x^{158} + x^{156} + x^{154} + x^{152} + x^{150} + x^{148} + x^{144} + x^{140} \\
& + x^{136} + x^{134} + x^{132} + x^{130} + x^{128} + x^{126} + x^{116} + x^{112} + x^{104} \\
& + x^{102} + x^{100} + x^{98} + x^{96} + x^{90} + x^{88} + x^{86} + x^{78} + x^{76} + x^{72} + x^{70} \\
& + x^{68} + x^{58} + x^{50} + x^{48} + x^{38} + x^{36} + x^{34} + x^{26} + x^{24} + x^{18} + x^{16} \\
& + x^{14} + x^{10} + x^{6}, \\
p_9(x) = {} & x^{163} + x^{162} + x^{161} + x^{160} + x^{159} + x^{158} + x^{157} + x^{156} + x^{155} + x^{152} \\
& + x^{151} + x^{146} + x^{144} + x^{142} + x^{141} + x^{139} + x^{136} + x^{135} + x^{134} \\
& + x^{132} + x^{131} + x^{130} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} \\
& + x^{120} + x^{114} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} \\
& + x^{104} + x^{103} + x^{98} + x^{96} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{86} + x^{84} \\
& + x^{81} + x^{80} + x^{74} + x^{71} + x^{65} + x^{63} + x^{60} + x^{54} + x^{52} + x^{50} + x^{49} \\
& + x^{46} + x^{45} + x^{43} + x^{42} + x^{40} + x^{38} + x^{36} + x^{32} + x^{31} + x^{28} + x^{26} \\
& + x^{23} + x^{22} + x^{20} + x^{18} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^{8} \\
& + x^{3}, \\
p_{12}(x) = {} & x^{164} + x^{148} + x^{144} + x^{140} + x^{132} + x^{128} + x^{112} + x^{100} + x^{96} + x^{92} \\
& + x^{80} + x^{68} + x^{60} + x^{52} + x^{44} + x^{36} + x^{32} + x^{28} + x^{4} + 1,
\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1].

For $\phi(M^o, 1, 1)$:

$$
\begin{aligned}
p_0(x) = {} & x^{147} + x^{143} + x^{142} + x^{141} + x^{138} + x^{137} + x^{136} + x^{134} + x^{132} + x^{130} \\
& + x^{129} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} \\
& + x^{118} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{108} + x^{107} + x^{105} \\
& + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{98} + x^{92} + x^{91} + x^{90} \\
& + x^{89} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{75} + x^{74} + x^{73} + x^{71} + x^{69} \\
& + x^{67} + x^{66} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{51} \\
& + x^{49} + x^{48} + x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} + x^{36} \\
& + x^{35} + x^{33}, \\
p_3(x) = {} & x^{146} + x^{145} + x^{143} + x^{139} + x^{137} + x^{136} + x^{134} + x^{132} + x^{131} + x^{129} \\
& + x^{125} + x^{123} + x^{122} + x^{118} + x^{117} + x^{115} + x^{111} + x^{110} + x^{106} \\
& + x^{105} + x^{103} + x^{102} + x^{95} + x^{91} + x^{89} + x^{87} + x^{86} + x^{82} + x^{80} + x^{79} \\
& + x^{78} + x^{76} + x^{74} + x^{73} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} + x^{64} + x^{63} \\
& + x^{61} + x^{60} + x^{59} + x^{57} + x^{54} + x^{53} + x^{48} + x^{45} + x^{43} + x^{42} + x^{40} \\
& + x^{37} + x^{36} + x^{35} + x^{31} + x^{30} + x^{28} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} \\
& + x^{17} + x^{14} + x^{12}, \\
p_6(x) = {} & x^{146} + x^{145} + x^{143} + x^{141} + x^{139} + x^{131} + x^{130} + x^{129} + x^{126} + x^{125} \\
& + x^{124} + x^{122} + x^{121} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112} \\
& + x^{111} + x^{109} + x^{101} + x^{100} + x^{99} + x^{98} + x^{96} + x^{95} + x^{91} + x^{90} \\
& + x^{87} + x^{85} + x^{84} + x^{82} + x^{80} + x^{79} + x^{77} + x^{76} + x^{74} + x^{73} + x^{70} \\
& + x^{68} + x^{62} + x^{60} + x^{57} + x^{54} + x^{51} + x^{50} + x^{48} + x^{45} + x^{44} + x^{43} \\
& + x^{42} + x^{41} + x^{39} + x^{31} + x^{30} + x^{28} + x^{27} + x^{25} + x^{24} + x^{22} + x^{20} \\
& + x^{19} + x^{18} + x^{15} + x^{14} + x^{13} + x^{11} + x^{6} + x^{3} + x^{2} + 1, \\
p_9(x) = {} & x^{146} + x^{143} + x^{140} + x^{139} + x^{138} + x^{136} + x^{134} + x^{131} + x^{128} + x^{127} \\
& + x^{126} + x^{124} + x^{122} + x^{119} + x^{118} + x^{116} + x^{98} + x^{95} + x^{92} + x^{91} \\
& + x^{90} + x^{88} + x^{86} + x^{83} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74} + x^{71} + x^{70} \\
& + x^{68} + x^{66} + x^{63} + x^{60} + x^{59} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50} + x^{48} \\
& + x^{46} + x^{43} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{32} + x^{30} + x^{27} + x^{24} \\
& + x^{23} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} + x^{10} + x^{7} + x^{6} + x^{4}, \\
p_{12}(x) = {} & x^{146} + x^{143} + x^{142} + x^{140} + x^{134} + x^{131} + x^{130} + x^{128} + x^{126} + x^{123} \\
& + x^{120} + x^{119} + x^{116} + x^{115} + x^{114} + x^{112} + x^{98} + x^{95} + x^{94} + x^{92} \\
& + x^{86} + x^{83} + x^{82} + x^{80} + x^{78} + x^{75} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64} \\
& + x^{63} + x^{62} + x^{60} + x^{54} + x^{51} + x^{48} + x^{47} + x^{44} + x^{43} + x^{40} + x^{39} \\
& + x^{38} + x^{36} + x^{34} + x^{31} + x^{28} + x^{27} + x^{24} + x^{23} + x^{22} + x^{20} + x^{14}
\end{aligned}
$$

$$+ x^{11} + x^{8} + x^{7} + x^{4} + x^{3} + x^{2} + 1,$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0].

For $\phi(W^o, 0, 0)$:

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{146} + x^{145} + x^{144} + x^{142} + x^{141} + x^{140} + x^{139} + x^{134} + x^{131} \\
& + x^{129} + x^{128} + x^{127} + x^{125} + x^{123} + x^{121} + x^{120} + x^{117} + x^{115} \\
& + x^{114} + x^{113} + x^{112} + x^{108} + x^{107} + x^{106} + x^{105} + x^{100} + x^{99} + x^{97} \\
& + x^{96} + x^{95} + x^{94} + x^{91} + x^{90} + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{83} \\
& + x^{81} + x^{80} + x^{79} + x^{73} + x^{72} + x^{71} + x^{68} + x^{65} + x^{64} + x^{63} + x^{61} \\
& + x^{60} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} \\
& + x^{40} + x^{39} + x^{38} + x^{35} + x^{32} + x^{30} + x^{26} + x^{25} + x^{20} + x^{18} + x^{17} \\
& + x^{15} + x^{12}, \\
p_3(x) = {} & x^{146} + x^{145} + x^{144} + x^{143} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} \\
& + x^{130} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} \\
& + x^{115} + x^{112} + x^{111} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{103} \\
& + x^{102} + x^{101} + x^{100} + x^{98} + x^{96} + x^{95} + x^{94} + x^{93} + x^{87} + x^{86} + x^{83} \\
& + x^{79} + x^{78} + x^{74} + x^{72} + x^{71} + x^{69} + x^{68} + x^{63} + x^{61} + x^{59} + x^{54} \\
& + x^{52} + x^{51} + x^{46} + x^{45} + x^{38} + x^{37} + x^{34} + x^{33} + x^{31} + x^{26} + x^{24} \\
& + x^{21} + x^{20} + x^{17} + x^{16} + x^{13} + x^{11} + x^{8}, \\
p_6(x) = {} & x^{146} + x^{145} + x^{144} + x^{143} + x^{139} + x^{138} + x^{137} + x^{133} + x^{132} + x^{129} \\
& + x^{128} + x^{127} + x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{119} + x^{117} \\
& + x^{115} + x^{113} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} \\
& + x^{102} + x^{101} + x^{96} + x^{95} + x^{93} + x^{91} + x^{90} + x^{89} + x^{88} + x^{86} + x^{85} \\
& + x^{84} + x^{83} + x^{81} + x^{79} + x^{78} + x^{76} + x^{70} + x^{69} + x^{67} + x^{64} + x^{62} \\
& + x^{60} + x^{58} + x^{57} + x^{55} + x^{54} + x^{52} + x^{48} + x^{43} + x^{41} + x^{40} + x^{39} \\
& + x^{37} + x^{33} + x^{32} + x^{28} + x^{26} + x^{21} + x^{19} + x^{16} + x^{15} + x^{10} + x^{9} \\
& + x^{7} + x^{6} + x^{4} + x^{3} + x^{2} + 1, \\
p_9(x) = {} & x^{146} + x^{143} + x^{140} + x^{139} + x^{138} + x^{136} + x^{134} + x^{131} + x^{128} + x^{127} \\
& + x^{126} + x^{124} + x^{122} + x^{119} + x^{118} + x^{116} + x^{98} + x^{95} + x^{92} + x^{91} \\
& + x^{90} + x^{88} + x^{86} + x^{83} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74} + x^{71} + x^{70} \\
& + x^{68} + x^{66} + x^{63} + x^{60} + x^{59} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50} + x^{48} \\
& + x^{46} + x^{43} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{32} + x^{30} + x^{27} + x^{24} \\
& + x^{23} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} + x^{10} + x^{7} + x^{6} + x^{4}, \\
p_{12}(x) = {} & x^{146} + x^{143} + x^{142} + x^{140} + x^{134} + x^{131} + x^{130} + x^{128} + x^{126} + x^{123} \\
& + x^{120} + x^{119} + x^{116} + x^{115} + x^{114} + x^{112} + x^{98} + x^{95} + x^{94} + x^{92} \\
& + x^{86} + x^{83} + x^{82} + x^{80} + x^{78} + x^{75} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64}
\end{aligned}$$

$$+ x^{63} + x^{62} + x^{60} + x^{54} + x^{51} + x^{48} + x^{47} + x^{44} + x^{43} + x^{40} + x^{39} + x^{38} + x^{36} + x^{34} + x^{31} + x^{28} + x^{27} + x^{24} + x^{23} + x^{22} + x^{20} + x^{14} + x^{11} + x^{8} + x^{7} + x^{4} + x^{3} + x^{2} + 1,$$

and the initial terms are [1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0].

For $\phi(W^o, 0, 1)$:

$$\begin{aligned}
p_0(x) = {} & x^{162} + x^{161} + x^{160} + x^{158} + x^{155} + x^{154} + x^{151} + x^{148} + x^{146} + x^{143} \\
& + x^{142} + x^{140} + x^{138} + x^{137} + x^{135} + x^{134} + x^{133} + x^{131} + x^{130} \\
& + x^{127} + x^{126} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{114} \\
& + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} + x^{101} + x^{99} + x^{97} \\
& + x^{96} + x^{95} + x^{90} + x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{80} + x^{79} + x^{78} \\
& + x^{77} + x^{76} + x^{75} + x^{71} + x^{70} + x^{67} + x^{66} + x^{65} + x^{64} + x^{63} + x^{62} \\
& + x^{60} + x^{59} + x^{57} + x^{54} + x^{52} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{42} \\
& + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{27}, \\
p_3(x) = {} & x^{161} + x^{160} + x^{157} + x^{156} + x^{153} + x^{151} + x^{150} + x^{148} + x^{146} + x^{143} \\
& + x^{139} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} + x^{122} + x^{119} \\
& + x^{118} + x^{114} + x^{111} + x^{109} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{94} \\
& + x^{92} + x^{90} + x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{81} + x^{80} + x^{76} + x^{74} \\
& + x^{73} + x^{72} + x^{71} + x^{70} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{54} + x^{53} \\
& + x^{49} + x^{48} + x^{47} + x^{46} + x^{43} + x^{41} + x^{39} + x^{38} + x^{36} + x^{35} + x^{34} \\
& + x^{32} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{16} + x^{14} \\
& + x^{9}, \\
p_6(x) = {} & x^{162} + x^{160} + x^{158} + x^{156} + x^{154} + x^{152} + x^{150} + x^{148} + x^{144} + x^{140} \\
& + x^{136} + x^{134} + x^{132} + x^{130} + x^{128} + x^{126} + x^{116} + x^{112} + x^{104} \\
& + x^{102} + x^{100} + x^{98} + x^{96} + x^{90} + x^{88} + x^{86} + x^{78} + x^{76} + x^{72} + x^{70} \\
& + x^{68} + x^{58} + x^{50} + x^{48} + x^{38} + x^{36} + x^{34} + x^{26} + x^{24} + x^{18} + x^{16} \\
& + x^{14} + x^{10} + x^{6}, \\
p_9(x) = {} & x^{163} + x^{162} + x^{161} + x^{160} + x^{159} + x^{158} + x^{157} + x^{156} + x^{155} + x^{152} \\
& + x^{151} + x^{146} + x^{144} + x^{142} + x^{141} + x^{139} + x^{136} + x^{135} + x^{134} \\
& + x^{132} + x^{131} + x^{130} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} \\
& + x^{120} + x^{114} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} \\
& + x^{104} + x^{103} + x^{98} + x^{96} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{86} + x^{84} \\
& + x^{81} + x^{80} + x^{74} + x^{71} + x^{65} + x^{63} + x^{60} + x^{54} + x^{52} + x^{50} + x^{49} \\
& + x^{46} + x^{45} + x^{43} + x^{42} + x^{40} + x^{38} + x^{36} + x^{32} + x^{31} + x^{28} + x^{26} \\
& + x^{23} + x^{22} + x^{20} + x^{18} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^{8} \\
& + x^{3},
\end{aligned}$$

$$\begin{aligned}p_{12}(x) &= x^{164}+x^{148}+x^{144}+x^{140}+x^{132}+x^{128}+x^{112}+x^{100}+x^{96}+x^{92}\\ &\quad +x^{80}+x^{68}+x^{60}+x^{52}+x^{44}+x^{36}+x^{32}+x^{28}+x^{4}+1,\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1].

For $\phi(W^o, 1, 0)$:

$$\begin{aligned}p_0(x) &= x^{144}+x^{141}+x^{140}+x^{139}+x^{138}+x^{137}+x^{136}+x^{134}+x^{133}+x^{132}\\ &\quad +x^{127}+x^{126}+x^{124}+x^{119}+x^{118}+x^{117}+x^{112}+x^{110}+x^{109}\\ &\quad +x^{105}+x^{104}+x^{103}+x^{102}+x^{101}+x^{97}+x^{93}+x^{92}+x^{90}+x^{89}\\ &\quad +x^{88}+x^{85}+x^{84}+x^{83}+x^{81}+x^{77}+x^{75}+x^{70}+x^{68}+x^{67}+x^{65}\\ &\quad +x^{61}+x^{60}+x^{57}+x^{56}+x^{54}+x^{53}+x^{52}+x^{51}+x^{50}+x^{47}+x^{45}\\ &\quad +x^{42}+x^{41}+x^{40}+x^{37}+x^{36}+x^{34}+x^{33}+x^{32}+x^{31}+x^{28}+x^{27}\\ &\quad +x^{25}+x^{24}+x^{22}+x^{21}+x^{20}+x^{18},\\ p_3(x) &= x^{137}+x^{136}+x^{133}+x^{132}+x^{129}+x^{127}+x^{126}+x^{125}+x^{122}+x^{119}\\ &\quad +x^{116}+x^{114}+x^{113}+x^{112}+x^{110}+x^{105}+x^{97}+x^{96}+x^{93}+x^{92}\\ &\quad +x^{88}+x^{87}+x^{86}+x^{84}+x^{82}+x^{81}+x^{78}+x^{77}+x^{76}+x^{73}+x^{72}\\ &\quad +x^{71}+x^{70}+x^{68}+x^{66}+x^{65}+x^{62}+x^{61}+x^{60}+x^{57}+x^{56}+x^{55}\\ &\quad +x^{54}+x^{52}+x^{50}+x^{48}+x^{46}+x^{40}+x^{37}+x^{36}+x^{33}+x^{31}+x^{30}\\ &\quad +x^{29}+x^{26}+x^{23}+x^{20}+x^{18}+x^{17}+x^{16}+x^{14}+x^{9},\\ p_6(x) &= x^{138}+x^{136}+x^{134}+x^{132}+x^{130}+x^{128}+x^{120}+x^{116}+x^{112}+x^{108}\\ &\quad +x^{102}+x^{96}+x^{92}+x^{90}+x^{86}+x^{80}+x^{78}+x^{74}+x^{70}+x^{66}+x^{56}\\ &\quad +x^{52}+x^{48}+x^{42}+x^{34}+x^{30}+x^{28}+x^{22}+x^{18}+x^{16}+x^{10}+x^{6},\\ p_9(x) &= x^{139}+x^{138}+x^{137}+x^{136}+x^{135}+x^{134}+x^{133}+x^{132}+x^{131}+x^{128}\\ &\quad +x^{126}+x^{125}+x^{124}+x^{122}+x^{120}+x^{115}+x^{91}+x^{90}+x^{89}+x^{88}\\ &\quad +x^{87}+x^{86}+x^{85}+x^{84}+x^{83}+x^{80}+x^{78}+x^{77}+x^{76}+x^{74}+x^{72}\\ &\quad +x^{67}+x^{59}+x^{58}+x^{57}+x^{56}+x^{55}+x^{54}+x^{53}+x^{52}+x^{51}+x^{48}\\ &\quad +x^{46}+x^{45}+x^{44}+x^{43}+x^{41}+x^{39}+x^{38}+x^{37}+x^{36}+x^{32}+x^{30}\\ &\quad +x^{29}+x^{28}+x^{27}+x^{25}+x^{23}+x^{22}+x^{21}+x^{20}+x^{16}+x^{14}+x^{13}\\ &\quad +x^{12}+x^{10}+x^{8}+x^{3},\\ p_{12}(x) &= x^{140}+x^{128}+x^{120}+x^{116}+x^{112}+x^{92}+x^{80}+x^{72}+x^{68}+x^{64}+x^{60}\\ &\quad +x^{48}+x^{44}+x^{40}+x^{36}+x^{28}+x^{24}+x^{20}+x^{8}+x^{4}+1,\end{aligned}$$

and the initial terms are [0, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1].

For $\phi(W^o, 1, 1)$:

$$\begin{aligned}p_0(x) &= x^{147}+x^{143}+x^{142}+x^{141}+x^{138}+x^{137}+x^{136}+x^{134}+x^{132}+x^{130}\\ &\quad +x^{129}+x^{127}+x^{126}+x^{125}+x^{124}+x^{123}+x^{122}+x^{120}+x^{119}\\ &\quad +x^{118}+x^{115}+x^{114}+x^{113}+x^{112}+x^{110}+x^{108}+x^{107}+x^{105}\\ &\quad +x^{104}+x^{103}+x^{102}+x^{101}+x^{100}+x^{99}+x^{98}+x^{92}+x^{91}+x^{90}\end{aligned}$$

$$
\begin{aligned}
&+x^{89}+x^{86}+x^{84}+x^{80}+x^{79}+x^{78}+x^{75}+x^{74}+x^{73}+x^{71}+x^{69}\\
&+x^{67}+x^{66}+x^{64}+x^{62}+x^{61}+x^{60}+x^{59}+x^{58}+x^{57}+x^{56}+x^{51}\\
&+x^{49}+x^{48}+x^{47}+x^{44}+x^{43}+x^{42}+x^{41}+x^{40}+x^{39}+x^{38}+x^{36}\\
&+x^{35}+x^{33},\\
p_3(x)=&\,x^{146}+x^{145}+x^{143}+x^{139}+x^{137}+x^{136}+x^{134}+x^{132}+x^{131}+x^{129}\\
&+x^{125}+x^{123}+x^{122}+x^{118}+x^{117}+x^{115}+x^{111}+x^{110}+x^{106}\\
&+x^{105}+x^{103}+x^{102}+x^{95}+x^{91}+x^{89}+x^{87}+x^{86}+x^{82}+x^{80}+x^{79}\\
&+x^{78}+x^{76}+x^{74}+x^{73}+x^{71}+x^{69}+x^{68}+x^{67}+x^{66}+x^{64}+x^{63}\\
&+x^{61}+x^{60}+x^{59}+x^{57}+x^{54}+x^{53}+x^{48}+x^{45}+x^{43}+x^{42}+x^{40}\\
&+x^{37}+x^{36}+x^{35}+x^{31}+x^{30}+x^{28}+x^{26}+x^{25}+x^{22}+x^{21}+x^{20}\\
&+x^{17}+x^{14}+x^{12},\\
p_6(x)=&\,x^{146}+x^{145}+x^{143}+x^{141}+x^{139}+x^{131}+x^{130}+x^{129}+x^{126}+x^{125}\\
&+x^{124}+x^{122}+x^{121}+x^{120}+x^{117}+x^{116}+x^{114}+x^{113}+x^{112}\\
&+x^{111}+x^{109}+x^{101}+x^{100}+x^{99}+x^{98}+x^{96}+x^{95}+x^{91}+x^{90}\\
&+x^{87}+x^{85}+x^{84}+x^{82}+x^{80}+x^{79}+x^{77}+x^{76}+x^{74}+x^{73}+x^{70}\\
&+x^{68}+x^{62}+x^{60}+x^{57}+x^{54}+x^{51}+x^{50}+x^{48}+x^{45}+x^{44}+x^{43}\\
&+x^{42}+x^{41}+x^{39}+x^{31}+x^{30}+x^{28}+x^{27}+x^{25}+x^{24}+x^{22}+x^{20}\\
&+x^{19}+x^{18}+x^{15}+x^{14}+x^{13}+x^{11}+x^{6}+x^{3}+x^{2}+1,\\
p_9(x)=&\,x^{146}+x^{143}+x^{140}+x^{139}+x^{138}+x^{136}+x^{134}+x^{131}+x^{128}+x^{127}\\
&+x^{126}+x^{124}+x^{122}+x^{119}+x^{118}+x^{116}+x^{98}+x^{95}+x^{92}+x^{91}\\
&+x^{90}+x^{88}+x^{86}+x^{83}+x^{80}+x^{79}+x^{78}+x^{76}+x^{74}+x^{71}+x^{70}\\
&+x^{68}+x^{66}+x^{63}+x^{60}+x^{59}+x^{58}+x^{56}+x^{54}+x^{51}+x^{50}+x^{48}\\
&+x^{46}+x^{43}+x^{40}+x^{39}+x^{36}+x^{35}+x^{34}+x^{32}+x^{30}+x^{27}+x^{24}\\
&+x^{23}+x^{20}+x^{19}+x^{16}+x^{15}+x^{14}+x^{12}+x^{10}+x^{7}+x^{6}+x^{4},\\
p_{12}(x)=&\,x^{146}+x^{143}+x^{142}+x^{140}+x^{134}+x^{131}+x^{130}+x^{128}+x^{126}+x^{123}\\
&+x^{120}+x^{119}+x^{116}+x^{115}+x^{114}+x^{112}+x^{98}+x^{95}+x^{94}+x^{92}\\
&+x^{86}+x^{83}+x^{82}+x^{80}+x^{78}+x^{75}+x^{72}+x^{71}+x^{68}+x^{67}+x^{64}\\
&+x^{63}+x^{62}+x^{60}+x^{54}+x^{51}+x^{48}+x^{47}+x^{44}+x^{43}+x^{40}+x^{39}\\
&+x^{38}+x^{36}+x^{34}+x^{31}+x^{28}+x^{27}+x^{24}+x^{23}+x^{22}+x^{20}+x^{14}\\
&+x^{11}+x^{8}+x^{7}+x^{4}+x^{3}+x^{2}+1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0].

Below is the transition function and output function of an 2-automaton that generates $T=M^o_{0,0}$:

Transition function $(n,j)\mapsto\delta(n,j)$ $(\Lambda(n):=[\delta(n,0),\delta(n,1)])$:

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	929	[1512, 483]	1858	[2456, 2457]	2787	[1940, 1024]

1	[3, 4]	930	[1513, 377]	1859	[2458, 1534]	2788	[1109, 2108]
2	[5, 6]	931	[440, 1514]	1860	[2459, 2460]	2789	[800, 3277]
3	[7, 8]	932	[1273, 1250]	1861	[1208, 2461]	2790	[300, 3117]
4	[9, 10]	933	[1515, 1417]	1862	[2462, 2463]	2791	[3224, 249]
5	[11, 12]	934	[1516, 1517]	1863	[2464, 2465]	2792	[3070, 77]
6	[13, 14]	935	[1518, 1519]	1864	[1602, 1454]	2793	[784, 806]
7	[15, 16]	936	[1520, 1521]	1865	[2466, 2467]	2794	[3111, 3278]
8	[17, 18]	937	[1522, 1523]	1866	[2468, 1439]	2795	[2110, 75]
9	[19, 20]	938	[1524, 1525]	1867	[2469, 486]	2796	[933, 1107]
10	[21, 22]	939	[1526, 583]	1868	[2470, 1124]	2797	[3279, 747]
11	[23, 24]	940	[1527, 1237]	1869	[2471, 485]	2798	[897, 707]
12	[25, 26]	941	[1528, 1529]	1870	[2472, 2427]	2799	[227, 2093]
13	[27, 28]	942	[1530, 632]	1871	[2473, 2474]	2800	[3232, 988]
14	[29, 30]	943	[1531, 660]	1872	[2475, 2416]	2801	[3243, 1086]
15	[31, 32]	944	[1532, 1440]	1873	[2476, 575]	2802	[236, 1016]
16	[33, 34]	945	[1533, 1534]	1874	[2477, 2427]	2803	[2262, 842]
17	[9, 35]	946	[1134, 1535]	1875	[2478, 1206]	2804	[3253, 802]
18	[36, 37]	947	[526, 1536]	1876	[2479, 40]	2805	[741, 859]
19	[38, 39]	948	[1537, 1538]	1877	[2480, 2481]	2806	[2255, 1040]
20	[40, 41]	949	[1539, 456]	1878	[2482, 1682]	2807	[3205, 1787]
21	[35, 42]	950	[1540, 1541]	1879	[2483, 607]	2808	[3210, 3160]
22	[37, 43]	951	[1542, 1543]	1880	[2484, 1536]	2809	[3280, 319]
23	[44, 45]	952	[1544, 422]	1881	[2485, 2486]	2810	[960, 1921]
24	[46, 47]	953	[1545, 1516]	1882	[2487, 2488]	2811	[1894, 1096]
25	[48, 49]	954	[1546, 1547]	1883	[1243, 1495]	2812	[2101, 854]
26	[50, 31]	955	[1548, 1549]	1884	[2489, 2490]	2813	[215, 1819]
27	[51, 52]	956	[1550, 1551]	1885	[2491, 1132]	2814	[3158, 1913]
28	[53, 54]	957	[1552, 1263]	1886	[2492, 631]	2815	[2333, 1890]
29	[55, 56]	958	[1553, 1554]	1887	[2493, 2494]	2816	[2257, 321]
30	[41, 57]	959	[1555, 442]	1888	[2495, 2496]	2817	[909, 3174]
31	[58, 59]	960	[1556, 617]	1889	[2497, 1754]	2818	[3281, 85]
32	[60, 61]	961	[1557, 1290]	1890	[2498, 2499]	2819	[992, 1864]
33	[62, 63]	962	[1558, 471]	1891	[2500, 2501]	2820	[763, 849]
34	[64, 65]	963	[1559, 1560]	1892	[2502, 1522]	2821	[2100, 1996]
35	[66, 67]	964	[1561, 1562]	1893	[2503, 520]	2822	[3200, 967]
36	[68, 69]	965	[1563, 194]	1894	[2504, 2505]	2823	[813, 3231]
37	[70, 71]	966	[467, 1564]	1895	[169, 2405]	2824	[3078, 3135]
38	[72, 73]	967	[1565, 1566]	1896	[1600, 2506]	2825	[1778, 2052]
39	[74, 75]	968	[1567, 1568]	1897	[674, 1467]	2826	[838, 878]
40	[76, 77]	969	[1569, 1570]	1898	[2507, 1429]	2827	[3150, 2141]
41	[78, 79]	970	[1571, 150]	1899	[2508, 2509]	2828	[982, 3282]
42	[20, 80]	971	[1572, 666]	1900	[1568, 2510]	2829	[3283, 2170]
43	[69, 81]	972	[1573, 1160]	1901	[2511, 2512]	2830	[3249, 306]
44	[82, 83]	973	[1574, 1575]	1902	[2513, 1215]	2831	[3284, 2219]

45	[84, 85]	974	[1576, 1404]	1903	[2514, 2420]	2832	[355, 1937]
46	[86, 87]	975	[1577, 1578]	1904	[519, 2515]	2833	[3226, 905]
47	[88, 89]	976	[1579, 1580]	1905	[2516, 134]	2834	[3272, 3285]
48	[90, 91]	977	[1581, 1582]	1906	[2517, 1389]	2835	[238, 1037]
49	[92, 93]	978	[1583, 1584]	1907	[2518, 2519]	2836	[2033, 2082]
50	[94, 95]	979	[1585, 1484]	1908	[2520, 574]	2837	[3235, 314]
51	[96, 97]	980	[1586, 1587]	1909	[2382, 1212]	2838	[1941, 852]
52	[98, 99]	981	[1588, 1214]	1910	[2521, 2522]	2839	[3141, 1822]
53	[100, 101]	982	[1589, 437]	1911	[2523, 2524]	2840	[1926, 309]
54	[102, 103]	983	[1590, 1529]	1912	[2525, 1216]	2841	[3286, 957]
55	[104, 105]	984	[1591, 446]	1913	[2526, 202]	2842	[3124, 3104]
56	[106, 107]	985	[1592, 1593]	1914	[2527, 386]	2843	[3156, 322]
57	[77, 108]	986	[1594, 1595]	1915	[2528, 2529]	2844	[789, 726]
58	[109, 110]	987	[424, 625]	1916	[2530, 1268]	2845	[2330, 881]
59	[111, 112]	988	[1596, 1374]	1917	[2531, 144]	2846	[1948, 893]
60	[113, 114]	989	[1597, 1598]	1918	[1580, 2532]	2847	[745, 3287]
61	[115, 116]	990	[1599, 1600]	1919	[2533, 1121]	2848	[2229, 3288]
62	[117, 118]	991	[1601, 1602]	1920	[2534, 2535]	2849	[3289, 3233]
63	[119, 120]	992	[1603, 31]	1921	[652, 1444]	2850	[3290, 1008]
64	[121, 122]	993	[1604, 1605]	1922	[2536, 2537]	2851	[3086, 3291]
65	[123, 124]	994	[1606, 1607]	1923	[2538, 2539]	2852	[2029, 1941]
66	[125, 126]	995	[1608, 1609]	1924	[2540, 1207]	2853	[3292, 750]
67	[127, 128]	996	[1610, 1302]	1925	[2541, 1476]	2854	[30, 2334]
68	[129, 130]	997	[1611, 1591]	1926	[2542, 2543]	2855	[1826, 3262]
69	[131, 132]	998	[1467, 1462]	1927	[2544, 186]	2856	[864, 1019]
70	[133, 134]	999	[1612, 1500]	1928	[2545, 1600]	2857	[3106, 2224]
71	[135, 136]	1000	[1613, 1614]	1929	[2546, 652]	2858	[911, 3293]
72	[137, 138]	1001	[1615, 1616]	1930	[2547, 2394]	2859	[3274, 2294]
73	[139, 140]	1002	[1617, 1618]	1931	[2548, 179]	2860	[3122, 2177]
74	[141, 142]	1003	[1619, 1620]	1932	[2549, 2498]	2861	[3135, 2214]
75	[143, 144]	1004	[1621, 1375]	1933	[2550, 2461]	2862	[3294, 1838]
76	[145, 146]	1005	[1622, 648]	1934	[2551, 1603]	2863	[1078, 2065]
77	[147, 148]	1006	[1623, 1624]	1935	[2552, 2553]	2864	[1809, 2310]
78	[149, 150]	1007	[1625, 1626]	1936	[2554, 2555]	2865	[1899, 790]
79	[151, 152]	1008	[1627, 1487]	1937	[2556, 133]	2866	[1909, 2175]
80	[39, 153]	1009	[1628, 1629]	1938	[2557, 1305]	2867	[59, 3238]
81	[130, 154]	1010	[1630, 623]	1939	[1438, 2558]	2868	[2108, 2165]
82	[155, 156]	1011	[1631, 1632]	1940	[2559, 2560]	2869	[1091, 1785]
83	[157, 57]	1012	[1633, 41]	1941	[1311, 522]	2870	[3295, 3275]
84	[158, 159]	1013	[1634, 1635]	1942	[2561, 2562]	2871	[861, 2033]
85	[160, 161]	1014	[1354, 39]	1943	[2563, 2564]	2872	[1061, 1777]
86	[162, 163]	1015	[1636, 1637]	1944	[2565, 2566]	2873	[3296, 1043]
87	[164, 165]	1016	[1638, 1255]	1945	[2567, 2568]	2874	[3297, 1850]
88	[166, 167]	1017	[1639, 649]	1946	[2569, 1503]	2875	[2006, 792]

89	[168, 169]	1018	[596, 1640]	1947	[2570, 2571]	2876	[774, 3216]
90	[170, 171]	1019	[1641, 1642]	1948	[2572, 1401]	2877	[2036, 2014]
91	[172, 173]	1020	[1643, 1265]	1949	[2573, 2574]	2878	[279, 1031]
92	[174, 175]	1021	[1644, 1645]	1950	[2575, 2364]	2879	[102, 829]
93	[176, 177]	1022	[1646, 1539]	1951	[2576, 2577]	2880	[2252, 719]
94	[178, 179]	1023	[1647, 1299]	1952	[2578, 124]	2881	[768, 80]
95	[180, 181]	1024	[32, 1648]	1953	[2579, 2580]	2882	[1889, 3298]
96	[182, 47]	1025	[1649, 1650]	1954	[2581, 1621]	2883	[3299, 3300]
97	[183, 184]	1026	[1651, 609]	1955	[2582, 1692]	2884	[1847, 215]
98	[185, 186]	1027	[1652, 519]	1956	[2583, 2584]	2885	[899, 3301]
99	[187, 188]	1028	[1653, 1654]	1957	[2585, 2586]	2886	[72, 3084]
100	[189, 190]	1029	[1493, 1655]	1958	[2447, 1243]	2887	[5, 93]
101	[191, 192]	1030	[1656, 1657]	1959	[2587, 489]	2888	[2135, 304]
102	[8, 193]	1031	[1225, 471]	1960	[2588, 2589]	2889	[2338, 1046]
103	[194, 177]	1032	[1658, 1659]	1961	[2590, 2591]	2890	[1070, 3302]
104	[195, 196]	1033	[1660, 1661]	1962	[2592, 1188]	2891	[848, 1929]
105	[197, 198]	1034	[1662, 1663]	1963	[177, 1612]	2892	[3303, 2142]
106	[199, 200]	1035	[1664, 182]	1964	[2593, 2594]	2893	[2299, 1069]
107	[201, 202]	1036	[1665, 1666]	1965	[2595, 110]	2894	[799, 737]
108	[146, 203]	1037	[1667, 1668]	1966	[2596, 2499]	2895	[1072, 2001]
109	[204, 205]	1038	[47, 1669]	1967	[2597, 2494]	2896	[1085, 3244]
110	[206, 207]	1039	[1670, 1671]	1968	[2598, 1719]	2897	[1976, 793]
111	[208, 209]	1040	[1672, 1669]	1969	[2599, 2600]	2898	[320, 2258]
112	[210, 211]	1041	[1673, 1674]	1970	[2601, 653]	2899	[291, 2055]
113	[212, 213]	1042	[1675, 1676]	1971	[2602, 2407]	2900	[847, 2243]
114	[214, 215]	1043	[1677, 1301]	1972	[2603, 1482]	2901	[2222, 870]
115	[80, 216]	1044	[1678, 1679]	1973	[2604, 2605]	2902	[3304, 1836]
116	[217, 218]	1045	[1680, 153]	1974	[2606, 1439]	2903	[1881, 3305]
117	[77, 219]	1046	[1681, 1655]	1975	[2607, 1676]	2904	[3306, 1946]
118	[101, 220]	1047	[1682, 1683]	1976	[2608, 1391]	2905	[1039, 3277]
119	[221, 222]	1048	[1684, 1339]	1977	[2609, 538]	2906	[3307, 955]
120	[223, 224]	1049	[1685, 1686]	1978	[2610, 2574]	2907	[246, 254]
121	[225, 226]	1050	[1687, 500]	1979	[2611, 2612]	2908	[956, 3308]
122	[227, 228]	1051	[1688, 1352]	1980	[2613, 2614]	2909	[3309, 2041]
123	[229, 230]	1052	[1689, 1321]	1981	[2615, 2614]	2910	[2104, 3310]
124	[231, 232]	1053	[1690, 1691]	1982	[2616, 2617]	2911	[1083, 919]
125	[233, 234]	1054	[1692, 1693]	1983	[2618, 109]	2912	[324, 3311]
126	[235, 236]	1055	[1694, 1695]	1984	[2619, 1490]	2913	[864, 351]
127	[237, 238]	1056	[1696, 1697]	1985	[2620, 1156]	2914	[694, 1790]
128	[239, 240]	1057	[1698, 143]	1986	[156, 2621]	2915	[2112, 2253]
129	[241, 242]	1058	[1699, 468]	1987	[2622, 1184]	2916	[3264, 2216]
130	[243, 244]	1059	[1700, 1701]	1988	[2623, 2624]	2917	[3312, 938]
131	[245, 246]	1060	[1702, 1533]	1989	[2625, 1593]	2918	[3313, 3122]
132	[247, 248]	1061	[1703, 1704]	1990	[2626, 2352]	2919	[3266, 923]

133	[249, 250]	1062	[1705, 1706]	1991	[2627, 2628]	2920	[3314, 813]
134	[251, 252]	1063	[1469, 1707]	1992	[2629, 137]	2921	[2103, 859]
135	[253, 254]	1064	[1708, 161]	1993	[2630, 1605]	2922	[3284, 3315]
136	[255, 256]	1065	[1709, 1710]	1994	[573, 2631]	2923	[1105, 1927]
137	[257, 258]	1066	[1711, 1328]	1995	[2632, 2436]	2924	[297, 3300]
138	[259, 260]	1067	[1712, 1713]	1996	[2633, 621]	2925	[1002, 1837]
139	[261, 262]	1068	[1714, 1715]	1997	[1495, 2634]	2926	[1956, 364]
140	[220, 263]	1069	[1716, 1208]	1998	[2635, 2636]	2927	[3096, 3151]
141	[264, 265]	1070	[1717, 1718]	1999	[2637, 529]	2928	[1979, 2018]
142	[266, 267]	1071	[1719, 403]	2000	[1395, 34]	2929	[2238, 2103]
143	[268, 269]	1072	[1720, 1721]	2001	[2638, 610]	2930	[2193, 222]
144	[270, 271]	1073	[1722, 1595]	2002	[2639, 2640]	2931	[3281, 2086]
145	[272, 273]	1074	[1723, 1724]	2003	[2641, 2642]	2932	[961, 790]
146	[274, 275]	1075	[1725, 1726]	2004	[2643, 1322]	2933	[798, 771]
147	[276, 277]	1076	[1727, 574]	2005	[2644, 1362]	2934	[106, 3316]
148	[278, 279]	1077	[1728, 1729]	2006	[2645, 1294]	2935	[3286, 3138]
149	[280, 281]	1078	[1730, 183]	2007	[2646, 1173]	2936	[3108, 3179]
150	[282, 283]	1079	[1731, 1236]	2008	[2647, 2648]	2937	[695, 2250]
151	[284, 285]	1080	[1732, 1733]	2009	[2649, 2650]	2938	[1805, 2004]
152	[286, 287]	1081	[1734, 658]	2010	[2651, 120]	2939	[706, 1090]
153	[73, 288]	1082	[1735, 1480]	2011	[2652, 1760]	2940	[720, 2028]
154	[242, 209]	1083	[1410, 1736]	2012	[2653, 1557]	2941	[348, 3129]
155	[289, 290]	1084	[1737, 656]	2013	[2654, 2655]	2942	[963, 2253]
156	[291, 292]	1085	[1738, 1739]	2014	[2656, 2496]	2943	[365, 1819]
157	[293, 294]	1086	[1740, 616]	2015	[2657, 2645]	2944	[3180, 1914]
158	[295, 296]	1087	[1741, 1742]	2016	[2658, 1398]	2945	[2011, 349]
159	[297, 298]	1088	[1743, 1744]	2017	[2659, 2660]	2946	[3163, 2058]
160	[299, 300]	1089	[1745, 1746]	2018	[2661, 1543]	2947	[3195, 749]
161	[301, 302]	1090	[1747, 1723]	2019	[2662, 183]	2948	[1050, 1879]
162	[303, 304]	1091	[10, 1748]	2020	[2663, 1474]	2949	[713, 960]
163	[305, 306]	1092	[1749, 1750]	2021	[2664, 2665]	2950	[3290, 910]
164	[90, 24]	1093	[114, 1751]	2022	[2666, 2667]	2951	[837, 3113]
165	[307, 89]	1094	[1752, 1366]	2023	[2668, 1372]	2952	[3317, 3318]
166	[308, 309]	1095	[1753, 1754]	2024	[2669, 2670]	2953	[2286, 1987]
167	[310, 311]	1096	[492, 1507]	2025	[2671, 1140]	2954	[3072, 326]
168	[312, 313]	1097	[1755, 1756]	2026	[2672, 1641]	2955	[3072, 2254]
169	[314, 315]	1098	[1757, 1758]	2027	[2673, 2674]	2956	[3081, 2134]
170	[316, 317]	1099	[1759, 1760]	2028	[2675, 2676]	2957	[3254, 1050]
171	[318, 319]	1100	[1761, 1762]	2029	[2677, 2678]	2958	[3225, 3300]
172	[320, 321]	1101	[1763, 1708]	2030	[2679, 2680]	2959	[273, 3319]
173	[322, 79]	1102	[1764, 1486]	2031	[2681, 2682]	2960	[2164, 1082]
174	[297, 323]	1103	[1765, 1766]	2032	[2683, 1365]	2961	[2212, 344]
175	[324, 325]	1104	[1767, 1282]	2033	[2617, 420]	2962	[3240, 3320]
176	[326, 327]	1105	[1768, 11]	2034	[2684, 2685]	2963	[781, 1018]

177	[293, 328]	1106	[1769, 1621]	2035	[2686, 2687]	2964	[215, 3144]
178	[329, 330]	1107	[1282, 509]	2036	[2688, 2689]	2965	[2325, 1017]
179	[75, 331]	1108	[1770, 1771]	2037	[2690, 2691]	2966	[1966, 3293]
180	[332, 333]	1109	[1772, 465]	2038	[2692, 649]	2967	[3175, 1913]
181	[334, 335]	1110	[1773, 1774]	2039	[511, 1289]	2968	[3314, 2203]
182	[336, 337]	1111	[1775, 861]	2040	[2693, 2694]	2969	[825, 898]
183	[338, 339]	1112	[1776, 1777]	2041	[2695, 473]	2970	[977, 3321]
184	[340, 341]	1113	[1778, 998]	2042	[2696, 2697]	2971	[2048, 3322]
185	[342, 343]	1114	[1779, 1780]	2043	[2698, 2435]	2972	[1003, 2215]
186	[344, 345]	1115	[1781, 98]	2044	[2699, 2700]	2973	[3309, 270]
187	[346, 347]	1116	[1782, 921]	2045	[2463, 2583]	2974	[253, 3323]
188	[348, 349]	1117	[354, 19]	2046	[2701, 668]	2975	[3306, 981]
189	[350, 351]	1118	[265, 1783]	2047	[2702, 2612]	2976	[876, 906]
190	[352, 353]	1119	[1784, 1785]	2048	[2703, 2704]	2977	[1859, 65]
191	[354, 355]	1120	[1786, 1787]	2049	[2705, 1472]	2978	[872, 2146]
192	[356, 357]	1121	[1788, 753]	2050	[2706, 557]	2979	[781, 1981]
193	[358, 359]	1122	[232, 1789]	2051	[2707, 1293]	2980	[3271, 954]
194	[287, 360]	1123	[1110, 1790]	2052	[2708, 2709]	2981	[3324, 2117]
195	[64, 361]	1124	[1791, 65]	2053	[2710, 2711]	2982	[266, 347]
196	[362, 267]	1125	[1792, 353]	2054	[2712, 540]	2983	[344, 3076]
197	[363, 364]	1126	[347, 1096]	2055	[2713, 2640]	2984	[3273, 2041]
198	[365, 366]	1127	[1793, 1794]	2056	[1220, 1554]	2985	[5, 3325]
199	[367, 368]	1128	[1795, 867]	2057	[2714, 1691]	2986	[2340, 876]
200	[369, 370]	1129	[1796, 1781]	2058	[2715, 1251]	2987	[1797, 3278]
201	[371, 372]	1130	[1797, 1798]	2059	[1414, 392]	2988	[3100, 236]
202	[373, 374]	1131	[84, 1799]	2060	[2716, 123]	2989	[2299, 1056]
203	[273, 224]	1132	[359, 1800]	2061	[2717, 2718]	2990	[3241, 692]
204	[375, 376]	1133	[867, 1801]	2062	[2719, 1412]	2991	[1936, 2291]
205	[377, 378]	1134	[105, 1802]	2063	[2720, 2721]	2992	[2154, 325]
206	[379, 380]	1135	[1803, 1804]	2064	[2722, 1344]	2993	[1069, 1860]
207	[381, 382]	1136	[1084, 1029]	2065	[2723, 1221]	2994	[3326, 253]
208	[383, 384]	1137	[1805, 1012]	2066	[2724, 1659]	2995	[994, 96]
209	[385, 386]	1138	[1806, 1807]	2067	[2725, 1584]	2996	[3267, 2092]
210	[387, 388]	1139	[844, 1808]	2068	[618, 2555]	2997	[3205, 3085]
211	[389, 390]	1140	[240, 59]	2069	[2726, 2727]	2998	[855, 30]
212	[391, 392]	1141	[1809, 946]	2070	[1122, 2728]	2999	[1892, 238]
213	[393, 394]	1142	[1810, 877]	2071	[1541, 419]	3000	[973, 2231]
214	[395, 396]	1143	[1811, 903]	2072	[2729, 2730]	3001	[799, 2305]
215	[397, 398]	1144	[1812, 206]	2073	[2731, 2408]	3002	[220, 3172]
216	[399, 400]	1145	[1813, 1814]	2074	[2577, 2732]	3003	[3304, 2224]
217	[401, 402]	1146	[730, 369]	2075	[2733, 2734]	3004	[1807, 913]
218	[403, 404]	1147	[1815, 20]	2076	[2640, 2735]	3005	[1981, 357]
219	[405, 406]	1148	[1816, 1817]	2077	[2736, 2737]	3006	[3083, 940]
220	[407, 408]	1149	[1818, 1819]	2078	[2738, 1191]	3007	[3273, 270]

221	[409, 410]	1150	[337, 1820]	2079	[2739, 2740]	3008	[2017, 2308]
222	[411, 412]	1151	[333, 279]	2080	[2741, 463]	3009	[969, 1898]
223	[413, 414]	1152	[1821, 1822]	2081	[2742, 1731]	3010	[1059, 3305]
224	[415, 416]	1153	[1823, 1824]	2082	[2743, 2744]	3011	[3327, 3328]
225	[417, 7]	1154	[1825, 1815]	2083	[2745, 1640]	3012	[3329, 1898]
226	[418, 419]	1155	[1826, 1827]	2084	[2746, 488]	3013	[3121, 3283]
227	[420, 421]	1156	[1828, 1829]	2085	[2747, 2748]	3014	[3275, 3118]
228	[110, 422]	1157	[1077, 799]	2086	[2749, 1291]	3015	[1974, 884]
229	[423, 424]	1158	[1830, 1831]	2087	[2750, 2751]	3016	[2339, 3330]
230	[425, 426]	1159	[1832, 219]	2088	[2752, 483]	3017	[2033, 58]
231	[7, 427]	1160	[907, 1833]	2089	[2753, 1318]	3018	[2282, 3331]
232	[132, 428]	1161	[824, 1834]	2090	[2754, 2755]	3019	[1021, 857]
233	[429, 430]	1162	[1835, 1836]	2091	[2756, 2757]	3020	[3092, 2276]
234	[431, 432]	1163	[1837, 302]	2092	[2758, 1126]	3021	[361, 3332]
235	[433, 434]	1164	[1838, 1839]	2093	[2759, 1121]	3022	[1066, 3333]
236	[435, 436]	1165	[1082, 1840]	2094	[2760, 2761]	3023	[940, 3334]
237	[437, 438]	1166	[758, 360]	2095	[2762, 1511]	3024	[3335, 3308]
238	[439, 440]	1167	[778, 1841]	2096	[1566, 2431]	3025	[2097, 891]
239	[441, 111]	1168	[975, 1842]	2097	[2763, 2764]	3026	[2058, 3336]
240	[442, 443]	1169	[1843, 343]	2098	[2765, 2766]	3027	[923, 740]
241	[444, 385]	1170	[1844, 1845]	2099	[2767, 404]	3028	[719, 782]
242	[445, 446]	1171	[840, 261]	2100	[2768, 2769]	3029	[757, 1882]
243	[447, 448]	1172	[752, 1846]	2101	[2770, 155]	3030	[2267, 2180]
244	[449, 450]	1173	[798, 736]	2102	[2771, 544]	3031	[1938, 3337]
245	[451, 452]	1174	[1847, 982]	2103	[2772, 2773]	3032	[3159, 3237]
246	[453, 454]	1175	[1848, 1849]	2104	[1503, 1547]	3033	[3100, 1970]
247	[455, 456]	1176	[1850, 1851]	2105	[2774, 2775]	3034	[3192, 2163]
248	[457, 458]	1177	[1852, 1853]	2106	[2776, 54]	3035	[2150, 28]
249	[459, 394]	1178	[1054, 1854]	2107	[2777, 122]	3036	[1801, 223]
250	[460, 461]	1179	[1842, 836]	2108	[1726, 2687]	3037	[953, 1872]
251	[462, 463]	1180	[1855, 1856]	2109	[505, 2778]	3038	[991, 884]
252	[464, 465]	1181	[351, 798]	2110	[2779, 1390]	3039	[973, 3338]
253	[466, 467]	1182	[315, 1857]	2111	[2780, 1244]	3040	[2134, 2342]
254	[468, 398]	1183	[1858, 1859]	2112	[380, 2781]	3041	[1901, 338]
255	[469, 470]	1184	[1860, 1861]	2113	[2782, 2783]	3042	[2190, 2313]
256	[471, 472]	1185	[1862, 1863]	2114	[2682, 1256]	3043	[29, 1793]
257	[473, 474]	1186	[1861, 1864]	2115	[2784, 1762]	3044	[3339, 249]
258	[475, 476]	1187	[1865, 1866]	2116	[2785, 2786]	3045	[992, 885]
259	[477, 478]	1188	[1867, 1027]	2117	[2787, 2788]	3046	[3303, 2150]
260	[479, 480]	1189	[1868, 1869]	2118	[2789, 1731]	3047	[2073, 2264]
261	[481, 482]	1190	[1870, 824]	2119	[2790, 2361]	3048	[73, 3334]
262	[483, 484]	1191	[1871, 1872]	2120	[2791, 2792]	3049	[2284, 1092]
263	[485, 486]	1192	[1873, 1874]	2121	[2793, 1120]	3050	[266, 1894]
264	[487, 488]	1193	[18, 21]	2122	[2794, 2795]	3051	[1018, 3075]

265	[489, 490]	1194	[303, 1875]	2123	[2796, 1177]	3052	[2031, 1084]
266	[491, 492]	1195	[1876, 1100]	2124	[2797, 2389]	3053	[2288, 2342]
267	[493, 494]	1196	[1842, 1877]	2125	[654, 2798]	3054	[332, 1804]
268	[175, 495]	1197	[1878, 1046]	2126	[2721, 2797]	3055	[3242, 1943]
269	[496, 56]	1198	[692, 1879]	2127	[2799, 2800]	3056	[1790, 3340]
270	[497, 498]	1199	[1880, 727]	2128	[2801, 1141]	3057	[756, 3260]
271	[499, 500]	1200	[1881, 770]	2129	[2802, 2803]	3058	[3217, 3322]
272	[501, 415]	1201	[1882, 1883]	2130	[532, 2804]	3059	[3341, 3140]
273	[502, 503]	1202	[1884, 1885]	2131	[2805, 2806]	3060	[2150, 784]
274	[504, 505]	1203	[1886, 891]	2132	[2807, 2808]	3061	[3254, 754]
275	[506, 507]	1204	[58, 708]	2133	[2809, 2810]	3062	[2061, 367]
276	[508, 509]	1205	[1887, 1888]	2134	[2811, 2812]	3063	[3312, 104]
277	[510, 511]	1206	[1873, 999]	2135	[2813, 2814]	3064	[3289, 3276]
278	[512, 513]	1207	[1889, 1890]	2136	[2815, 2816]	3065	[3339, 832]
279	[514, 515]	1208	[702, 1857]	2137	[2817, 133]	3066	[1795, 2017]
280	[516, 517]	1209	[1891, 1104]	2138	[2818, 2819]	3067	[3258, 1810]
281	[518, 519]	1210	[1892, 777]	2139	[2820, 1408]	3068	[3342, 2392]
282	[520, 521]	1211	[803, 1893]	2140	[2821, 2822]	3069	[3343, 651]
283	[522, 450]	1212	[1894, 1895]	2141	[2823, 2824]	3070	[3344, 3345]
284	[523, 524]	1213	[1896, 888]	2142	[2825, 1463]	3071	[3346, 2481]
285	[525, 526]	1214	[951, 1897]	2143	[2826, 2827]	3072	[3347, 3348]
286	[527, 528]	1215	[1898, 1788]	2144	[2828, 2829]	3073	[3349, 3350]
287	[529, 113]	1216	[1000, 1833]	2145	[2830, 1446]	3074	[3351, 2660]
288	[138, 530]	1217	[1899, 847]	2146	[2831, 1155]	3075	[3352, 1271]
289	[531, 532]	1218	[1841, 932]	2147	[2832, 2833]	3076	[3353, 167]
290	[533, 534]	1219	[1110, 1900]	2148	[2834, 1332]	3077	[3354, 1432]
291	[535, 536]	1220	[1901, 104]	2149	[2835, 614]	3078	[2360, 2676]
292	[537, 538]	1221	[260, 1902]	2150	[2836, 1515]	3079	[3355, 1177]
293	[539, 540]	1222	[749, 999]	2151	[2837, 168]	3080	[3356, 3357]
294	[541, 542]	1223	[1859, 1903]	2152	[2838, 1231]	3081	[1262, 3358]
295	[543, 544]	1224	[1904, 1905]	2153	[2839, 2840]	3082	[3359, 638]
296	[545, 546]	1225	[1018, 357]	2154	[2841, 2842]	3083	[3360, 1528]
297	[547, 548]	1226	[1006, 1906]	2155	[2843, 2844]	3084	[3361, 1724]
298	[549, 550]	1227	[261, 978]	2156	[540, 1515]	3085	[3362, 2856]
299	[551, 552]	1228	[1907, 1908]	2157	[2845, 2426]	3086	[1330, 2538]
300	[553, 554]	1229	[1787, 820]	2158	[2846, 1340]	3087	[3363, 1756]
301	[555, 556]	1230	[944, 218]	2159	[2847, 1300]	3088	[3364, 2960]
302	[557, 384]	1231	[842, 1909]	2160	[2848, 1683]	3089	[3365, 2465]
303	[558, 559]	1232	[931, 698]	2161	[2849, 1744]	3090	[3366, 3367]
304	[560, 561]	1233	[1910, 249]	2162	[2850, 2851]	3091	[3368, 1113]
305	[562, 563]	1234	[1911, 1912]	2163	[2852, 2738]	3092	[3369, 1213]
306	[564, 565]	1235	[1913, 290]	2164	[2853, 501]	3093	[3370, 2396]
307	[566, 567]	1236	[1914, 1019]	2165	[2854, 1147]	3094	[3371, 378]
308	[568, 569]	1237	[1915, 1853]	2166	[2855, 2856]	3095	[3372, 3373]

309	[570, 571]	1238	[1916, 1917]	2167	[1724, 2857]	3096	[3374, 3375]
310	[572, 573]	1239	[1918, 1919]	2168	[2858, 2434]	3097	[3376, 3377]
311	[574, 575]	1240	[1920, 747]	2169	[2859, 2860]	3098	[3378, 3379]
312	[576, 577]	1241	[359, 1921]	2170	[2861, 2862]	3099	[3380, 132]
313	[578, 579]	1242	[1022, 1922]	2171	[2863, 1397]	3100	[3381, 3382]
314	[580, 581]	1243	[1088, 1082]	2172	[1525, 2486]	3101	[3383, 1122]
315	[582, 565]	1244	[1923, 1924]	2173	[2864, 2865]	3102	[2418, 201]
316	[583, 584]	1245	[1925, 1885]	2174	[2866, 608]	3103	[2908, 3384]
317	[585, 586]	1246	[1926, 1927]	2175	[2867, 1486]	3104	[3385, 1514]
318	[587, 588]	1247	[1928, 698]	2176	[2868, 2869]	3105	[3386, 1390]
319	[589, 458]	1248	[233, 1929]	2177	[2870, 1562]	3106	[3387, 3388]
320	[590, 591]	1249	[761, 1930]	2178	[2860, 1695]	3107	[3389, 3390]
321	[592, 154]	1250	[786, 681]	2179	[2871, 2872]	3108	[161, 2925]
322	[593, 594]	1251	[681, 263]	2180	[2873, 1648]	3109	[3391, 1264]
323	[595, 596]	1252	[1823, 1931]	2181	[2874, 1583]	3110	[3392, 1301]
324	[597, 598]	1253	[1932, 206]	2182	[2875, 442]	3111	[3393, 3394]
325	[599, 600]	1254	[1782, 1933]	2183	[2876, 2877]	3112	[3395, 678]
326	[601, 602]	1255	[716, 992]	2184	[2878, 2709]	3113	[3396, 2415]
327	[603, 604]	1256	[1934, 991]	2185	[2879, 402]	3114	[3397, 1245]
328	[427, 605]	1257	[1935, 1936]	2186	[2880, 2820]	3115	[3398, 151]
329	[606, 173]	1258	[1937, 855]	2187	[2881, 2700]	3116	[1595, 3399]
330	[607, 608]	1259	[862, 240]	2188	[2882, 2883]	3117	[3400, 1635]
331	[609, 610]	1260	[1938, 1883]	2189	[2884, 2409]	3118	[2862, 1750]
332	[611, 612]	1261	[1939, 1940]	2190	[2885, 2886]	3119	[3401, 2860]
333	[613, 511]	1262	[326, 1941]	2191	[2887, 604]	3120	[3402, 1164]
334	[614, 615]	1263	[1942, 874]	2192	[2888, 2447]	3121	[3403, 2861]
335	[52, 616]	1264	[1943, 219]	2193	[571, 2889]	3122	[2676, 2824]
336	[617, 618]	1265	[988, 341]	2194	[2890, 561]	3123	[3404, 2433]
337	[619, 484]	1266	[1944, 27]	2195	[2891, 2892]	3124	[2748, 1323]
338	[620, 621]	1267	[950, 805]	2196	[2893, 2537]	3125	[3405, 493]
339	[622, 623]	1268	[1945, 1946]	2197	[2894, 2895]	3126	[3406, 3407]
340	[624, 188]	1269	[920, 1933]	2198	[2896, 522]	3127	[3408, 2773]
341	[625, 473]	1270	[965, 856]	2199	[2897, 2898]	3128	[584, 1337]
342	[626, 627]	1271	[1947, 783]	2200	[2899, 113]	3129	[3409, 1373]
343	[628, 415]	1272	[924, 1948]	2201	[2900, 2586]	3130	[3410, 1735]
344	[629, 630]	1273	[784, 335]	2202	[2901, 2810]	3131	[3411, 3412]
345	[631, 632]	1274	[1949, 1950]	2203	[2902, 546]	3132	[3413, 3017]
346	[633, 169]	1275	[1951, 1952]	2204	[2903, 2904]	3133	[3414, 3415]
347	[634, 550]	1276	[1953, 1078]	2205	[2905, 2906]	3134	[3416, 2529]
348	[635, 636]	1277	[819, 1954]	2206	[2907, 2908]	3135	[1432, 2870]
349	[120, 187]	1278	[1955, 107]	2207	[2909, 2813]	3136	[3417, 1180]
350	[637, 638]	1279	[1956, 1957]	2208	[1774, 1190]	3137	[3418, 3419]
351	[639, 640]	1280	[1851, 1958]	2209	[2910, 2911]	3138	[3420, 1205]
352	[641, 642]	1281	[1959, 896]	2210	[2912, 1602]	3139	[3421, 3422]

353	[643, 644]	1282	[1960, 282]	2211	[2913, 1559]	3140	[3423, 482]
354	[645, 646]	1283	[902, 1778]	2212	[2914, 2597]	3141	[3424, 3425]
355	[647, 461]	1284	[1961, 1962]	2213	[1614, 2915]	3142	[3426, 542]
356	[550, 648]	1285	[294, 900]	2214	[1511, 2916]	3143	[3427, 1502]
357	[649, 650]	1286	[1963, 1873]	2215	[2917, 2819]	3144	[3428, 1421]
358	[651, 652]	1287	[972, 708]	2216	[2918, 2829]	3145	[3429, 2775]
359	[653, 654]	1288	[823, 1852]	2217	[2851, 2919]	3146	[3430, 2371]
360	[655, 656]	1289	[876, 96]	2218	[458, 2920]	3147	[3431, 1539]
361	[657, 658]	1290	[1964, 1965]	2219	[2921, 1488]	3148	[3432, 2564]
362	[659, 660]	1291	[1966, 1967]	2220	[2922, 2923]	3149	[3433, 1401]
363	[661, 662]	1292	[1968, 978]	2221	[2924, 640]	3150	[1374, 3434]
364	[663, 184]	1293	[877, 1079]	2222	[2925, 2926]	3151	[3435, 2916]
365	[664, 665]	1294	[1969, 942]	2223	[610, 2927]	3152	[1197, 622]
366	[666, 480]	1295	[1970, 358]	2224	[2928, 2870]	3153	[3436, 2958]
367	[667, 668]	1296	[1971, 1818]	2225	[2929, 136]	3154	[3437, 1305]
368	[669, 670]	1297	[206, 1972]	2226	[2930, 2931]	3155	[3438, 1523]
369	[671, 128]	1298	[1973, 1837]	2227	[2932, 1555]	3156	[3439, 3440]
370	[406, 672]	1299	[1974, 1861]	2228	[2933, 400]	3157	[2510, 3441]
371	[673, 674]	1300	[1975, 689]	2229	[2934, 2935]	3158	[3442, 3443]
372	[675, 676]	1301	[883, 758]	2230	[2936, 2937]	3159	[3444, 3445]
373	[677, 650]	1302	[1976, 1977]	2231	[2938, 1661]	3160	[3446, 1273]
374	[678, 679]	1303	[372, 1978]	2232	[2939, 2940]	3161	[3447, 3448]
375	[680, 681]	1304	[62, 211]	2233	[2941, 2942]	3162	[3449, 1485]
376	[682, 96]	1305	[1979, 686]	2234	[2943, 2918]	3163	[2685, 3450]
377	[683, 684]	1306	[1806, 212]	2235	[49, 2944]	3164	[1383, 3451]
378	[685, 686]	1307	[1004, 1980]	2236	[2945, 1278]	3165	[3452, 2628]
379	[687, 688]	1308	[1981, 1824]	2237	[2946, 2795]	3166	[3453, 376]
380	[689, 690]	1309	[1982, 1983]	2238	[2947, 2948]	3167	[3454, 2861]
381	[691, 692]	1310	[1984, 916]	2239	[2949, 2425]	3168	[3455, 1746]
382	[693, 694]	1311	[1985, 802]	2240	[2950, 2948]	3169	[3456, 3457]
383	[695, 696]	1312	[1986, 104]	2241	[2543, 2]	3170	[3458, 2769]
384	[697, 698]	1313	[1067, 1987]	2242	[2951, 2514]	3171	[3459, 3460]
385	[699, 700]	1314	[1988, 1989]	2243	[2952, 2813]	3172	[3461, 142]
386	[701, 702]	1315	[782, 1990]	2244	[2953, 2954]	3173	[3462, 3463]
387	[703, 704]	1316	[892, 1826]	2245	[2955, 2449]	3174	[3464, 1198]
388	[705, 706]	1317	[1016, 1991]	2246	[2956, 2957]	3175	[3465, 533]
389	[316, 707]	1318	[226, 231]	2247	[2958, 2402]	3176	[3466, 467]
390	[708, 709]	1319	[1992, 1993]	2248	[2959, 2960]	3177	[3467, 3468]
391	[710, 711]	1320	[267, 1096]	2249	[1593, 1296]	3178	[3469, 2637]
392	[712, 713]	1321	[1994, 276]	2250	[2961, 198]	3179	[3470, 1304]
393	[714, 247]	1322	[747, 1902]	2251	[2962, 2963]	3180	[3471, 1286]
394	[715, 283]	1323	[989, 1995]	2252	[2920, 457]	3181	[3472, 464]
395	[716, 717]	1324	[1876, 19]	2253	[2964, 2862]	3182	[3473, 1200]
396	[718, 719]	1325	[65, 1996]	2254	[2965, 1170]	3183	[3474, 2505]

397	[720, 721]	1326	[1997, 1998]	2255	[2966, 2967]	3184	[3475, 1393]
398	[722, 723]	1327	[1999, 757]	2256	[2968, 1149]	3185	[600, 1224]
399	[724, 725]	1328	[829, 2000]	2257	[2969, 2970]	3186	[3476, 2718]
400	[726, 727]	1329	[2001, 2002]	2258	[2971, 427]	3187	[1482, 3477]
401	[728, 729]	1330	[2003, 2004]	2259	[2972, 2973]	3188	[3478, 3479]
402	[730, 265]	1331	[2005, 1046]	2260	[2974, 1496]	3189	[3480, 3481]
403	[731, 83]	1332	[300, 913]	2261	[2975, 111]	3190	[3482, 1265]
404	[732, 733]	1333	[273, 733]	2262	[2976, 514]	3191	[3483, 118]
405	[734, 735]	1334	[2006, 1976]	2263	[2977, 1723]	3192	[3484, 2696]
406	[736, 737]	1335	[25, 2007]	2264	[2978, 670]	3193	[3485, 1535]
407	[738, 739]	1336	[896, 2008]	2265	[2979, 2980]	3194	[3486, 3487]
408	[740, 741]	1337	[2009, 1849]	2266	[2981, 1487]	3195	[1352, 3488]
409	[270, 742]	1338	[1880, 211]	2267	[2982, 1125]	3196	[3489, 3490]
410	[743, 292]	1339	[2010, 2011]	2268	[2983, 2984]	3197	[588, 3491]
411	[97, 744]	1340	[2012, 1005]	2269	[2985, 2986]	3198	[3492, 3493]
412	[745, 746]	1341	[893, 860]	2270	[2987, 451]	3199	[3494, 528]
413	[747, 748]	1342	[2013, 2014]	2271	[2988, 1320]	3200	[3495, 3496]
414	[749, 252]	1343	[2015, 2016]	2272	[2989, 2990]	3201	[3497, 3498]
415	[750, 751]	1344	[2017, 1840]	2273	[2991, 2428]	3202	[3499, 3500]
416	[752, 753]	1345	[1913, 2018]	2274	[2992, 1395]	3203	[3501, 2734]
417	[691, 754]	1346	[1847, 1818]	2275	[2993, 1183]	3204	[3502, 3503]
418	[755, 756]	1347	[330, 827]	2276	[2994, 1423]	3205	[3504, 3505]
419	[757, 758]	1348	[1050, 2019]	2277	[2995, 2996]	3206	[3506, 2652]
420	[759, 760]	1349	[276, 822]	2278	[2997, 1247]	3207	[3507, 3508]
421	[761, 704]	1350	[2001, 1977]	2279	[565, 1698]	3208	[3509, 2788]
422	[205, 762]	1351	[820, 2020]	2280	[2998, 1461]	3209	[3510, 1248]
423	[763, 764]	1352	[1840, 915]	2281	[2999, 2609]	3210	[3511, 3512]
424	[765, 766]	1353	[1057, 74]	2282	[3000, 2710]	3211	[3513, 1839]
425	[765, 767]	1354	[2021, 1987]	2283	[3001, 1378]	3212	[3514, 2373]
426	[768, 29]	1355	[2022, 2023]	2284	[3002, 3003]	3213	[3515, 1152]
427	[754, 769]	1356	[1968, 262]	2285	[3004, 2454]	3214	[3412, 381]
428	[246, 770]	1357	[2024, 2025]	2286	[3005, 3006]	3215	[3516, 2649]
429	[771, 772]	1358	[2026, 864]	2287	[3007, 2571]	3216	[3517, 573]
430	[773, 340]	1359	[369, 1958]	2288	[3008, 416]	3217	[3518, 3519]
431	[774, 775]	1360	[2027, 2028]	2289	[3009, 2513]	3218	[3520, 3521]
432	[95, 776]	1361	[2029, 1960]	2290	[3010, 1490]	3219	[3522, 1161]
433	[777, 778]	1362	[2030, 1867]	2291	[3011, 1706]	3220	[3523, 3524]
434	[779, 780]	1363	[2031, 919]	2292	[2555, 609]	3221	[3525, 2636]
435	[267, 781]	1364	[1034, 2032]	2293	[3012, 1718]	3222	[3526, 393]
436	[782, 783]	1365	[96, 330]	2294	[3013, 2918]	3223	[3527, 2786]
437	[27, 784]	1366	[1983, 2033]	2295	[3014, 2360]	3224	[3528, 3529]
438	[785, 786]	1367	[1962, 1082]	2296	[3015, 499]	3225	[3530, 3531]
439	[787, 788]	1368	[2034, 2035]	2297	[3016, 3017]	3226	[3532, 3533]
440	[248, 762]	1369	[2036, 266]	2298	[3018, 2460]	3227	[3534, 1657]

441	[789, 210]	1370	[962, 255]	2299	[1476, 3019]	3228	[3535, 634]
442	[790, 791]	1371	[2037, 2038]	2300	[2399, 3020]	3229	[3536, 3537]
443	[792, 793]	1372	[1842, 1047]	2301	[3021, 1462]	3230	[3538, 42]
444	[794, 701]	1373	[1032, 2033]	2302	[3022, 586]	3231	[3539, 594]
445	[795, 796]	1374	[1909, 2039]	2303	[3023, 3024]	3232	[642, 3540]
446	[335, 797]	1375	[2040, 2041]	2304	[3025, 1202]	3233	[3541, 193]
447	[798, 799]	1376	[2042, 2043]	2305	[3026, 1697]	3234	[3542, 3543]
448	[800, 61]	1377	[1791, 1903]	2306	[3027, 407]	3235	[3544, 582]
449	[251, 801]	1378	[1962, 867]	2307	[3028, 1350]	3236	[3545, 3546]
450	[802, 706]	1379	[1789, 2044]	2308	[3029, 1200]	3237	[3547, 1668]
451	[803, 326]	1380	[245, 1881]	2309	[392, 3030]	3238	[3548, 1260]
452	[804, 805]	1381	[2045, 2046]	2310	[3031, 2738]	3239	[3549, 2422]
453	[806, 807]	1382	[750, 2047]	2311	[1534, 196]	3240	[3550, 1385]
454	[361, 808]	1383	[2048, 2049]	2312	[3032, 3033]	3241	[3551, 3552]
455	[780, 809]	1384	[2050, 983]	2313	[3034, 2589]	3242	[1514, 405]
456	[19, 810]	1385	[1837, 984]	2314	[556, 2588]	3243	[1582, 3553]
457	[811, 812]	1386	[75, 2051]	2315	[3035, 1601]	3244	[3554, 1316]
458	[813, 814]	1387	[2052, 328]	2316	[3036, 3037]	3245	[3555, 3014]
459	[815, 816]	1388	[2053, 2054]	2317	[3038, 1674]	3246	[3556, 2490]
460	[817, 818]	1389	[2055, 2056]	2318	[3039, 2348]	3247	[3557, 2849]
461	[819, 820]	1390	[902, 231]	2319	[3040, 2510]	3248	[3558, 1452]
462	[821, 822]	1391	[2011, 22]	2320	[3041, 3042]	3249	[3559, 3421]
463	[823, 824]	1392	[2057, 1947]	2321	[3043, 1194]	3250	[3560, 654]
464	[825, 826]	1393	[2058, 2059]	2322	[2345, 3044]	3251	[3561, 2455]
465	[827, 828]	1394	[2060, 64]	2323	[3045, 1559]	3252	[3562, 2560]
466	[829, 830]	1395	[2061, 687]	2324	[3046, 2451]	3253	[3563, 3564]
467	[265, 370]	1396	[2062, 1795]	2325	[3047, 596]	3254	[3565, 2483]
468	[831, 832]	1397	[2063, 2064]	2326	[3048, 1603]	3255	[3566, 192]
469	[833, 834]	1398	[2065, 97]	2327	[1251, 3049]	3256	[3567, 3568]
470	[835, 836]	1399	[322, 2066]	2328	[3050, 1654]	3257	[3569, 2495]
471	[837, 740]	1400	[2067, 2068]	2329	[3051, 3052]	3258	[3570, 1427]
472	[838, 839]	1401	[295, 793]	2330	[1295, 8]	3259	[3571, 3572]
473	[766, 840]	1402	[2069, 1073]	2331	[3053, 3054]	3260	[3573, 1361]
474	[841, 842]	1403	[2070, 944]	2332	[3055, 1263]	3261	[3574, 3575]
475	[810, 843]	1404	[372, 2071]	2333	[3056, 472]	3262	[3576, 2678]
476	[844, 845]	1405	[2072, 724]	2334	[3057, 1182]	3263	[3577, 1774]
477	[846, 847]	1406	[2073, 2067]	2335	[3058, 3059]	3264	[3578, 2454]
478	[848, 849]	1407	[2074, 2075]	2336	[3060, 2366]	3265	[3579, 1719]
479	[850, 851]	1408	[719, 248]	2337	[3061, 1620]	3266	[3580, 3581]
480	[852, 311]	1409	[1865, 818]	2338	[3062, 3063]	3267	[3582, 3489]
481	[853, 854]	1410	[2076, 965]	2339	[3064, 1492]	3268	[3583, 1538]
482	[855, 70]	1411	[2077, 968]	2340	[3065, 1471]	3269	[3584, 3585]
483	[856, 776]	1412	[2078, 1880]	2341	[3066, 1343]	3270	[3586, 1160]
484	[857, 858]	1413	[235, 712]	2342	[3067, 1141]	3271	[1549, 3587]

485	[859, 860]	1414	[2079, 208]	2343	[950, 372]	3272	[3588, 3589]
486	[861, 862]	1415	[852, 2080]	2344	[284, 3068]	3273	[3590, 2491]
487	[863, 864]	1416	[2081, 706]	2345	[2331, 777]	3274	[3591, 3014]
488	[30, 71]	1417	[2082, 227]	2346	[3069, 712]	3275	[2916, 2453]
489	[865, 866]	1418	[1004, 2083]	2347	[3070, 1832]	3276	[3592, 181]
490	[867, 272]	1419	[1832, 2084]	2348	[3071, 760]	3277	[3593, 1349]
491	[868, 869]	1420	[2085, 2086]	2349	[3072, 2029]	3278	[3594, 1299]
492	[870, 287]	1421	[103, 830]	2350	[3073, 1887]	3279	[3595, 1422]
493	[871, 872]	1422	[2087, 2088]	2351	[1991, 1800]	3280	[3596, 3484]
494	[873, 874]	1423	[2089, 105]	2352	[1903, 2311]	3281	[3597, 3598]
495	[875, 876]	1424	[2090, 805]	2353	[333, 1909]	3282	[3599, 2562]
496	[877, 878]	1425	[1939, 16]	2354	[909, 3074]	3283	[3600, 3377]
497	[879, 880]	1426	[918, 1028]	2355	[2247, 1933]	3284	[3601, 1168]
498	[881, 102]	1427	[2091, 2092]	2356	[1981, 3075]	3285	[3602, 1729]
499	[882, 883]	1428	[708, 2093]	2357	[1915, 2248]	3286	[3603, 3604]
500	[884, 885]	1429	[2014, 347]	2358	[879, 2144]	3287	[3605, 513]
501	[886, 752]	1430	[2094, 1055]	2359	[891, 3076]	3288	[3606, 2488]
502	[307, 887]	1431	[270, 1885]	2360	[3077, 3078]	3289	[3607, 3608]
503	[888, 108]	1432	[2095, 2096]	2361	[299, 1807]	3290	[3609, 3610]
504	[685, 889]	1433	[20, 29]	2362	[2183, 684]	3291	[3611, 1417]
505	[890, 891]	1434	[2097, 911]	2363	[2010, 348]	3292	[3612, 1233]
506	[892, 893]	1435	[2098, 1045]	2364	[805, 2071]	3293	[3613, 567]
507	[821, 746]	1436	[2099, 2100]	2365	[205, 3079]	3294	[3614, 1521]
508	[894, 895]	1437	[2101, 2102]	2366	[998, 1789]	3295	[3615, 2783]
509	[896, 265]	1438	[2103, 2104]	2367	[875, 682]	3296	[3616, 3617]
510	[897, 898]	1439	[694, 1900]	2368	[3080, 2210]	3297	[3618, 671]
511	[899, 900]	1440	[2105, 2011]	2369	[3081, 2288]	3298	[3619, 630]
512	[901, 902]	1441	[1109, 1915]	2370	[2138, 3082]	3299	[3620, 3621]
513	[744, 903]	1442	[1891, 2106]	2371	[703, 2146]	3300	[3622, 494]
514	[904, 905]	1443	[217, 2107]	2372	[3083, 3084]	3301	[3623, 52]
515	[906, 330]	1444	[922, 2108]	2373	[3085, 98]	3302	[3624, 1607]
516	[907, 908]	1445	[2109, 2110]	2374	[1886, 344]	3303	[2499, 1281]
517	[909, 910]	1446	[917, 1800]	2375	[744, 828]	3304	[3625, 3626]
518	[890, 911]	1447	[1037, 1841]	2376	[755, 1084]	3305	[3627, 665]
519	[912, 913]	1448	[2111, 883]	2377	[3086, 3087]	3306	[3628, 3629]
520	[791, 914]	1449	[2112, 2113]	2378	[1886, 1966]	3307	[3630, 3631]
521	[272, 915]	1450	[919, 2114]	2379	[3088, 3089]	3308	[3632, 1642]
522	[916, 917]	1451	[832, 2115]	2380	[1780, 2124]	3309	[3633, 3634]
523	[328, 900]	1452	[2116, 218]	2381	[346, 1894]	3310	[3635, 520]
524	[918, 919]	1453	[2117, 2118]	2382	[3090, 3091]	3311	[3636, 1387]
525	[920, 921]	1454	[2099, 1903]	2383	[3092, 837]	3312	[3637, 197]
526	[374, 103]	1455	[2119, 317]	2384	[60, 3093]	3313	[3638, 3390]
527	[922, 824]	1456	[216, 1794]	2385	[2303, 3094]	3314	[3639, 1327]
528	[923, 924]	1457	[2120, 1032]	2386	[1860, 992]	3315	[3640, 414]

529	[925, 926]	1458	[2121, 289]	2387	[3095, 886]	3316	[3641, 433]
530	[258, 716]	1459	[1801, 915]	2388	[3096, 3097]	3317	[12, 3642]
531	[927, 928]	1460	[873, 2122]	2389	[2288, 778]	3318	[3643, 135]
532	[767, 929]	1461	[1868, 1820]	2390	[1962, 2266]	3319	[3644, 2812]
533	[930, 719]	1462	[2123, 2124]	2391	[3098, 2010]	3320	[3645, 1701]
534	[931, 932]	1463	[1064, 914]	2392	[1941, 282]	3321	[3646, 1235]
535	[334, 933]	1464	[1920, 260]	2393	[1087, 2164]	3322	[3647, 1221]
536	[934, 314]	1465	[2125, 337]	2394	[1811, 828]	3323	[3648, 437]
537	[935, 936]	1466	[2126, 2123]	2395	[951, 3099]	3324	[1316, 2831]
538	[238, 937]	1467	[1102, 1064]	2396	[1940, 729]	3325	[3649, 2963]
539	[938, 939]	1468	[2127, 2128]	2397	[3100, 1984]	3326	[3537, 3650]
540	[940, 941]	1469	[2129, 952]	2398	[2090, 372]	3327	[3651, 3652]
541	[942, 943]	1470	[2130, 1984]	2399	[2045, 3101]	3328	[3653, 636]
542	[944, 945]	1471	[2131, 726]	2400	[373, 102]	3329	[2967, 1234]
543	[946, 947]	1472	[832, 250]	2401	[3102, 106]	3330	[3654, 2648]
544	[948, 949]	1473	[776, 2000]	2402	[3103, 3104]	3331	[3655, 1491]
545	[950, 951]	1474	[858, 690]	2403	[1035, 682]	3332	[3656, 1525]
546	[952, 840]	1475	[2132, 2133]	2404	[681, 3105]	3333	[3657, 109]
547	[953, 954]	1476	[2134, 937]	2405	[1059, 254]	3334	[3658, 556]
548	[815, 955]	1477	[2135, 1875]	2406	[3106, 3107]	3335	[3659, 3660]
549	[956, 957]	1478	[2136, 319]	2407	[1101, 790]	3336	[3661, 554]
550	[958, 959]	1479	[2003, 2137]	2408	[3108, 3109]	3337	[3662, 10]
551	[916, 960]	1480	[2138, 2139]	2409	[891, 1967]	3338	[3663, 420]
552	[961, 962]	1481	[2140, 2141]	2410	[2005, 1842]	3339	[3664, 460]
553	[963, 964]	1482	[2142, 334]	2411	[2082, 2302]	3340	[3665, 388]
554	[965, 374]	1483	[2143, 2144]	2412	[242, 3110]	3341	[3666, 661]
555	[966, 967]	1484	[1919, 929]	2413	[2132, 208]	3342	[3341, 3101]
556	[968, 723]	1485	[1796, 819]	2414	[1025, 761]	3343	[2254, 1076]
557	[969, 886]	1486	[355, 810]	2415	[2133, 2139]	3344	[2052, 899]
558	[292, 970]	1487	[2145, 1897]	2416	[1041, 729]	3345	[82, 1905]
559	[971, 215]	1488	[2117, 2146]	2417	[3111, 1798]	3346	[3307, 3321]
560	[972, 59]	1489	[2147, 1791]	2418	[3112, 373]	3347	[373, 95]
561	[872, 704]	1490	[2148, 1074]	2419	[2149, 2187]	3348	[3206, 780]
562	[73, 941]	1491	[741, 1826]	2420	[3113, 892]	3349	[2109, 1867]
563	[973, 974]	1492	[2149, 2150]	2421	[2260, 3114]	3350	[3667, 3233]
564	[975, 835]	1493	[2151, 1887]	2422	[2251, 2000]	3351	[3335, 3138]
565	[976, 836]	1494	[715, 2152]	2423	[848, 234]	3352	[340, 908]
566	[977, 955]	1495	[1922, 949]	2424	[244, 252]	3353	[3128, 1781]
567	[687, 978]	1496	[2153, 974]	2425	[1936, 681]	3354	[2214, 3295]
568	[869, 979]	1497	[2154, 775]	2426	[3115, 958]	3355	[2014, 2325]
569	[980, 981]	1498	[1056, 716]	2427	[2104, 1827]	3356	[30, 1794]
570	[214, 982]	1499	[2155, 1949]	2428	[2276, 924]	3357	[868, 2058]
571	[983, 984]	1500	[328, 2156]	2429	[3116, 2168]	3358	[2060, 1859]
572	[985, 986]	1501	[2157, 1000]	2430	[212, 3117]	3359	[1067, 3068]

573	[80, 30]	1502	[2158, 2159]	2431	[2178, 3118]	3360	[3303, 2187]
574	[929, 261]	1503	[2160, 2161]	2432	[2213, 3119]	3361	[1928, 3668]
575	[680, 220]	1504	[2162, 2163]	2433	[3120, 2295]	3362	[786, 220]
576	[732, 224]	1505	[1961, 2164]	2434	[3121, 3122]	3363	[2254, 1960]
577	[987, 988]	1506	[1852, 2165]	2435	[3084, 941]	3364	[2105, 21]
578	[989, 990]	1507	[869, 2059]	2436	[1948, 2104]	3365	[2042, 3669]
579	[991, 992]	1508	[2011, 2166]	2437	[2167, 3123]	3366	[3667, 700]
580	[278, 993]	1509	[2167, 2168]	2438	[3124, 990]	3367	[3670, 952]
581	[994, 906]	1510	[344, 1967]	2439	[3125, 346]	3368	[3671, 2029]
582	[995, 996]	1511	[2169, 2170]	2440	[3126, 3127]	3369	[371, 951]
583	[911, 345]	1512	[2171, 857]	2441	[19, 768]	3370	[1948, 1826]
584	[997, 983]	1513	[2121, 685]	2442	[713, 917]	3371	[3222, 912]
585	[998, 328]	1514	[788, 736]	2443	[3128, 1787]	3372	[2338, 835]
586	[244, 999]	1515	[939, 2172]	2444	[2013, 346]	3373	[3269, 1965]
587	[1000, 341]	1516	[2173, 289]	2445	[21, 3129]	3374	[369, 3199]
588	[1001, 298]	1517	[833, 2174]	2446	[3130, 1088]	3375	[2223, 1836]
589	[1002, 1003]	1518	[993, 2175]	2447	[2302, 709]	3376	[1818, 366]
590	[1004, 1005]	1519	[2176, 964]	2448	[3131, 3132]	3377	[3672, 3078]
591	[1006, 281]	1520	[300, 213]	2449	[2238, 892]	3378	[2237, 924]
592	[1007, 1008]	1521	[2177, 2178]	2450	[3133, 3134]	3379	[2195, 2016]
593	[1009, 1010]	1522	[2179, 2180]	2451	[1950, 998]	3380	[3259, 3673]
594	[367, 262]	1523	[2181, 687]	2452	[2203, 970]	3381	[2187, 1023]
595	[1011, 1012]	1524	[1870, 2108]	2453	[2170, 2178]	3382	[3297, 730]
596	[1013, 1014]	1525	[2182, 862]	2454	[1856, 3135]	3383	[2225, 1809]
597	[86, 1012]	1526	[2183, 2184]	2455	[3136, 2096]	3384	[774, 325]
598	[1015, 93]	1527	[1861, 2185]	2456	[864, 787]	3385	[2142, 1023]
599	[712, 1016]	1528	[2186, 242]	2457	[3131, 3091]	3386	[732, 3674]
600	[1017, 1018]	1529	[2187, 784]	2458	[3125, 362]	3387	[1851, 1783]
601	[1019, 1020]	1530	[2188, 2189]	2459	[3137, 823]	3388	[710, 1854]
602	[820, 99]	1531	[2190, 2191]	2460	[1016, 917]	3389	[1966, 345]
603	[1021, 1022]	1532	[888, 2192]	2461	[2307, 744]	3390	[3675, 1838]
604	[1023, 933]	1533	[2193, 2083]	2462	[2058, 2124]	3391	[843, 1793]
605	[16, 1024]	1534	[2194, 772]	2463	[2220, 3138]	3392	[3080, 2298]
606	[1025, 703]	1535	[1801, 732]	2464	[2121, 1913]	3393	[915, 3319]
607	[1026, 1027]	1536	[1804, 1909]	2465	[1003, 302]	3394	[2126, 869]
608	[1028, 1029]	1537	[2195, 2196]	2466	[827, 2290]	3395	[693, 1110]
609	[350, 787]	1538	[351, 788]	2467	[2069, 940]	3396	[2321, 1041]
610	[1030, 1031]	1539	[915, 733]	2468	[3139, 3140]	3397	[1878, 976]
611	[1032, 1033]	1540	[2111, 757]	2469	[101, 2297]	3398	[1999, 286]
612	[1034, 230]	1541	[2197, 2198]	2470	[1943, 108]	3399	[966, 2144]
613	[1035, 876]	1542	[2199, 2200]	2471	[3141, 3142]	3400	[3676, 74]
614	[1036, 705]	1543	[717, 885]	2472	[3143, 2276]	3401	[1003, 984]
615	[1037, 931]	1544	[906, 2201]	2473	[365, 3144]	3402	[2177, 3120]
616	[97, 1038]	1545	[1837, 2202]	2474	[1973, 983]	3403	[3675, 3294]

617	[330, 1038]	1546	[788, 2194]	2475	[2201, 1811]	3404	[1913, 686]
618	[1039, 1040]	1547	[2159, 822]	2476	[726, 3145]	3405	[3279, 873]
619	[1041, 1042]	1548	[2173, 1979]	2477	[2268, 3146]	3406	[3341, 2046]
620	[705, 877]	1549	[2203, 2056]	2478	[1895, 1981]	3407	[1982, 861]
621	[1043, 787]	1550	[800, 1040]	2479	[3115, 78]	3408	[1915, 1834]
622	[1044, 1045]	1551	[2204, 1010]	2480	[2252, 2057]	3409	[1811, 3677]
623	[1046, 1047]	1552	[2205, 974]	2481	[933, 797]	3410	[2186, 2138]
624	[335, 1048]	1553	[2206, 2207]	2482	[358, 1991]	3411	[3204, 849]
625	[1049, 1050]	1554	[1900, 2208]	2483	[2329, 2313]	3412	[3678, 693]
626	[1015, 1051]	1555	[2209, 2210]	2484	[16, 3147]	3413	[2309, 2225]
627	[1052, 355]	1556	[1064, 2211]	2485	[917, 3148]	3414	[1103, 2106]
628	[689, 1053]	1557	[2212, 1966]	2486	[2108, 1834]	3415	[2315, 1069]
629	[1054, 1055]	1558	[802, 838]	2487	[1848, 3149]	3416	[3256, 965]
630	[1056, 991]	1559	[809, 349]	2488	[292, 814]	3417	[1838, 3675]
631	[1057, 1026]	1560	[2213, 2141]	2489	[3150, 3151]	3418	[2014, 267]
632	[776, 830]	1561	[301, 2202]	2490	[236, 358]	3419	[3327, 3230]
633	[1058, 1059]	1562	[2096, 2214]	2491	[3152, 2089]	3420	[3173, 3074]
634	[1060, 894]	1563	[231, 293]	2492	[102, 776]	3421	[3679, 2258]
635	[1061, 1062]	1564	[1997, 1785]	2493	[3153, 3154]	3422	[2282, 3250]
636	[329, 97]	1565	[983, 2215]	2494	[1790, 947]	3423	[1934, 1860]
637	[1063, 940]	1566	[2216, 1856]	2495	[2127, 3155]	3424	[1807, 3239]
638	[847, 1064]	1567	[347, 1895]	2496	[2057, 205]	3425	[3218, 813]
639	[1065, 745]	1568	[1954, 845]	2497	[697, 932]	3426	[1096, 1018]
640	[1066, 959]	1569	[743, 2203]	2498	[3156, 1066]	3427	[3247, 2160]
641	[1067, 285]	1570	[2217, 2043]	2499	[1893, 1960]	3428	[1986, 338]
642	[1068, 1069]	1571	[961, 1102]	2500	[893, 1827]	3429	[82, 2228]
643	[1068, 1056]	1572	[1076, 852]	2501	[1063, 3084]	3430	[2307, 1038]
644	[1019, 798]	1573	[2110, 853]	2502	[1919, 2181]	3431	[2259, 3680]
645	[1049, 1070]	1574	[2218, 2219]	2503	[2266, 272]	3432	[2181, 1968]
646	[1071, 944]	1575	[795, 1917]	2504	[3157, 62]	3433	[220, 2292]
647	[1072, 295]	1576	[2220, 2221]	2505	[942, 1888]	3434	[2027, 3251]
648	[894, 945]	1577	[327, 282]	2506	[221, 1005]	3435	[1884, 742]
649	[1073, 288]	1578	[2222, 757]	2507	[1975, 858]	3436	[756, 2114]
650	[985, 1074]	1579	[2223, 2224]	2508	[1806, 300]	3437	[3158, 289]
651	[1075, 922]	1580	[2225, 694]	2509	[3126, 1912]	3438	[92, 3325]
652	[1076, 715]	1581	[1955, 751]	2510	[1895, 356]	3439	[3095, 1094]
653	[1027, 331]	1582	[2226, 981]	2511	[3158, 1979]	3440	[1891, 1798]
654	[1077, 771]	1583	[937, 1841]	2512	[2037, 926]	3441	[2135, 3109]
655	[1078, 906]	1584	[1850, 369]	2513	[3159, 3160]	3442	[95, 103]
656	[706, 1079]	1585	[2227, 78]	2514	[3161, 2035]	3443	[3329, 1094]
657	[1080, 1081]	1586	[731, 2228]	2515	[2097, 1966]	3444	[294, 2156]
658	[1082, 272]	1587	[2229, 2200]	2516	[1840, 223]	3445	[3214, 2333]
659	[1083, 1084]	1588	[2230, 2231]	2517	[3162, 212]	3446	[3103, 2025]
660	[962, 791]	1589	[2232, 2168]	2518	[59, 709]	3447	[3259, 313]

661	[1085, 1086]	1590	[2233, 2234]	2519	[3163, 869]	3448	[1918, 766]
662	[1087, 1088]	1591	[846, 962]	2520	[2024, 3104]	3449	[929, 1968]
663	[1089, 1090]	1592	[2235, 2236]	2521	[718, 247]	3450	[3247, 724]
664	[1091, 1092]	1593	[2041, 271]	2522	[3111, 1104]	3451	[3681, 1086]
665	[1069, 716]	1594	[2237, 2238]	2523	[3164, 3165]	3452	[1984, 358]
666	[1093, 1094]	1595	[2008, 1958]	2524	[3143, 923]	3453	[893, 3310]
667	[255, 1095]	1596	[960, 2239]	2525	[1922, 3166]	3454	[835, 1047]
668	[1096, 356]	1597	[980, 2240]	2526	[1835, 3167]	3455	[1944, 2142]
669	[334, 1097]	1598	[2241, 6]	2527	[1932, 1889]	3456	[1826, 860]
670	[780, 21]	1599	[952, 929]	2528	[352, 3168]	3457	[3326, 1881]
671	[1098, 1099]	1600	[2201, 744]	2529	[924, 741]	3458	[1918, 952]
672	[1100, 20]	1601	[2242, 2099]	2530	[3084, 288]	3459	[3306, 3682]
673	[1101, 1102]	1602	[28, 933]	2531	[2296, 1925]	3460	[3139, 3101]
674	[1103, 1104]	1603	[2243, 256]	2532	[2147, 2099]	3461	[216, 3683]
675	[1105, 1106]	1604	[2244, 2245]	2533	[1950, 232]	3462	[734, 3680]
676	[806, 1107]	1605	[787, 798]	2534	[2222, 883]	3463	[2085, 85]
677	[1033, 972]	1606	[2246, 1881]	2535	[3169, 700]	3464	[2226, 3682]
678	[1108, 1109]	1607	[1094, 752]	2536	[1951, 3170]	3465	[778, 931]
679	[1110, 946]	1608	[2247, 2007]	2537	[810, 80]	3466	[994, 329]
680	[1111, 485]	1609	[1953, 682]	2538	[3171, 3140]	3467	[3299, 3183]
681	[1112, 1113]	1610	[824, 2248]	2539	[3130, 2164]	3468	[3197, 3193]
682	[1114, 1115]	1611	[1023, 335]	2540	[2291, 3172]	3469	[1925, 2293]
683	[1116, 1117]	1612	[2249, 954]	2541	[2094, 1854]	3470	[741, 2104]
684	[1118, 428]	1613	[310, 283]	2542	[2323, 207]	3471	[3257, 1887]
685	[1119, 433]	1614	[1089, 839]	2543	[3173, 3174]	3472	[2307, 827]
686	[1120, 676]	1615	[897, 826]	2544	[3175, 685]	3473	[2108, 1853]
687	[1121, 1122]	1616	[1009, 2250]	2545	[339, 3176]	3474	[980, 1946]
688	[1123, 1124]	1617	[374, 2251]	2546	[3177, 3165]	3475	[1851, 370]
689	[1125, 1126]	1618	[2252, 247]	2547	[3178, 3179]	3476	[3681, 3291]
690	[1127, 1128]	1619	[2176, 2253]	2548	[2323, 1972]	3477	[2341, 1109]
691	[1129, 1130]	1620	[2254, 1941]	2549	[2314, 1893]	3478	[882, 870]
692	[1131, 1132]	1621	[982, 366]	2550	[1970, 916]	3479	[3684, 313]
693	[1133, 1134]	1622	[232, 899]	2551	[239, 58]	3480	[1813, 3331]
694	[1135, 526]	1623	[1780, 2059]	2552	[1100, 810]	3481	[68, 226]
695	[1136, 1137]	1624	[90, 2049]	2553	[3133, 2064]	3482	[348, 22]
696	[1138, 583]	1625	[2255, 61]	2554	[3180, 350]	3483	[723, 2310]
697	[1139, 1140]	1626	[2188, 2256]	2555	[1038, 903]	3484	[2230, 3338]
698	[1141, 1142]	1627	[2257, 2258]	2556	[3181, 251]	3485	[766, 2181]
699	[1143, 1144]	1628	[792, 1977]	2557	[1843, 3182]	3486	[362, 2325]
700	[1145, 679]	1629	[1007, 910]	2558	[2119, 826]	3487	[1080, 1829]
701	[1146, 1147]	1630	[2040, 1884]	2559	[2116, 945]	3488	[3178, 1875]
702	[1148, 1149]	1631	[2259, 735]	2560	[2180, 858]	3489	[3671, 2254]
703	[1150, 1151]	1632	[2260, 2200]	2561	[2136, 3094]	3490	[2132, 242]
704	[1152, 1153]	1633	[2153, 2261]	2562	[2310, 947]	3491	[3164, 3331]

705	[1154, 1155]	1634	[305, 2256]	2563	[210, 727]	3492	[1910, 1013]
706	[1156, 644]	1635	[946, 2208]	2564	[2081, 877]	3493	[3234, 894]
707	[1157, 421]	1636	[2205, 2261]	2565	[952, 2061]	3494	[328, 3301]
708	[1158, 1159]	1637	[2024, 1995]	2566	[3098, 18]	3495	[279, 2283]
709	[1160, 481]	1638	[2262, 278]	2567	[2119, 707]	3496	[935, 3211]
710	[1161, 1162]	1639	[2263, 985]	2568	[1862, 306]	3497	[2055, 814]
711	[1163, 1164]	1640	[2264, 1820]	2569	[1001, 3183]	3498	[2295, 1855]
712	[1165, 1166]	1641	[2265, 728]	2570	[2098, 3184]	3499	[3218, 2055]
713	[434, 1167]	1642	[1830, 1014]	2571	[1807, 213]	3500	[3317, 269]
714	[1168, 1169]	1643	[1781, 844]	2572	[2273, 1844]	3501	[1043, 2332]
715	[1170, 600]	1644	[1088, 2266]	2573	[773, 988]	3502	[708, 228]
716	[474, 1171]	1645	[1992, 739]	2574	[3088, 702]	3503	[2074, 1955]
717	[1172, 1173]	1646	[1052, 19]	2575	[3185, 821]	3504	[3309, 1884]
718	[1174, 1175]	1647	[2267, 1975]	2576	[2087, 3186]	3505	[3685, 812]
719	[1176, 1128]	1648	[59, 228]	2577	[3187, 2142]	3506	[1914, 2332]
720	[1177, 1178]	1649	[855, 216]	2578	[2076, 94]	3507	[1969, 307]
721	[1179, 1180]	1650	[2268, 83]	2579	[3188, 3071]	3508	[3185, 276]
722	[1181, 1182]	1651	[1804, 1030]	2580	[3181, 244]	3509	[95, 2251]
723	[1183, 1184]	1652	[2269, 2174]	2581	[3189, 3190]	3510	[3329, 886]
724	[1185, 1186]	1653	[1097, 797]	2582	[1900, 3191]	3511	[356, 1824]
725	[1187, 1188]	1654	[993, 1031]	2583	[3192, 3193]	3512	[1058, 246]
726	[1189, 1190]	1655	[2150, 334]	2584	[2155, 902]	3513	[1046, 2278]
727	[1191, 37]	1656	[2270, 2271]	2585	[2100, 2311]	3514	[2286, 3263]
728	[1192, 1193]	1657	[1937, 29]	2586	[2323, 1890]	3515	[1096, 1823]
729	[1194, 1127]	1658	[2272, 1955]	2587	[2164, 867]	3516	[320, 3686]
730	[1195, 406]	1659	[2273, 315]	2588	[3194, 730]	3517	[722, 694]
731	[1196, 1197]	1660	[2125, 1868]	2589	[723, 1900]	3518	[221, 2083]
732	[1198, 1199]	1661	[1070, 769]	2590	[259, 1942]	3519	[2199, 3114]
733	[1200, 1201]	1662	[699, 2274]	2591	[3195, 1873]	3520	[937, 1928]
734	[1202, 1203]	1663	[2275, 2225]	2592	[3196, 2001]	3521	[3676, 1867]
735	[1204, 1199]	1664	[2151, 88]	2593	[3197, 2336]	3522	[226, 1950]
736	[1205, 1206]	1665	[2276, 2238]	2594	[3198, 2276]	3523	[2297, 3105]
737	[1207, 1208]	1666	[2244, 866]	2595	[2008, 3199]	3524	[2233, 1055]
738	[1209, 1210]	1667	[2277, 264]	2596	[3200, 3201]	3525	[3136, 3313]
739	[1211, 1212]	1668	[713, 359]	2597	[3202, 2273]	3526	[1941, 715]
740	[1213, 1214]	1669	[337, 2068]	2598	[315, 3203]	3527	[1037, 1928]
741	[1215, 1216]	1670	[835, 2278]	2599	[1786, 3085]	3528	[3202, 3088]
742	[1217, 1218]	1671	[2050, 1837]	2600	[3204, 1929]	3529	[1907, 2198]
743	[1219, 1220]	1672	[1017, 1823]	2601	[2332, 1077]	3530	[2012, 1980]
744	[1221, 116]	1673	[2159, 746]	2602	[2181, 261]	3531	[2022, 309]
745	[1222, 1223]	1674	[264, 369]	2603	[1920, 1942]	3532	[312, 3673]
746	[1224, 1225]	1675	[2279, 2280]	2604	[723, 946]	3533	[2309, 693]
747	[1226, 1227]	1676	[799, 772]	2605	[3205, 819]	3534	[3081, 777]
748	[1228, 1229]	1677	[2281, 1976]	2606	[3206, 2105]	3535	[2227, 958]

749	[1230, 1231]	1678	[2282, 1814]	2607	[3207, 2182]	3536	[3684, 2088]
750	[1232, 1161]	1679	[2062, 1088]	2608	[1841, 3208]	3537	[2130, 236]
751	[1233, 532]	1680	[1030, 2283]	2609	[3209, 2160]	3538	[3678, 722]
752	[1234, 1235]	1681	[2284, 2285]	2610	[3210, 2128]	3539	[3095, 2263]
753	[1236, 1237]	1682	[794, 314]	2611	[3116, 3211]	3540	[3224, 832]
754	[1238, 1218]	1683	[1991, 1921]	2612	[1984, 713]	3541	[3171, 3265]
755	[1239, 1240]	1684	[840, 367]	2613	[1020, 736]	3542	[97, 1811]
756	[1241, 10]	1685	[934, 2273]	2614	[728, 1024]	3543	[2259, 2219]
757	[1242, 1243]	1686	[2286, 285]	2615	[3071, 3212]	3544	[2005, 976]
758	[1244, 1245]	1687	[318, 2287]	2616	[3209, 759]	3545	[2194, 2326]
759	[1246, 1247]	1688	[2288, 937]	2617	[3213, 761]	3546	[2272, 106]
760	[1248, 501]	1689	[2289, 747]	2618	[3214, 206]	3547	[2162, 3193]
761	[1249, 1250]	1690	[744, 2290]	2619	[3113, 741]	3548	[3084, 2337]
762	[376, 1251]	1691	[2237, 740]	2620	[1043, 1019]	3549	[934, 3088]
763	[1252, 1253]	1692	[2291, 2292]	2621	[3189, 1924]	3550	[3685, 3687]
764	[1254, 1255]	1693	[2143, 967]	2622	[3215, 3216]	3551	[714, 204]
765	[1256, 1257]	1694	[2041, 2293]	2623	[1059, 770]	3552	[1865, 2210]
766	[1258, 481]	1695	[2294, 2295]	2624	[3217, 24]	3553	[3243, 3291]
767	[1259, 1260]	1696	[81, 998]	2625	[3218, 292]	3554	[2187, 334]
768	[1261, 165]	1697	[339, 1802]	2626	[1983, 239]	3555	[292, 2056]
769	[1130, 1115]	1698	[2296, 270]	2627	[3089, 3219]	3556	[2289, 873]
770	[452, 1262]	1699	[2275, 722]	2628	[972, 227]	3557	[3152, 938]
771	[1263, 1264]	1700	[282, 311]	2629	[2190, 2198]	3558	[272, 732]
772	[1265, 476]	1701	[2297, 2292]	2630	[2275, 693]	3559	[988, 3246]
773	[1266, 1267]	1702	[1020, 2194]	2631	[3141, 275]	3560	[258, 1974]
774	[1268, 1269]	1703	[2209, 2298]	2632	[1893, 1076]	3561	[289, 889]
775	[1270, 521]	1704	[2299, 258]	2633	[356, 1931]	3562	[327, 310]
776	[1271, 14]	1705	[1892, 2288]	2634	[3220, 964]	3563	[226, 81]
777	[1272, 1201]	1706	[2266, 1840]	2635	[685, 290]	3564	[2270, 1099]
778	[438, 1273]	1707	[2072, 2160]	2636	[3221, 2216]	3565	[3676, 1026]
779	[1274, 1275]	1708	[2300, 2301]	2637	[3222, 212]	3566	[2218, 3315]
780	[1276, 390]	1709	[240, 2302]	2638	[884, 3223]	3567	[1056, 1974]
781	[1277, 1278]	1710	[2218, 735]	2639	[3224, 1013]	3568	[2277, 896]
782	[1279, 1202]	1711	[2303, 2304]	2640	[94, 102]	3569	[930, 2057]
783	[1128, 1280]	1712	[736, 2305]	2641	[2279, 275]	3570	[1815, 768]
784	[1281, 1282]	1713	[1779, 2058]	2642	[2206, 2086]	3571	[1038, 3677]
785	[1283, 1112]	1714	[2029, 327]	2643	[3225, 323]	3572	[2246, 246]
786	[1284, 1285]	1715	[2306, 1936]	2644	[991, 1861]	3573	[3339, 1830]
787	[1286, 1205]	1716	[2065, 2307]	2645	[3069, 1970]	3574	[2249, 3688]
788	[386, 1207]	1717	[2204, 2250]	2646	[693, 723]	3575	[850, 1010]
789	[1287, 389]	1718	[1097, 1107]	2647	[3226, 3227]	3576	[246, 3323]
790	[1288, 1289]	1719	[2308, 732]	2648	[81, 232]	3577	[3164, 3250]
791	[1290, 1291]	1720	[2309, 968]	2649	[3215, 775]	3578	[1855, 3136]
792	[1292, 1293]	1721	[2289, 260]	2650	[1825, 355]	3579	[236, 713]

793	[1294, 1295]	1722	[2310, 2208]	2651	[3228, 346]	3580	[3073, 942]
794	[1296, 1148]	1723	[1949, 81]	2652	[3229, 3230]	3581	[3324, 872]
795	[1297, 597]	1724	[65, 2311]	2653	[2055, 3231]	3582	[817, 1866]
796	[1298, 155]	1725	[1983, 862]	2654	[2079, 2133]	3583	[3670, 766]
797	[1299, 1300]	1726	[2312, 1952]	2655	[1065, 2159]	3584	[3681, 3087]
798	[1301, 1302]	1727	[2306, 680]	2656	[3232, 907]	3585	[2120, 2182]
799	[1303, 1304]	1728	[1094, 2148]	2657	[3169, 3233]	3586	[993, 2039]
800	[1305, 1306]	1729	[756, 1029]	2658	[3187, 27]	3587	[3162, 1807]
801	[1307, 1308]	1730	[987, 340]	2659	[3234, 2116]	3588	[2154, 3311]
802	[1309, 1153]	1731	[1789, 2156]	2660	[724, 2161]	3589	[863, 1914]
803	[1310, 1311]	1732	[1907, 2313]	2661	[3235, 701]	3590	[1016, 359]
804	[1312, 1313]	1733	[2314, 2254]	2662	[3236, 3237]	3591	[2295, 3077]
805	[1314, 534]	1734	[2315, 258]	2663	[876, 2065]	3592	[2247, 26]
806	[1315, 1316]	1735	[2316, 2067]	2664	[2302, 3238]	3593	[240, 227]
807	[1317, 1223]	1736	[241, 208]	2665	[3196, 1976]	3594	[1015, 6]
808	[122, 1318]	1737	[2251, 2317]	2666	[340, 1833]	3595	[3312, 2089]
809	[1319, 1320]	1738	[2257, 2318]	2667	[1011, 2004]	3596	[2123, 3336]
810	[1321, 1322]	1739	[2162, 2319]	2668	[743, 813]	3597	[2075, 107]
811	[1323, 1324]	1740	[777, 1037]	2669	[1011, 87]	3598	[2205, 3338]
812	[1325, 443]	1741	[2320, 1066]	2670	[1782, 26]	3599	[2111, 286]
813	[1326, 1295]	1742	[2321, 728]	2671	[238, 778]	3600	[2096, 2169]
814	[1327, 1328]	1743	[2322, 2323]	2672	[831, 1830]	3601	[1818, 3282]
815	[1329, 1330]	1744	[938, 339]	2673	[948, 1053]	3602	[858, 949]
816	[1331, 1332]	1745	[2034, 2324]	2674	[2140, 3151]	3603	[1821, 3142]
817	[1333, 1334]	1746	[2325, 1895]	2675	[912, 3239]	3604	[1916, 281]
818	[1335, 1171]	1747	[771, 2326]	2676	[3118, 1855]	3605	[953, 3688]
819	[1336, 43]	1748	[2327, 2028]	2677	[740, 892]	3606	[971, 1818]
820	[1337, 571]	1749	[976, 1877]	2678	[3240, 2172]	3607	[70, 3683]
821	[1338, 1339]	1750	[2214, 2177]	2679	[1973, 1003]	3608	[2157, 340]
822	[1340, 1341]	1751	[2053, 2301]	2680	[2235, 1817]	3609	[274, 2280]
823	[1342, 1308]	1752	[1810, 1089]	2681	[2315, 1934]	3610	[3153, 3114]
824	[1343, 1344]	1753	[69, 1778]	2682	[3188, 724]	3611	[767, 2061]
825	[1345, 1346]	1754	[279, 2039]	2683	[2330, 373]	3612	[3670, 767]
826	[1347, 112]	1755	[758, 2328]	2684	[3210, 3155]	3613	[718, 204]
827	[1348, 1349]	1756	[1020, 771]	2685	[2077, 2225]	3614	[3672, 2095]
828	[1350, 436]	1757	[2329, 1908]	2686	[257, 1934]	3615	[3283, 3274]
829	[1351, 1352]	1758	[2330, 965]	2687	[862, 58]	3616	[804, 2145]
830	[193, 1193]	1759	[2331, 2134]	2688	[3241, 1050]	3617	[3157, 1880]
831	[1353, 1354]	1760	[2332, 788]	2689	[3242, 888]	3618	[2182, 239]
832	[1355, 1356]	1761	[1812, 2333]	2690	[3243, 3244]	3619	[241, 2138]
833	[1357, 1358]	1762	[2263, 1788]	2691	[901, 226]	3620	[1904, 3146]
834	[1359, 1350]	1763	[2050, 301]	2692	[948, 690]	3621	[280, 1917]
835	[1360, 1361]	1764	[857, 689]	2693	[840, 687]	3622	[3261, 3686]
836	[1362, 1186]	1765	[1793, 2334]	2694	[3235, 2273]	3623	[2333, 3298]

837	[1363, 1229]	1766	[2281, 2001]	2695	[3220, 3245]	3624	[3684, 3186]
838	[1364, 1365]	1767	[2335, 2336]	2696	[2335, 2319]	3625	[1903, 3332]
839	[1153, 1366]	1768	[1073, 2337]	2697	[3207, 861]	3626	[1784, 1092]
840	[1257, 579]	1769	[2338, 1842]	2698	[809, 2166]	3627	[3257, 88]
841	[1367, 1368]	1770	[682, 329]	2699	[1000, 3246]	3628	[3271, 1872]
842	[1369, 1341]	1771	[2339, 67]	2700	[3089, 1845]	3629	[3280, 3094]
843	[1370, 135]	1772	[2340, 994]	2701	[881, 374]	3630	[1028, 3689]
844	[1371, 1372]	1773	[2341, 1870]	2702	[3247, 759]	3631	[3290, 3174]
845	[1373, 1374]	1774	[2342, 931]	2703	[1871, 3248]	3632	[23, 91]
846	[1375, 1376]	1775	[2343, 1403]	2704	[3249, 2256]	3633	[1960, 310]
847	[1377, 1378]	1776	[2344, 2345]	2705	[1945, 2240]	3634	[2109, 1026]
848	[1379, 1380]	1777	[2346, 408]	2706	[2342, 697]	3635	[2075, 3316]
849	[1381, 1167]	1778	[2347, 2348]	2707	[1100, 1937]	3636	[1069, 991]
850	[1382, 1383]	1779	[2349, 2350]	2708	[1867, 2101]	3637	[971, 365]
851	[1384, 1385]	1780	[2351, 2352]	2709	[2075, 751]	3638	[2178, 3221]
852	[1386, 1387]	1781	[2353, 1373]	2710	[3177, 3250]	3639	[856, 829]
853	[1388, 1389]	1782	[2354, 2355]	2711	[1775, 2182]	3640	[29, 70]
854	[1390, 1391]	1783	[2356, 655]	2712	[838, 1079]	3641	[3073, 307]
855	[1392, 1393]	1784	[2357, 2358]	2713	[2327, 3251]	3642	[3296, 864]
856	[1394, 1395]	1785	[2359, 2360]	2714	[842, 279]	3643	[1903, 808]
857	[1396, 1127]	1786	[2361, 2362]	2715	[103, 3252]	3644	[792, 2002]
858	[1397, 1398]	1787	[2363, 187]	2716	[69, 231]	3645	[2164, 2017]
859	[1399, 1400]	1788	[1570, 1549]	2717	[3253, 2081]	3646	[1971, 365]
860	[1401, 1170]	1789	[2364, 507]	2718	[327, 715]	3647	[3286, 3308]
861	[1402, 152]	1790	[2365, 2366]	2719	[3254, 692]	3648	[2072, 3071]
862	[1403, 1404]	1791	[2367, 1456]	2720	[2197, 2191]	3649	[1919, 840]
863	[1405, 1406]	1792	[2368, 2369]	2721	[237, 2288]	3650	[2320, 958]
864	[1407, 1408]	1793	[2370, 2371]	2722	[2129, 1919]	3651	[3236, 3160]
865	[1409, 1410]	1794	[56, 1134]	2723	[1071, 217]	3652	[1944, 2150]
866	[1411, 490]	1795	[2372, 2373]	2724	[3204, 764]	3653	[2314, 326]
867	[1412, 1198]	1796	[2374, 185]	2725	[2067, 3255]	3654	[235, 1970]
868	[1413, 1414]	1797	[2375, 2376]	2726	[3256, 94]	3655	[968, 1110]
869	[1415, 1280]	1798	[2377, 615]	2727	[3257, 942]	3656	[294, 2044]
870	[1416, 655]	1799	[2378, 470]	2728	[2279, 1822]	3657	[3667, 2274]
871	[1417, 1418]	1800	[1255, 148]	2729	[1899, 962]	3658	[2320, 322]
872	[1419, 1142]	1801	[2379, 2380]	2730	[3236, 3155]	3659	[3178, 3109]
873	[1420, 1421]	1802	[196, 454]	2731	[998, 294]	3660	[1988, 3321]
874	[1422, 1423]	1803	[2381, 2382]	2732	[2227, 1066]	3661	[3241, 1070]
875	[1424, 1425]	1804	[2383, 1225]	2733	[717, 1864]	3662	[861, 1033]
876	[1426, 607]	1805	[2384, 2385]	2734	[2100, 808]	3663	[3679, 2318]
877	[1427, 426]	1806	[2386, 2387]	2735	[3258, 705]	3664	[3128, 819]
878	[1428, 1429]	1807	[2388, 2389]	2736	[722, 1809]	3665	[1023, 806]
879	[454, 1430]	1808	[2390, 1614]	2737	[100, 786]	3666	[1805, 2137]
880	[1431, 1432]	1809	[2391, 2392]	2738	[843, 70]	3667	[3690, 3691]

881	[1433, 1271]	1810	[2393, 2394]	2739	[2030, 2110]	3668	[3692, 1151]
882	[1434, 1435]	1811	[2395, 2396]	2740	[3259, 2088]	3669	[3693, 2380]
883	[1436, 672]	1812	[2397, 2398]	2741	[1860, 717]	3670	[3694, 1512]
884	[1437, 1438]	1813	[1629, 2399]	2742	[2026, 1914]	3671	[530, 3695]
885	[1439, 1440]	1814	[2400, 617]	2743	[2089, 3240]	3672	[3696, 3498]
886	[1441, 1236]	1815	[2401, 55]	2744	[1084, 2114]	3673	[3697, 1583]
887	[1442, 492]	1816	[2402, 2403]	2745	[2308, 273]	3674	[3698, 440]
888	[1443, 1444]	1817	[2404, 2405]	2746	[2255, 3093]	3675	[3699, 2433]
889	[1445, 1446]	1818	[2406, 1262]	2747	[919, 3260]	3676	[3700, 1652]
890	[1447, 1448]	1819	[2407, 1227]	2748	[3261, 321]	3677	[3701, 1166]
891	[1449, 382]	1820	[2408, 1285]	2749	[997, 301]	3678	[554, 1135]
892	[1229, 1450]	1821	[2409, 2410]	2750	[859, 3262]	3679	[3702, 3703]
893	[1451, 1452]	1822	[2411, 605]	2751	[2322, 2333]	3680	[3704, 503]
894	[1453, 1454]	1823	[2412, 412]	2752	[2241, 1051]	3681	[3705, 3480]
895	[1455, 1456]	1824	[1507, 194]	2753	[2180, 948]	3682	[3706, 2415]
896	[1457, 203]	1825	[2413, 2414]	2754	[1093, 2263]	3683	[3707, 1568]
897	[623, 1458]	1826	[2415, 2416]	2755	[3080, 818]	3684	[3708, 3709]
898	[1459, 1159]	1827	[1450, 602]	2756	[2021, 3263]	3685	[1598, 3710]
899	[1460, 1461]	1828	[2417, 2418]	2757	[3256, 373]	3686	[3711, 2364]
900	[1462, 1463]	1829	[2419, 2420]	2758	[3112, 881]	3687	[3712, 2744]
901	[1464, 1465]	1830	[2421, 2422]	2759	[1780, 979]	3688	[3713, 1400]
902	[1466, 1467]	1831	[2423, 55]	2760	[858, 3166]	3689	[3714, 1580]
903	[608, 653]	1832	[2424, 2425]	2761	[927, 3251]	3690	[223, 3674]
904	[1468, 1469]	1833	[2426, 498]	2762	[2294, 3264]	3691	[3102, 1955]
905	[1470, 515]	1834	[2427, 2428]	2763	[28, 1097]	3692	[778, 697]
906	[1471, 1472]	1835	[1293, 2429]	2764	[1986, 2089]	3693	[2297, 263]
907	[1473, 1474]	1836	[2430, 2431]	2765	[3139, 3265]	3694	[881, 856]
908	[1475, 1476]	1837	[2432, 530]	2766	[225, 902]	3695	[3137, 922]
909	[1477, 1478]	1838	[2433, 2434]	2767	[3266, 2237]	3696	[3221, 3672]
910	[1479, 1480]	1839	[1839, 1839]	2768	[3267, 3268]	3697	[3197, 2319]
911	[1481, 1482]	1840	[2373, 2435]	2769	[1033, 240]	3698	[1084, 3689]
912	[1483, 1484]	1841	[1201, 2436]	2770	[3269, 3270]	3699	[3078, 3121]
913	[1485, 1356]	1842	[2437, 1256]	2771	[923, 3113]	3700	[3162, 912]
914	[1486, 380]	1843	[2438, 2439]	2772	[286, 1938]	3701	[1955, 2047]
915	[1487, 1488]	1844	[2440, 2409]	2773	[2333, 207]	3702	[2268, 1905]
916	[1489, 432]	1845	[2428, 1692]	2774	[3198, 923]	3703	[308, 1927]
917	[1490, 1491]	1846	[2441, 140]	2775	[771, 737]	3704	[781, 356]
918	[1492, 1493]	1847	[2442, 2443]	2776	[3124, 1995]	3705	[3335, 2221]
919	[1494, 1495]	1848	[1269, 2444]	2777	[3271, 3248]	3706	[3217, 2049]
920	[1496, 1497]	1849	[2445, 1450]	2778	[3272, 996]	3707	[1976, 296]
921	[1498, 1438]	1850	[2446, 2447]	2779	[18, 2011]	3708	[216, 71]
922	[1499, 1500]	1851	[2448, 2449]	2780	[3273, 1925]	3709	[3292, 106]
923	[1501, 1215]	1852	[2450, 2451]	2781	[2232, 3211]	3710	[3228, 2014]
924	[1502, 1503]	1853	[465, 581]	2782	[1925, 271]	3711	[3299, 298]

925	[1504, 1505]	1854	[2452, 2453]	2783	[3274, 3275]	3712	[706, 839]
926	[1506, 1507]	1855	[2453, 1566]	2784	[3169, 3276]	3713	[2052, 1789]
927	[1508, 1509]	1856	[2454, 2455]	2785	[2264, 2068]	3714	[2090, 2145]
928	[1510, 1511]	1857	[1147, 200]	2786	[1022, 689]		

Output function $n \mapsto \tau(n)$:

n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$
0	0	620	1	1240	1	1860	1	2480	0	3100	1
1	0	621	0	1241	0	1861	1	2481	0	3101	1
2	0	622	0	1242	0	1862	0	2482	0	3102	0
3	0	623	1	1243	1	1863	0	2483	1	3103	1
4	0	624	1	1244	1	1864	1	2484	0	3104	1
5	0	625	1	1245	0	1865	0	2485	1	3105	1
6	0	626	1	1246	0	1866	1	2486	1	3106	0
7	0	627	0	1247	0	1867	1	2487	1	3107	0
8	0	628	1	1248	1	1868	1	2488	1	3108	0
9	0	629	1	1249	1	1869	1	2489	1	3109	0
10	1	630	1	1250	1	1870	0	2490	1	3110	1
11	0	631	0	1251	0	1871	1	2491	0	3111	0
12	0	632	1	1252	0	1872	1	2492	0	3112	0
13	0	633	0	1253	0	1873	1	2493	0	3113	0
14	0	634	0	1254	1	1874	1	2494	1	3114	0
15	0	635	1	1255	1	1875	1	2495	0	3115	0
16	0	636	1	1256	0	1876	0	2496	1	3116	1
17	0	637	1	1257	1	1877	0	2497	1	3117	0
18	0	638	1	1258	0	1878	0	2498	1	3118	1
19	0	639	1	1259	1	1879	1	2499	0	3119	1
20	0	640	1	1260	0	1880	0	2500	1	3120	1
21	1	641	0	1261	1	1881	1	2501	1	3121	0
22	0	642	1	1262	1	1882	1	2502	0	3122	1
23	0	643	1	1263	1	1883	1	2503	0	3123	1
24	1	644	1	1264	1	1884	1	2504	1	3124	0
25	0	645	1	1265	0	1885	0	2505	1	3125	0
26	1	646	0	1266	1	1886	0	2506	1	3126	0
27	0	647	1	1267	0	1887	0	2507	1	3127	0
28	1	648	0	1268	0	1888	0	2508	1	3128	0
29	0	649	0	1269	1	1889	1	2509	0	3129	1
30	1	650	0	1270	0	1890	1	2510	1	3130	0
31	0	651	0	1271	1	1891	1	2511	1	3131	0
32	0	652	0	1272	0	1892	0	2512	1	3132	1
33	0	653	0	1273	0	1893	0	2513	1	3133	1
34	0	654	1	1274	1	1894	1	2514	1	3134	1
35	1	655	0	1275	0	1895	1	2515	1	3135	0
36	0	656	0	1276	1	1896	1	2516	1	3136	1

37	0	657	1	1277	1	1897	1	2517	0	3137	1
38	0	658	1	1278	0	1898	1	2518	1	3138	1
39	1	659	1	1279	0	1899	1	2519	1	3139	1
40	0	660	0	1280	0	1900	0	2520	1	3140	0
41	1	661	1	1281	0	1901	1	2521	1	3141	1
42	0	662	1	1282	1	1902	1	2522	0	3142	0
43	0	663	0	1283	0	1903	1	2523	1	3143	0
44	0	664	1	1284	1	1904	1	2524	0	3144	1
45	1	665	0	1285	1	1905	1	2525	0	3145	0
46	1	666	1	1286	0	1906	0	2526	1	3146	0
47	1	667	1	1287	0	1907	1	2527	0	3147	1
48	0	668	0	1288	1	1908	1	2528	0	3148	0
49	0	669	1	1289	0	1909	1	2529	0	3149	1
50	1	670	1	1290	1	1910	1	2530	0	3150	1
51	0	671	1	1291	0	1911	1	2531	0	3151	1
52	1	672	1	1292	0	1912	0	2532	1	3152	0
53	1	673	0	1293	1	1913	1	2533	0	3153	0
54	0	674	1	1294	1	1914	0	2534	1	3154	1
55	0	675	0	1295	0	1915	0	2535	0	3155	0
56	1	676	0	1296	0	1916	0	2536	0	3156	1
57	0	677	1	1297	0	1917	0	2537	1	3157	1
58	0	678	1	1298	1	1918	1	2538	1	3158	1
59	1	679	0	1299	0	1919	0	2539	0	3159	1
60	0	680	0	1300	1	1920	1	2540	1	3160	1
61	1	681	0	1301	1	1921	0	2541	0	3161	1
62	0	682	1	1302	1	1922	0	2542	0	3162	0
63	1	683	1	1303	0	1923	1	2543	1	3163	1
64	0	684	0	1304	0	1924	1	2544	0	3164	1
65	0	685	0	1305	1	1925	0	2545	0	3165	0
66	1	686	1	1306	1	1926	0	2546	1	3166	1
67	0	687	0	1307	0	1927	0	2547	0	3167	1
68	0	688	0	1308	1	1928	0	2548	0	3168	1
69	0	689	1	1309	0	1929	1	2549	0	3169	0
70	0	690	1	1310	0	1930	0	2550	0	3170	1
71	0	691	0	1311	0	1931	0	2551	0	3171	1
72	0	692	1	1312	1	1932	0	2552	1	3172	0
73	1	693	0	1313	0	1933	0	2553	1	3173	1
74	1	694	0	1314	1	1934	0	2554	0	3174	1
75	1	695	1	1315	0	1935	1	2555	1	3175	0
76	0	696	1	1316	0	1936	0	2556	0	3176	1
77	0	697	1	1317	0	1937	0	2557	0	3177	1
78	1	698	1	1318	1	1938	0	2558	0	3178	0
79	0	699	1	1319	0	1939	1	2559	0	3179	1
80	1	700	0	1320	1	1940	0	2560	1	3180	0

81	1	701	0	1321	1	1941	0	2561	1	3181	0
82	0	702	1	1322	1	1942	1	2562	0	3182	1
83	0	703	1	1323	0	1943	1	2563	1	3183	0
84	1	704	1	1324	0	1944	1	2564	0	3184	0
85	1	705	1	1325	0	1945	0	2565	1	3185	0
86	1	706	0	1326	0	1946	1	2566	1	3186	0
87	0	707	1	1327	0	1947	1	2567	0	3187	1
88	1	708	0	1328	0	1948	0	2568	0	3188	1
89	1	709	1	1329	0	1949	1	2569	1	3189	0
90	0	710	0	1330	0	1950	0	2570	1	3190	1
91	0	711	0	1331	0	1951	0	2571	1	3191	1
92	0	712	1	1332	0	1952	1	2572	0	3192	0
93	1	713	1	1333	0	1953	1	2573	1	3193	0
94	1	714	1	1334	0	1954	0	2574	1	3194	1
95	1	715	0	1335	0	1955	0	2575	0	3195	1
96	0	716	1	1336	1	1956	0	2576	0	3196	1
97	1	717	1	1337	0	1957	0	2577	1	3197	1
98	1	718	1	1338	0	1958	1	2578	1	3198	1
99	0	719	0	1339	0	1959	0	2579	1	3199	0
100	1	720	1	1340	0	1960	1	2580	0	3200	0
101	1	721	0	1341	1	1961	1	2581	0	3201	0
102	0	722	1	1342	1	1962	1	2582	0	3202	1
103	0	723	1	1343	0	1963	0	2583	0	3203	0
104	0	724	0	1344	1	1964	1	2584	1	3204	0
105	1	725	0	1345	1	1965	1	2585	0	3205	1
106	1	726	1	1346	1	1966	0	2586	0	3206	0
107	0	727	1	1347	0	1967	1	2587	0	3207	1
108	0	728	1	1348	0	1968	0	2588	1	3208	1
109	0	729	1	1349	0	1969	1	2589	1	3209	0
110	0	730	0	1350	0	1970	0	2590	1	3210	0
111	1	731	0	1351	0	1971	0	2591	1	3211	1
112	1	732	1	1352	1	1972	1	2592	1	3212	1
113	0	733	1	1353	0	1973	1	2593	1	3213	0
114	1	734	1	1354	1	1974	0	2594	1	3214	0
115	1	735	0	1355	1	1975	1	2595	1	3215	0
116	1	736	0	1356	0	1976	1	2596	0	3216	1
117	0	737	1	1357	1	1977	0	2597	1	3217	1
118	1	738	1	1358	0	1978	0	2598	0	3218	1
119	1	739	0	1359	1	1979	1	2599	1	3219	1
120	1	740	1	1360	1	1980	0	2600	0	3220	0
121	0	741	1	1361	1	1981	1	2601	0	3221	1
122	0	742	1	1362	1	1982	0	2602	0	3222	0
123	0	743	0	1363	0	1983	0	2603	1	3223	1
124	0	744	0	1364	1	1984	0	2604	1	3224	1

125	1	745	1	1365	0	1985	0	2605	1	3225	0
126	0	746	1	1366	0	1986	1	2606	0	3226	1
127	0	747	1	1367	1	1987	0	2607	1	3227	1
128	0	748	1	1368	0	1988	1	2608	1	3228	0
129	0	749	1	1369	1	1989	1	2609	0	3229	0
130	1	750	0	1370	0	1990	0	2610	0	3230	0
131	0	751	1	1371	1	1991	1	2611	1	3231	1
132	1	752	1	1372	0	1992	0	2612	0	3232	1
133	0	753	0	1373	1	1993	0	2613	0	3233	1
134	0	754	0	1374	1	1994	1	2614	1	3234	1
135	0	755	1	1375	1	1995	0	2615	1	3235	0
136	1	756	0	1376	1	1996	0	2616	0	3236	1
137	0	757	0	1377	1	1997	0	2617	0	3237	0
138	1	758	1	1378	1	1998	0	2618	0	3238	0
139	1	759	0	1379	1	1999	0	2619	0	3239	1
140	1	760	1	1380	0	2000	1	2620	0	3240	1
141	1	761	1	1381	0	2001	0	2621	0	3241	1
142	0	762	1	1382	0	2002	1	2622	0	3242	0
143	1	763	0	1383	1	2003	0	2623	1	3243	1
144	1	764	1	1384	0	2004	0	2624	1	3244	1
145	0	765	0	1385	0	2005	0	2625	1	3245	1
146	0	766	0	1386	1	2006	0	2626	0	3246	0
147	0	767	1	1387	1	2007	0	2627	1	3247	0
148	1	768	1	1388	1	2008	1	2628	0	3248	0
149	1	769	0	1389	0	2009	0	2629	0	3249	0
150	1	770	1	1390	0	2010	0	2630	0	3250	1
151	0	771	1	1391	0	2011	0	2631	1	3251	0
152	1	772	0	1392	1	2012	0	2632	0	3252	1
153	1	773	1	1393	0	2013	1	2633	0	3253	1
154	0	774	0	1394	0	2014	1	2634	0	3254	0
155	0	775	0	1395	1	2015	0	2635	0	3255	0
156	1	776	1	1396	0	2016	1	2636	1	3256	1
157	0	777	0	1397	0	2017	1	2637	0	3257	0
158	1	778	0	1398	0	2018	0	2638	0	3258	0
159	0	779	1	1399	0	2019	1	2639	1	3259	1
160	1	780	1	1400	0	2020	0	2640	1	3260	0
161	0	781	1	1401	1	2021	1	2641	0	3261	0
162	1	782	0	1402	1	2022	1	2642	0	3262	0
163	1	783	0	1403	1	2023	0	2643	0	3263	1
164	0	784	0	1404	0	2024	1	2644	0	3264	0
165	0	785	0	1405	1	2025	0	2645	0	3265	1
166	1	786	1	1406	0	2026	0	2646	0	3266	1
167	0	787	0	1407	1	2027	1	2647	1	3267	0
168	1	788	0	1408	0	2028	1	2648	1	3268	0

169	1	789	0	1409	0	2029	1	2649	0	3269	0
170	0	790	1	1410	1	2030	1	2650	1	3270	1
171	0	791	1	1411	1	2031	0	2651	0	3271	1
172	0	792	0	1412	0	2032	0	2652	0	3272	1
173	0	793	1	1413	0	2033	0	2653	0	3273	0
174	0	794	0	1414	1	2034	0	2654	1	3274	0
175	1	795	0	1415	1	2035	0	2655	1	3275	0
176	1	796	1	1416	0	2036	1	2656	1	3276	0
177	0	797	0	1417	1	2037	1	2657	0	3277	1
178	1	798	1	1418	0	2038	1	2658	1	3278	1
179	1	799	0	1419	0	2039	0	2659	1	3279	0
180	1	800	1	1420	0	2040	1	2660	0	3280	0
181	1	801	0	1421	0	2041	0	2661	0	3281	1
182	0	802	0	1422	0	2042	1	2662	1	3282	0
183	1	803	0	1423	1	2043	0	2663	0	3283	1
184	1	804	1	1424	1	2044	0	2664	1	3284	0
185	1	805	1	1425	1	2045	0	2665	1	3285	0
186	1	806	0	1426	0	2046	0	2666	1	3286	1
187	0	807	0	1427	1	2047	0	2667	1	3287	0
188	1	808	0	1428	0	2048	1	2668	0	3288	0
189	1	809	0	1429	1	2049	0	2669	1	3289	0
190	0	810	1	1430	0	2050	0	2670	1	3290	0
191	1	811	0	1431	1	2051	1	2671	0	3291	1
192	0	812	0	1432	0	2052	1	2672	0	3292	0
193	0	813	0	1433	0	2053	1	2673	1	3293	1
194	0	814	0	1434	1	2054	1	2674	0	3294	1
195	0	815	0	1435	1	2055	0	2675	1	3295	1
196	1	816	0	1436	1	2056	1	2676	1	3296	1
197	1	817	0	1437	0	2057	1	2677	1	3297	0
198	1	818	0	1438	1	2058	0	2678	1	3298	0
199	1	819	1	1439	0	2059	1	2679	1	3299	1
200	1	820	0	1440	1	2060	0	2680	0	3300	0
201	0	821	0	1441	0	2061	1	2681	0	3301	1
202	1	822	0	1442	1	2062	0	2682	1	3302	0
203	0	823	1	1443	1	2063	0	2683	0	3303	0
204	0	824	0	1444	1	2064	1	2684	0	3304	1
205	1	825	1	1445	1	2065	0	2685	1	3305	0
206	0	826	0	1446	1	2066	0	2686	0	3306	1
207	0	827	0	1447	1	2067	0	2687	1	3307	1
208	1	828	0	1448	0	2068	1	2688	1	3308	0
209	1	829	0	1449	1	2069	1	2689	0	3309	1
210	1	830	0	1450	0	2070	1	2690	1	3310	1
211	0	831	0	1451	1	2071	0	2691	1	3311	0
212	0	832	1	1452	0	2072	1	2692	1	3312	0

213	1	833	1	1453	0	2073	0	2693	1	3313	1
214	1	834	1	1454	1	2074	1	2694	0	3314	0
215	1	835	1	1455	0	2075	1	2695	0	3315	0
216	0	836	1	1456	0	2076	1	2696	1	3316	1
217	1	837	0	1457	1	2077	1	2697	1	3317	0
218	0	838	1	1458	0	2078	0	2698	0	3318	1
219	1	839	0	1459	1	2079	1	2699	0	3319	0
220	1	840	1	1460	0	2080	1	2700	1	3320	0
221	1	841	1	1461	1	2081	0	2701	0	3321	0
222	1	842	1	1462	0	2082	1	2702	0	3322	1
223	1	843	0	1463	0	2083	0	2703	1	3323	1
224	0	844	1	1464	1	2084	0	2704	0	3324	0
225	0	845	1	1465	1	2085	0	2705	0	3325	0
226	1	846	1	1466	0	2086	0	2706	0	3326	1
227	0	847	1	1467	0	2087	0	2707	1	3327	1
228	0	848	1	1468	0	2088	1	2708	1	3328	0
229	0	849	0	1469	1	2089	1	2709	1	3329	0
230	0	850	0	1470	1	2090	1	2710	1	3330	0
231	0	851	0	1471	1	2091	1	2711	0	3331	0
232	1	852	1	1472	1	2092	0	2712	1	3332	1
233	1	853	1	1473	1	2093	1	2713	0	3333	1
234	0	854	0	1474	0	2094	0	2714	1	3334	1
235	0	855	1	1475	1	2095	0	2715	0	3335	0
236	1	856	0	1476	1	2096	1	2716	0	3336	1
237	0	857	0	1477	1	2097	1	2717	1	3337	1
238	0	858	0	1478	1	2098	1	2718	1	3338	1
239	0	859	0	1479	0	2099	1	2719	0	3339	0
240	1	860	1	1480	1	2100	0	2720	0	3340	0
241	0	861	1	1481	0	2101	0	2721	0	3341	0
242	0	862	1	1482	1	2102	0	2722	1	3342	0
243	1	863	1	1483	1	2103	1	2723	0	3343	0
244	0	864	1	1484	0	2104	1	2724	0	3344	1
245	0	865	0	1485	0	2105	1	2725	0	3345	0
246	0	866	1	1486	1	2106	0	2726	1	3346	1
247	1	867	0	1487	0	2107	1	2727	0	3347	1
248	0	868	0	1488	0	2108	1	2728	0	3348	0
249	0	869	1	1489	1	2109	1	2729	1	3349	1
250	0	870	0	1490	1	2110	0	2730	1	3350	1
251	0	871	1	1491	1	2111	0	2731	0	3351	0
252	1	872	0	1492	0	2112	1	2732	0	3352	1
253	0	873	0	1493	0	2113	0	2733	1	3353	0
254	0	874	0	1494	0	2114	1	2734	0	3354	0
255	1	875	1	1495	0	2115	0	2735	0	3355	1
256	0	876	0	1496	1	2116	0	2736	1	3356	1

257	0	877	1	1497	1	2117	0	2737	1	3357	0
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259	1	879	1	1499	1	2119	0	2739	1	3359	0
260	0	880	1	1500	0	2120	1	2740	1	3360	0
261	1	881	0	1501	0	2121	0	2741	1	3361	0
262	0	882	1	1502	0	2122	0	2742	0	3362	1
263	0	883	1	1503	1	2123	0	2743	1	3363	0
264	1	884	0	1504	0	2124	0	2744	1	3364	1
265	0	885	0	1505	1	2125	1	2745	0	3365	1
266	0	886	0	1506	1	2126	0	2746	0	3366	1
267	1	887	1	1507	1	2127	0	2747	0	3367	0
268	1	888	1	1508	0	2128	1	2748	0	3368	1
269	1	889	1	1509	0	2129	1	2749	0	3369	0
270	1	890	1	1510	1	2130	1	2750	0	3370	0
271	1	891	1	1511	0	2131	1	2751	1	3371	0
272	0	892	0	1512	0	2132	1	2752	1	3372	1
273	0	893	1	1513	0	2133	0	2753	1	3373	0
274	0	894	0	1514	0	2134	1	2754	1	3374	1
275	0	895	0	1515	0	2135	1	2755	1	3375	0
276	0	896	1	1516	1	2136	1	2756	1	3376	0
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278	1	898	1	1518	1	2138	1	2758	0	3378	1
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281	1	901	1	1521	1	2141	0	2761	0	3381	1
282	1	902	0	1522	1	2142	1	2762	0	3382	0
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284	0	904	0	1524	0	2144	0	2764	1	3384	0
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286	1	906	1	1526	0	2146	0	2766	0	3386	1
287	0	907	1	1527	1	2147	1	2767	1	3387	0
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293	0	913	0	1533	1	2153	1	2773	1	3393	0
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296	0	916	1	1536	0	2156	1	2776	0	3396	0
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301	0	921	1	1541	0	2161	0	2781	0	3401	1
302	0	922	1	1542	1	2162	0	2782	0	3402	1
303	1	923	0	1543	1	2163	1	2783	0	3403	0
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305	1	925	0	1545	0	2165	1	2785	0	3405	0
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310	0	930	0	1550	1	2170	0	2790	0	3410	0
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317	0	937	1	1557	0	2177	1	2797	0	3417	1
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321	0	941	0	1561	0	2181	0	2801	1	3421	1
322	0	942	1	1562	1	2182	0	2802	1	3422	0
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325	1	945	1	1565	1	2185	0	2805	1	3425	1
326	1	946	1	1566	1	2186	0	2806	0	3426	0
327	1	947	1	1567	0	2187	1	2807	1	3427	0
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329	1	949	0	1569	0	2189	1	2809	0	3429	0
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342	1	962	0	1582	1	2202	1	2822	0	3442	1
343	1	963	0	1583	1	2203	1	2823	0	3443	0
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363	1	983	1	1603	0	2223	0	2843	1	3463	0
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368	1	988	0	1608	0	2228	1	2848	1	3468	1
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393	1	1013	1	1633	1	2253	1	2873	1	3493	1
394	0	1014	1	1634	1	2254	0	2874	0	3494	0
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