PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b) = (z^6 + z^5 + z^4 + z^3 + z^2, z)$

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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 $(a,b) = (z^6 + z^5 + z^4 + z^3 + z^2, z)$.

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 $(a,b)=(z^6+z^5+z^4+z^3+z^2,z)$, 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 $\mathrm{CF}(a,b)$,

$$\begin{aligned}
p_0(z)&=z^{17}+z^{16}+z^{15}+z^{14}+z^{13}+z^{10}+z^8+z^7+z^4+z+1,\\
p_1(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{16}+z^{14}+z^{13}+z^8+z^7+z^2,\\
p_2(z)&=z^{24}+z^{22}+z^{20}+z^{18}+z^{16}+z^{14}+z^4,\\
p_3(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{16}+z^{14}+z^{13}+z^8+z^7+z^2,\\
p_4(z)&=z^{22}+z^{20}+z^{18}+z^{17}+z^{15}+z^{13}+z^{10}+z^8+z^7+z^4+z,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z)&=z^{20}+z^{17}+z^{15}+z^{14}+z^{13}+z^{12}+z^{10}+z^7+z,\\
p_1(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{16}+z^{14}+z^{13}+z^8+z^7+z^2,\\
p_2(z)&=z^{24}+z^{22}+z^{20}+z^{18}+z^{16}+z^{14}+z^4,\\
p_3(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{16}+z^{14}+z^{13}+z^8+z^7+z^2,\\
p_4(z)&=z^{22}+z^{18}+z^{17}+z^{16}+z^{15}+z^{13}+z^{12}+z^{10}+z^7+z+1.
\end{aligned}$$

2. Proof

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

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

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

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

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 $k \ge 2$ and $u = 2^{2k-1}$, the following identities hold.*

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

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

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

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

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 $u = 2^{2k}$,

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

$$+ x^{11u}T[:3u] + x^{9u}T[:5u] + x^{10u}T[:4u] + x^{13u}T[:u].$$

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

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

which can be rewritten as

$$0 = T[[1w]_2] + T[[11w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.7}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.8}$$

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.9}$$

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

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

$$0 = T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.12}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.13}$$

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

$$0 = T[[1w]_2] + T[[11w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.15}$$

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.16}$$

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

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

$$0 = T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.19}$$

$$\begin{aligned}0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2]\\ + T[[110w]_2] + T[[1101w]_2],\end{aligned} \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4465 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

$$0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,111)), \tag{2.21}$$

$$\begin{aligned}0 = \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))\\ + \tau(A(s,110)) + \tau(A(s,1000)),\end{aligned} \tag{2.22}$$

$$\begin{aligned}0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,100))\\ + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1001)),\end{aligned} \tag{2.23}$$

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

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

$$\begin{aligned}0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100))\\ + \tau(A(s,110)) + \tau(A(s,1100)),\end{aligned} \tag{2.26}$$

$$\begin{aligned}0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))\\ + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1101)),\end{aligned} \tag{2.27}$$

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

$$0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,111)), \tag{2.28}$$

$$\begin{aligned}0 = \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))\\ + \tau(A(s,110)) + \tau(A(s,1000)),\end{aligned} \tag{2.29}$$

$$\begin{aligned}0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,100))\\ + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1001)),\end{aligned} \tag{2.30}$$

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

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

$$\begin{aligned}0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100))\\ + \tau(A(s,110)) + \tau(A(s,1100)),\end{aligned} \tag{2.33}$$

$$\begin{aligned}0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))\\ + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1101)),\end{aligned} \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i,0^{28}), E_{28}) = (A(i,0^{26}), E_{26})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \leq k \leq 14$, which turns out to be true. □

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 $k \geq 2$, and $u = 2^{2k-1}$,*

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

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

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

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 $n \geq 2$, we claim that

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

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

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

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

$$W^e[:14v]M^e[:14v] + x^{2v} W^e[:12v]M^e[:12v] + x^{8v} W^e[:6v]M^e[:6v]$$
$$+ x^{12v} W^e[:2v]M^e[:2v].$$

For all $n \leq 14$, 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

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

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 $0 \leq j, k \leq 1$,

$$\lim_{n\to\infty} M_{2n,j,k} = M^e_{j,k},$$

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

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

$$\begin{aligned}
q_0(x) &= x^{24} + x^{23} + x^{20} + x^{17} + x^{16} + x^{14} + x^{11} + x^{10} + x^9 + x^8 + x^7,\\
q_1(x) &= x^{22} + x^{17} + x^{16} + x^{11} + x^{10} + x^8 + x^6 + x^5 + x^3 + x,\\
q_2(x) &= x^{20} + x^{10} + x^8 + x^6 + x^4 + x^2 + 1,\\
q_3(x) &= x^{22} + x^{17} + x^{16} + x^{11} + x^{10} + x^8 + x^6 + x^5 + x^3 + x,\\
q_4(x) &= x^{23} + x^{20} + x^{17} + x^{16} + x^{14} + x^{11} + x^9 + x^7 + x^6 + x^4 + x^2.
\end{aligned}$$

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 $\mathrm{CF}(a,b) = f(1/z)$. □

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

$$\begin{aligned}
p_0(x) = {} & x^{114} + x^{112} + x^{110} + x^{106} + x^{98} + x^{92} + x^{88} + x^{86} + x^{84} + x^{70} + x^{68}\\
& + x^{66} + x^{64} + x^{60} + x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{38} + x^{36} + x^{34}\\
& + x^{32} + x^{30} + x^{28} + x^{26} + x^{24} + x^{22} + x^{20} + x^{14} + x^{12},\\
p_3(x) = {} & x^{106} + x^{98} + x^{96} + x^{88} + x^{86} + x^{78} + x^{76} + x^{68} + x^{66} + x^{56} + x^{38}\\
& + x^{28} + x^{18} + x^8,\\
p_6(x) = {} & x^{106} + x^{102} + x^{100} + x^{96} + x^{94} + x^{92} + x^{86} + x^{82} + x^{78} + x^{74} + x^{70}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{64} + x^{58} + x^{54} + x^{46} + x^{44} + x^{42} + x^{38} + x^{32} + x^{26} + x^{24} + x^{22}\\
&+ x^{18} + x^{14} + x^{10} + x^{6} + x^{4} + 1,\\
p_9(x) &= x^{104} + x^{102} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76}\\
&+ x^{74} + x^{68} + x^{64} + x^{56} + x^{54} + x^{44} + x^{32} + x^{30} + x^{28} + x^{26} + x^{24}\\
&+ x^{22} + x^{18} + x^{14} + x^{10} + x^{6} + x^{2},\\
p_{12}(x) &= x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{8}\\
&+ x^{6} + x^{4} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{118} + x^{116} + x^{115} + x^{113}\\
&+ x^{111} + x^{110} + x^{104} + x^{103} + x^{100} + x^{99} + x^{98} + x^{97} + x^{95} + x^{94}\\
&+ x^{93} + x^{92} + x^{91} + x^{90} + x^{87} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{75}\\
&+ x^{74} + x^{69} + x^{67} + x^{66} + x^{62} + x^{59} + x^{55} + x^{52} + x^{50} + x^{48} + x^{47}\\
&+ x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} + x^{35} + x^{33} + x^{32} + x^{29} + x^{27},\\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{112} + x^{111} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{98} + x^{97} + x^{66} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48}\\
&+ x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33}\\
&+ x^{32} + x^{31} + x^{28} + x^{27} + x^{22} + x^{21} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14}\\
&+ x^{13} + x^{10} + x^{9},\\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109}\\
&+ x^{106} + x^{104} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{89}\\
&+ x^{88} + x^{82} + x^{81} + x^{77} + x^{76} + x^{70} + x^{69} + x^{65} + x^{63} + x^{62} + x^{61}\\
&+ x^{59} + x^{55} + x^{53} + x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{43}\\
&+ x^{42} + x^{41} + x^{40} + x^{36} + x^{35} + x^{32} + x^{29} + x^{27} + x^{23} + x^{21} + x^{18}\\
&+ x^{15} + x^{14} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6},\\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{100} + x^{99} + x^{96} + x^{95} + x^{92} + x^{91}\\
&+ x^{88} + x^{87} + x^{78} + x^{77} + x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{60}\\
&+ x^{59} + x^{56} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{49} + x^{44} + x^{43}\\
&+ x^{40} + x^{39} + x^{32} + x^{31} + x^{30} + x^{29} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14}\\
&+ x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{4} + x^{3},\\
p_{12}(x) &= x^{116} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} + x^{107} + x^{106} + x^{105}\\
&+ x^{103} + x^{102} + x^{101} + x^{100} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{90}\\
&+ x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{20} + x^{19} + x^{18}
\end{aligned}
$$

$$+ x^{17} + x^{15} + x^{14} + x^{13} + x^{11} + x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{3} + x^{2} + x + 1,$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{129} + x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{118} + x^{116} + x^{115} + x^{113} \\
& + x^{111} + x^{110} + x^{104} + x^{103} + x^{100} + x^{99} + x^{98} + x^{97} + x^{95} + x^{94} \\
& + x^{93} + x^{92} + x^{91} + x^{90} + x^{87} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{75} \\
& + x^{74} + x^{69} + x^{67} + x^{66} + x^{62} + x^{59} + x^{55} + x^{52} + x^{50} + x^{48} + x^{47} \\
& + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} + x^{35} + x^{33} + x^{32} + x^{29} + x^{27}, \\
p_3(x) = {} & x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{112} + x^{111} + x^{108} + x^{107} \\
& + x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{98} + x^{97} + x^{66} + x^{65} \\
& + x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48} \\
& + x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} \\
& + x^{32} + x^{31} + x^{28} + x^{27} + x^{22} + x^{21} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} \\
& + x^{13} + x^{10} + x^{9}, \\
p_6(x) = {} & x^{120} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} \\
& + x^{106} + x^{104} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{89} \\
& + x^{88} + x^{82} + x^{81} + x^{77} + x^{76} + x^{70} + x^{69} + x^{65} + x^{63} + x^{62} + x^{61} \\
& + x^{59} + x^{55} + x^{53} + x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{43} \\
& + x^{42} + x^{41} + x^{40} + x^{36} + x^{35} + x^{32} + x^{29} + x^{27} + x^{23} + x^{21} + x^{18} \\
& + x^{15} + x^{14} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6}, \\
p_9(x) = {} & x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107} \\
& + x^{106} + x^{105} + x^{104} + x^{103} + x^{100} + x^{99} + x^{96} + x^{95} + x^{92} + x^{91} \\
& + x^{88} + x^{87} + x^{78} + x^{77} + x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{60} \\
& + x^{59} + x^{56} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{49} + x^{44} + x^{43} \\
& + x^{40} + x^{39} + x^{32} + x^{31} + x^{30} + x^{29} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} \\
& + x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{4} + x^{3}, \\
p_{12}(x) = {} & x^{116} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} + x^{107} + x^{106} + x^{105} \\
& + x^{103} + x^{102} + x^{101} + x^{100} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{90} \\
& + x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{20} + x^{19} + x^{18} \\
& + x^{17} + x^{15} + x^{14} + x^{13} + x^{11} + x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{3} + x^{2} + x \\
& + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{144} + x^{142} + x^{140} + x^{138} + x^{136} + x^{132} + x^{130} + x^{118} + x^{110} + x^{108} \\
& + x^{106} + x^{102} + x^{94} + x^{90} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{74} + x^{68}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{64} + x^{62} + x^{58} + x^{56} + x^{54} + x^{50} + x^{44} + x^{42},\\
p_3(x) &= x^{132} + x^{130} + x^{128} + x^{122} + x^{120} + x^{112} + x^{108} + x^{104} + x^{102} + x^{96}\\
&+ x^{94} + x^{86} + x^{84} + x^{82} + x^{80} + x^{76} + x^{70} + x^{60} + x^{56} + x^{46} + x^{40}\\
&+ x^{38} + x^{32} + x^{30} + x^{24} + x^{20} + x^{8} + x^{6},\\
p_6(x) &= x^{132} + x^{130} + x^{126} + x^{122} + x^{116} + x^{114} + x^{112} + x^{108} + x^{106} + x^{104}\\
&+ x^{96} + x^{94} + x^{92} + x^{90} + x^{84} + x^{78} + x^{74} + x^{68} + x^{56} + x^{50} + x^{48}\\
&+ x^{46} + x^{32} + x^{28} + x^{26} + x^{24} + x^{22} + x^{12} + x^{8} + x^{6} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{114} + x^{112} + x^{102} + x^{90} + x^{86} + x^{82} + x^{80} + x^{76} + x^{74}\\
&+ x^{68} + x^{66} + x^{62} + x^{60} + x^{58} + x^{54} + x^{52} + x^{48} + x^{42} + x^{36} + x^{34}\\
&+ x^{28} + x^{24} + x^{20} + x^{16} + x^{14} + x^{12} + x^{8} + x^{6} + x^{4} + x^{2},\\
p_{12}(x) &= x^{128} + x^{120} + x^{88} + x^{80} + x^{32} + x^{24} + x^{16} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{140} + x^{138} + x^{130} + x^{126} + x^{124} + x^{118} + x^{114} + x^{112}\\
&+ x^{106} + x^{100} + x^{96} + x^{94} + x^{90} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{72}\\
&+ x^{66} + x^{62} + x^{60} + x^{58} + x^{54} + x^{50} + x^{46} + x^{42} + x^{40} + x^{38} + x^{36}\\
&+ x^{30} + x^{28} + x^{26} + x^{24} + x^{22} + x^{20} + x^{12},\\
p_3(x) &= x^{132} + x^{130} + x^{128} + x^{124} + x^{122} + x^{120} + x^{116} + x^{114} + x^{106} + x^{98}\\
&+ x^{82} + x^{80} + x^{76} + x^{74} + x^{72} + x^{70} + x^{68} + x^{62} + x^{58} + x^{52} + x^{50}\\
&+ x^{48} + x^{44} + x^{42} + x^{34} + x^{28} + x^{24} + x^{22} + x^{20} + x^{18} + x^{16} + x^{8},\\
p_6(x) &= x^{132} + x^{130} + x^{126} + x^{124} + x^{122} + x^{120} + x^{112} + x^{104} + x^{102} + x^{100}\\
&+ x^{98} + x^{90} + x^{86} + x^{84} + x^{80} + x^{78} + x^{72} + x^{64} + x^{62} + x^{58} + x^{56}\\
&+ x^{52} + x^{48} + x^{42} + x^{38} + x^{36} + x^{34} + x^{30} + x^{28} + x^{26} + x^{20} + x^{18}\\
&+ x^{16} + x^{12} + x^{8} + x^{4} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{114} + x^{112} + x^{102} + x^{90} + x^{86} + x^{82} + x^{80} + x^{76} + x^{74}\\
&+ x^{68} + x^{66} + x^{62} + x^{60} + x^{58} + x^{54} + x^{52} + x^{48} + x^{42} + x^{36} + x^{34}\\
&+ x^{28} + x^{24} + x^{20} + x^{16} + x^{14} + x^{12} + x^{8} + x^{6} + x^{4} + x^{2},\\
p_{12}(x) &= x^{128} + x^{120} + x^{88} + x^{80} + x^{32} + x^{24} + x^{16} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{125} + x^{124} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} + x^{108}\\
&+ x^{105} + x^{104} + x^{103} + x^{102} + x^{99} + x^{98} + x^{97} + x^{96} + x^{93} + x^{91}\\
&+ x^{90} + x^{88} + x^{87} + x^{86} + x^{83} + x^{82} + x^{81} + x^{76} + x^{75} + x^{74} + x^{73}\\
&+ x^{72} + x^{71} + x^{70} + x^{68} + x^{66} + x^{62} + x^{58} + x^{55} + x^{54} + x^{51} + x^{49}\\
&+ x^{45} + x^{43} + x^{40} + x^{39} + x^{38} + x^{37} + x^{32} + x^{27} + x^{26} + x^{23} + x^{20}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{19} + x^{18},\\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{112} + x^{111} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{98} + x^{97} + x^{66} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48}\\
&+ x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33}\\
&+ x^{32} + x^{31} + x^{28} + x^{27} + x^{22} + x^{21} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14}\\
&+ x^{13} + x^{10} + x^{9},\\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109}\\
&+ x^{106} + x^{104} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{89}\\
&+ x^{88} + x^{82} + x^{81} + x^{77} + x^{76} + x^{70} + x^{69} + x^{65} + x^{63} + x^{62} + x^{61}\\
&+ x^{59} + x^{55} + x^{53} + x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{43}\\
&+ x^{42} + x^{41} + x^{40} + x^{36} + x^{35} + x^{32} + x^{29} + x^{27} + x^{23} + x^{21} + x^{18}\\
&+ x^{15} + x^{14} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6},\\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{100} + x^{99} + x^{96} + x^{95} + x^{92} + x^{91}\\
&+ x^{88} + x^{87} + x^{78} + x^{77} + x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{60}\\
&+ x^{59} + x^{56} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{49} + x^{44} + x^{43}\\
&+ x^{40} + x^{39} + x^{32} + x^{31} + x^{30} + x^{29} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14}\\
&+ x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{4} + x^{3},\\
p_{12}(x) &= x^{116} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} + x^{107} + x^{106} + x^{105}\\
&+ x^{103} + x^{102} + x^{101} + x^{100} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{90}\\
&+ x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{20} + x^{19} + x^{18}\\
&+ x^{17} + x^{15} + x^{14} + x^{13} + x^{11} + x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{3} + x^{2} + x\\
&+ 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{125} + x^{124} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} + x^{108}\\
&+ x^{105} + x^{104} + x^{103} + x^{102} + x^{99} + x^{98} + x^{97} + x^{96} + x^{93} + x^{91}\\
&+ x^{90} + x^{88} + x^{87} + x^{86} + x^{83} + x^{82} + x^{81} + x^{76} + x^{75} + x^{74} + x^{73}\\
&+ x^{72} + x^{71} + x^{70} + x^{68} + x^{66} + x^{62} + x^{58} + x^{55} + x^{54} + x^{51} + x^{49}\\
&+ x^{45} + x^{43} + x^{40} + x^{39} + x^{38} + x^{37} + x^{32} + x^{27} + x^{26} + x^{23} + x^{20}\\
&+ x^{19} + x^{18},\\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{112} + x^{111} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{98} + x^{97} + x^{66} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} \\
&+ x^{32} + x^{31} + x^{28} + x^{27} + x^{22} + x^{21} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} \\
&+ x^{13} + x^{10} + x^{9}, \\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} \\
&+ x^{106} + x^{104} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{89} \\
&+ x^{88} + x^{82} + x^{81} + x^{77} + x^{76} + x^{70} + x^{69} + x^{65} + x^{63} + x^{62} + x^{61} \\
&+ x^{59} + x^{55} + x^{53} + x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{43} \\
&+ x^{42} + x^{41} + x^{40} + x^{36} + x^{35} + x^{32} + x^{29} + x^{27} + x^{23} + x^{21} + x^{18} \\
&+ x^{15} + x^{14} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6}, \\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107} \\
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{100} + x^{99} + x^{96} + x^{95} + x^{92} + x^{91} \\
&+ x^{88} + x^{87} + x^{78} + x^{77} + x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{60} \\
&+ x^{59} + x^{56} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{49} + x^{44} + x^{43} \\
&+ x^{40} + x^{39} + x^{32} + x^{31} + x^{30} + x^{29} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} \\
&+ x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{116} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} + x^{107} + x^{106} + x^{105} \\
&+ x^{103} + x^{102} + x^{101} + x^{100} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{90} \\
&+ x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{20} + x^{19} + x^{18} \\
&+ x^{17} + x^{15} + x^{14} + x^{13} + x^{11} + x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{3} + x^{2} + x \\
&+ 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{114} + x^{112} + x^{110} + x^{108} + x^{104} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84} \\
&+ x^{82} + x^{78} + x^{76} + x^{68} + x^{62} + x^{56} + x^{52} + x^{50} + x^{46} + x^{44} + x^{40} \\
&+ x^{38} + x^{36} + x^{34} + x^{32} + x^{28} + x^{26} + x^{24}, \\
p_3(x) &= x^{106} + x^{100} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{80} + x^{76} + x^{54} + x^{40} \\
&+ x^{28} + x^{20} + x^{12} + x^{10} + x^{6}, \\
p_6(x) &= x^{106} + x^{102} + x^{98} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{82} + x^{80} + x^{76} \\
&+ x^{70} + x^{68} + x^{58} + x^{56} + x^{52} + x^{50} + x^{46} + x^{44} + x^{40} + x^{38} + x^{36} \\
&+ x^{34} + x^{32} + x^{30} + x^{26} + x^{24} + x^{20} + x^{18} + x^{16} + x^{12} + x^{10} + x^{6} + 1, \\
p_9(x) &= x^{104} + x^{102} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} \\
&+ x^{74} + x^{68} + x^{64} + x^{56} + x^{54} + x^{44} + x^{32} + x^{30} + x^{28} + x^{26} + x^{24} \\
&+ x^{22} + x^{18} + x^{14} + x^{10} + x^{6} + x^{2}, \\
p_{12}(x) &= x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{8} \\
&+ x^{6} + x^{4} + x^{2} + 1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{125} + x^{123} + x^{120} + x^{119} + x^{118} + x^{115} + x^{113} \\
&\quad + x^{106} + x^{105} + x^{104} + x^{99} + x^{98} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{89} \\
&\quad + x^{85} + x^{81} + x^{80} + x^{74} + x^{71} + x^{70} + x^{67} + x^{65} + x^{64} + x^{62} + x^{61} \\
&\quad + x^{58} + x^{56} + x^{54} + x^{53} + x^{52} + x^{50} + x^{48} + x^{45} + x^{40} + x^{34} + x^{32} \\
&\quad + x^{30} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} \\
&\quad + x^{17} + x^{13} + x^{12}, \\
p_3(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108} \\
&\quad + x^{106} + x^{104} + x^{103} + x^{102} + x^{101} + x^{97} + x^{96} + x^{94} + x^{93} + x^{89} \\
&\quad + x^{88} + x^{84} + x^{83} + x^{79} + x^{78} + x^{70} + x^{69} + x^{68} + x^{66} + x^{60} + x^{58} \\
&\quad + x^{56} + x^{55} + x^{53} + x^{52} + x^{51} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} + x^{22} + x^{19} + x^{18} + x^{17} \\
&\quad + x^{13} + x^{9} + x^{8}, \\
p_6(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{116} + x^{113} + x^{112} + x^{111} + x^{104} + x^{102} \\
&\quad + x^{101} + x^{98} + x^{97} + x^{91} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} \\
&\quad + x^{73} + x^{66} + x^{65} + x^{64} + x^{63} + x^{59} + x^{58} + x^{57} + x^{52} + x^{49} + x^{48} \\
&\quad + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{33} + x^{29} + x^{26} + x^{25} + x^{24} + x^{21} \\
&\quad + x^{18} + x^{13} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6} + x^{4} + x^{3} + x^{2} + x + 1, \\
p_9(x) &= x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} \\
&\quad + x^{111} + x^{110} + x^{109} + x^{108} + x^{100} + x^{99} + x^{98} + x^{97} + x^{95} + x^{94} \\
&\quad + x^{93} + x^{91} + x^{90} + x^{89} + x^{87} + x^{86} + x^{85} + x^{84} + x^{28} + x^{27} + x^{26} \\
&\quad + x^{25} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17} + x^{15} + x^{14} + x^{13} + x^{11} \\
&\quad + x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{4}, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} + x^{108} + x^{107} \\
&\quad + x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{97} + x^{96} + x^{84} \\
&\quad + x^{83} + x^{82} + x^{81} + x^{80} + x^{28} + x^{27} + x^{26} + x^{25} + x^{23} + x^{22} + x^{21} \\
&\quad + x^{20} + x^{4} + x^{3} + x^{2} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{139} + x^{138} + x^{136} + x^{133} + x^{131} + x^{127} + x^{125} + x^{124} \\
&\quad + x^{123} + x^{122} + x^{121} + x^{117} + x^{116} + x^{115} + x^{112} + x^{111} + x^{107} \\
&\quad + x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{97} + x^{96} + x^{92} + x^{89} + x^{88} \\
&\quad + x^{87} + x^{85} + x^{80} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{65} + x^{60} + x^{54} \\
&\quad + x^{53} + x^{51} + x^{50} + x^{49} + x^{43} + x^{42} + x^{40} + x^{39} + x^{36} + x^{34} + x^{33}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{28} + x^{27},\\
p_3(x) &= x^{130} + x^{125} + x^{124} + x^{122} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{112}\\
&+ x^{111} + x^{110} + x^{108} + x^{107} + x^{105} + x^{103} + x^{102} + x^{97} + x^{74} + x^{69}\\
&+ x^{68} + x^{64} + x^{63} + x^{59} + x^{54} + x^{52} + x^{49} + x^{47} + x^{44} + x^{39} + x^{36}\\
&+ x^{34} + x^{31} + x^{29} + x^{24} + x^{20} + x^{19} + x^{15} + x^{14} + x^{9},\\
p_6(x) &= x^{132} + x^{122} + x^{120} + x^{112} + x^{110} + x^{104} + x^{102} + x^{96} + x^{94} + x^{86}\\
&+ x^{84} + x^{76} + x^{74} + x^{72} + x^{68} + x^{66} + x^{64} + x^{62} + x^{58} + x^{54} + x^{52}\\
&+ x^{44} + x^{42} + x^{36} + x^{34} + x^{28} + x^{26} + x^{20} + x^{18} + x^{16} + x^{10} + x^{6},\\
p_9(x) &= x^{134} + x^{129} + x^{128} + x^{126} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{116}\\
&+ x^{115} + x^{111} + x^{106} + x^{102} + x^{101} + x^{100} + x^{97} + x^{96} + x^{95} + x^{94}\\
&+ x^{91} + x^{89} + x^{88} + x^{83} + x^{38} + x^{33} + x^{32} + x^{30} + x^{27} + x^{26} + x^{25}\\
&+ x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{17} + x^{16} + x^{15} + x^{14} + x^{11} + x^{9}\\
&+ x^{8} + x^{3},\\
p_{12}(x) &= x^{136} + x^{120} + x^{116} + x^{112} + x^{108} + x^{104} + x^{92} + x^{88} + x^{84} + x^{80}\\
&+ x^{40} + x^{20} + x^{16} + x^{12} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{122} + x^{119} + x^{118} + x^{116} + x^{112} + x^{109} + x^{107} + x^{104} + x^{103} + x^{99}\\
&+ x^{98} + x^{97} + x^{95} + x^{94} + x^{88} + x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81}\\
&+ x^{80} + x^{79} + x^{77} + x^{76} + x^{75} + x^{71} + x^{70} + x^{69} + x^{67} + x^{63} + x^{61}\\
&+ x^{60} + x^{59} + x^{58} + x^{50} + x^{49} + x^{48} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41}\\
&+ x^{40} + x^{38} + x^{34} + x^{33} + x^{31} + x^{30} + x^{29} + x^{23} + x^{22} + x^{21} + x^{20}\\
&+ x^{18},\\
p_3(x) &= x^{114} + x^{110} + x^{109} + x^{108} + x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{97}\\
&+ x^{58} + x^{54} + x^{53} + x^{52} + x^{49} + x^{47} + x^{44} + x^{39} + x^{36} + x^{31} + x^{28}\\
&+ x^{23} + x^{20} + x^{18} + x^{15} + x^{14} + x^{13} + x^{9},\\
p_6(x) &= x^{116} + x^{112} + x^{106} + x^{104} + x^{102} + x^{100} + x^{94} + x^{90} + x^{88} + x^{78}\\
&+ x^{76} + x^{66} + x^{64} + x^{60} + x^{56} + x^{54} + x^{50} + x^{46} + x^{40} + x^{32} + x^{30}\\
&+ x^{28} + x^{24} + x^{22} + x^{18} + x^{16} + x^{14} + x^{6},\\
p_9(x) &= x^{118} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{104}\\
&+ x^{103} + x^{102} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{89}\\
&+ x^{88} + x^{87} + x^{83} + x^{22} + x^{18} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12} + x^{11}\\
&+ x^{9} + x^{8} + x^{7} + x^{3},\\
p_{12}(x) &= x^{120} + x^{116} + x^{104} + x^{100} + x^{96} + x^{80} + x^{24} + x^{20} + 1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{121} + x^{120} + x^{118} + x^{116} + x^{113} + x^{112} + x^{111} + x^{110} \\
&\quad + x^{108} + x^{107} + x^{105} + x^{104} + x^{101} + x^{99} + x^{98} + x^{95} + x^{93} + x^{92} \\
&\quad + x^{89} + x^{88} + x^{87} + x^{86} + x^{81} + x^{79} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} \\
&\quad + x^{70} + x^{66} + x^{65} + x^{64} + x^{63} + x^{58} + x^{54} + x^{53} + x^{51} + x^{48} + x^{45} \\
&\quad + x^{44} + x^{43} + x^{38} + x^{36} + x^{33}, \\
p_3(x) &= x^{124} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{115} + x^{113} + x^{108} + x^{103} \\
&\quad + x^{101} + x^{100} + x^{94} + x^{93} + x^{89} + x^{88} + x^{84} + x^{83} + x^{79} + x^{78} + x^{70} \\
&\quad + x^{69} + x^{68} + x^{66} + x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{53} + x^{51} + x^{50} \\
&\quad + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{37} + x^{34} + x^{33} + x^{32} + x^{31} \\
&\quad + x^{30} + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{14} + x^{13} + x^{12}, \\
p_6(x) &= x^{124} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{113} + x^{108} + x^{106} + x^{102} \\
&\quad + x^{100} + x^{94} + x^{90} + x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} \\
&\quad + x^{79} + x^{78} + x^{73} + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{63} + x^{59} \\
&\quad + x^{54} + x^{50} + x^{49} + x^{44} + x^{43} + x^{41} + x^{37} + x^{35} + x^{33} + x^{31} + x^{30} \\
&\quad + x^{29} + x^{28} + x^{27} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{16} + x^{12} + x^{11} \\
&\quad + x^{8} + x^{7} + x^{6} + x^{5} + x^{3} + x^{2} + x + 1, \\
p_9(x) &= x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} \\
&\quad + x^{111} + x^{110} + x^{109} + x^{108} + x^{100} + x^{99} + x^{98} + x^{97} + x^{95} + x^{94} \\
&\quad + x^{93} + x^{91} + x^{90} + x^{89} + x^{87} + x^{86} + x^{85} + x^{84} + x^{28} + x^{27} + x^{26} \\
&\quad + x^{25} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17} + x^{15} + x^{14} + x^{13} + x^{11} \\
&\quad + x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{4}, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} + x^{108} + x^{107} \\
&\quad + x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{97} + x^{96} + x^{84} \\
&\quad + x^{83} + x^{82} + x^{81} + x^{80} + x^{28} + x^{27} + x^{26} + x^{25} + x^{23} + x^{22} + x^{21} \\
&\quad + x^{20} + x^{4} + x^{3} + x^{2} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{125} + x^{123} + x^{120} + x^{119} + x^{118} + x^{115} + x^{113} \\
&\quad + x^{106} + x^{105} + x^{104} + x^{99} + x^{98} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{89} \\
&\quad + x^{85} + x^{81} + x^{80} + x^{74} + x^{71} + x^{70} + x^{67} + x^{65} + x^{64} + x^{62} + x^{61} \\
&\quad + x^{58} + x^{56} + x^{54} + x^{53} + x^{52} + x^{50} + x^{48} + x^{45} + x^{40} + x^{34} + x^{32} \\
&\quad + x^{30} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} \\
&\quad + x^{17} + x^{13} + x^{12}, \\
p_3(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{106} + x^{104} + x^{103} + x^{102} + x^{101} + x^{97} + x^{96} + x^{94} + x^{93} + x^{89}\\
&+ x^{88} + x^{84} + x^{83} + x^{79} + x^{78} + x^{70} + x^{69} + x^{68} + x^{66} + x^{60} + x^{58}\\
&+ x^{56} + x^{55} + x^{53} + x^{52} + x^{51} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{39}\\
&+ x^{38} + x^{37} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} + x^{22} + x^{19} + x^{18} + x^{17}\\
&+ x^{13} + x^{9} + x^{8},\\
p_6(x) = {}& x^{124} + x^{122} + x^{121} + x^{120} + x^{116} + x^{113} + x^{112} + x^{111} + x^{104} + x^{102}\\
&+ x^{101} + x^{98} + x^{97} + x^{91} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76}\\
&+ x^{73} + x^{66} + x^{65} + x^{64} + x^{63} + x^{59} + x^{58} + x^{57} + x^{52} + x^{49} + x^{48}\\
&+ x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{33} + x^{29} + x^{26} + x^{25} + x^{24} + x^{21}\\
&+ x^{18} + x^{13} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6} + x^{4} + x^{3} + x^{2} + x + 1,\\
p_9(x) = {}& x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113}\\
&+ x^{111} + x^{110} + x^{109} + x^{108} + x^{100} + x^{99} + x^{98} + x^{97} + x^{95} + x^{94}\\
&+ x^{93} + x^{91} + x^{90} + x^{89} + x^{87} + x^{86} + x^{85} + x^{84} + x^{28} + x^{27} + x^{26}\\
&+ x^{25} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17} + x^{15} + x^{14} + x^{13} + x^{11}\\
&+ x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{4},\\
p_{12}(x) = {}& x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{97} + x^{96} + x^{84}\\
&+ x^{83} + x^{82} + x^{81} + x^{80} + x^{28} + x^{27} + x^{26} + x^{25} + x^{23} + x^{22} + x^{21}\\
&+ x^{20} + x^{4} + x^{3} + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{122} + x^{119} + x^{118} + x^{116} + x^{112} + x^{109} + x^{107} + x^{104} + x^{103} + x^{99}\\
&+ x^{98} + x^{97} + x^{95} + x^{94} + x^{88} + x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81}\\
&+ x^{80} + x^{79} + x^{77} + x^{76} + x^{75} + x^{71} + x^{70} + x^{69} + x^{67} + x^{63} + x^{61}\\
&+ x^{60} + x^{59} + x^{58} + x^{50} + x^{49} + x^{48} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41}\\
&+ x^{40} + x^{38} + x^{34} + x^{33} + x^{31} + x^{30} + x^{29} + x^{23} + x^{22} + x^{21} + x^{20}\\
&+ x^{18},\\
p_3(x) = {}& x^{114} + x^{110} + x^{109} + x^{108} + x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{97}\\
&+ x^{58} + x^{54} + x^{53} + x^{52} + x^{49} + x^{47} + x^{44} + x^{39} + x^{36} + x^{31} + x^{28}\\
&+ x^{23} + x^{20} + x^{18} + x^{15} + x^{14} + x^{13} + x^{9},\\
p_6(x) = {}& x^{116} + x^{112} + x^{106} + x^{104} + x^{102} + x^{100} + x^{94} + x^{90} + x^{88} + x^{78}\\
&+ x^{76} + x^{66} + x^{64} + x^{60} + x^{56} + x^{54} + x^{50} + x^{46} + x^{40} + x^{32} + x^{30}\\
&+ x^{28} + x^{24} + x^{22} + x^{18} + x^{16} + x^{14} + x^{6},\\
p_9(x) = {}& x^{118} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{104}\\
&+ x^{103} + x^{102} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{89}
\end{aligned}
$$

$$+ x^{88} + x^{87} + x^{83} + x^{22} + x^{18} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12} + x^{11} + x^{9} + x^{8} + x^{7} + x^{3},$$

$$p_{12}(x) = x^{120} + x^{116} + x^{104} + x^{100} + x^{96} + x^{80} + x^{24} + x^{20} + 1,$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{144} + x^{142} + x^{139} + x^{138} + x^{136} + x^{133} + x^{131} + x^{127} + x^{125} + x^{124} \\
& + x^{123} + x^{122} + x^{121} + x^{117} + x^{116} + x^{115} + x^{112} + x^{111} + x^{107} \\
& + x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{97} + x^{96} + x^{92} + x^{89} + x^{88} \\
& + x^{87} + x^{85} + x^{80} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{65} + x^{60} + x^{54} \\
& + x^{53} + x^{51} + x^{50} + x^{49} + x^{43} + x^{42} + x^{40} + x^{39} + x^{36} + x^{34} + x^{33} \\
& + x^{28} + x^{27},
\end{aligned}$$

$$\begin{aligned}
p_3(x) = {} & x^{130} + x^{125} + x^{124} + x^{122} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{112} \\
& + x^{111} + x^{110} + x^{108} + x^{107} + x^{105} + x^{103} + x^{102} + x^{97} + x^{74} + x^{69} \\
& + x^{68} + x^{64} + x^{63} + x^{59} + x^{54} + x^{52} + x^{49} + x^{47} + x^{44} + x^{39} + x^{36} \\
& + x^{34} + x^{31} + x^{29} + x^{24} + x^{20} + x^{19} + x^{15} + x^{14} + x^{9},
\end{aligned}$$

$$\begin{aligned}
p_6(x) = {} & x^{132} + x^{122} + x^{120} + x^{112} + x^{110} + x^{104} + x^{102} + x^{96} + x^{94} + x^{86} \\
& + x^{84} + x^{76} + x^{74} + x^{72} + x^{68} + x^{66} + x^{64} + x^{62} + x^{58} + x^{54} + x^{52} \\
& + x^{44} + x^{42} + x^{36} + x^{34} + x^{28} + x^{26} + x^{20} + x^{18} + x^{16} + x^{10} + x^{6},
\end{aligned}$$

$$\begin{aligned}
p_9(x) = {} & x^{134} + x^{129} + x^{128} + x^{126} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{116} \\
& + x^{115} + x^{111} + x^{106} + x^{102} + x^{101} + x^{100} + x^{97} + x^{96} + x^{95} + x^{94} \\
& + x^{91} + x^{89} + x^{88} + x^{83} + x^{38} + x^{33} + x^{32} + x^{30} + x^{27} + x^{26} + x^{25} \\
& + x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{17} + x^{16} + x^{15} + x^{14} + x^{11} + x^{9} \\
& + x^{8} + x^{3},
\end{aligned}$$

$$\begin{aligned}
p_{12}(x) = {} & x^{136} + x^{120} + x^{116} + x^{112} + x^{108} + x^{104} + x^{92} + x^{88} + x^{84} + x^{80} \\
& + x^{40} + x^{20} + x^{16} + x^{12} + x^{8} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{129} + x^{127} + x^{121} + x^{120} + x^{118} + x^{116} + x^{113} + x^{112} + x^{111} + x^{110} \\
& + x^{108} + x^{107} + x^{105} + x^{104} + x^{101} + x^{99} + x^{98} + x^{95} + x^{93} + x^{92} \\
& + x^{89} + x^{88} + x^{87} + x^{86} + x^{81} + x^{79} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} \\
& + x^{70} + x^{66} + x^{65} + x^{64} + x^{63} + x^{58} + x^{54} + x^{53} + x^{51} + x^{48} + x^{45} \\
& + x^{44} + x^{43} + x^{38} + x^{36} + x^{33},
\end{aligned}$$

$$\begin{aligned}
p_3(x) = {} & x^{124} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{115} + x^{113} + x^{108} + x^{103} \\
& + x^{101} + x^{100} + x^{94} + x^{93} + x^{89} + x^{88} + x^{84} + x^{83} + x^{79} + x^{78} + x^{70} \\
& + x^{69} + x^{68} + x^{66} + x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{53} + x^{51} + x^{50}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{37} + x^{34} + x^{33} + x^{32} + x^{31}\\
&+ x^{30} + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{14} + x^{13} + x^{12},\\
p_6(x) = {}& x^{124} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{113} + x^{108} + x^{106} + x^{102}\\
&+ x^{100} + x^{94} + x^{90} + x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80}\\
&+ x^{79} + x^{78} + x^{73} + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{63} + x^{59}\\
&+ x^{54} + x^{50} + x^{49} + x^{44} + x^{43} + x^{41} + x^{37} + x^{35} + x^{33} + x^{31} + x^{30}\\
&+ x^{29} + x^{28} + x^{27} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{16} + x^{12} + x^{11}\\
&+ x^{8} + x^{7} + x^{6} + x^{5} + x^{3} + x^{2} + x + 1,\\
p_9(x) = {}& x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113}\\
&+ x^{111} + x^{110} + x^{109} + x^{108} + x^{100} + x^{99} + x^{98} + x^{97} + x^{95} + x^{94}\\
&+ x^{93} + x^{91} + x^{90} + x^{89} + x^{87} + x^{86} + x^{85} + x^{84} + x^{28} + x^{27} + x^{26}\\
&+ x^{25} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17} + x^{15} + x^{14} + x^{13} + x^{11}\\
&+ x^{10} + x^{9} + x^{7} + x^{6} + x^{5} + x^{4},\\
p_{12}(x) = {}& x^{124} + x^{123} + x^{122} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{97} + x^{96} + x^{84}\\
&+ x^{83} + x^{82} + x^{81} + x^{80} + x^{28} + x^{27} + x^{26} + x^{25} + x^{23} + x^{22} + x^{21}\\
&+ x^{20} + x^{4} + x^{3} + x^{2} + x + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, 1, 1, 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]	1117	[589, 1656]	2234	[803, 645]	3351	[3254, 1830]
1	[3, 4]	1118	[659, 1752]	2235	[1722, 56]	3352	[3806, 3807]
2	[5, 6]	1119	[1812, 147]	2236	[1999, 2025]	3353	[1952, 1546]
3	[7, 8]	1120	[545, 762]	2237	[3025, 1504]	3354	[1745, 2023]
4	[9, 10]	1121	[1813, 1814]	2238	[1916, 2070]	3355	[3808, 239]
5	[11, 12]	1122	[1815, 241]	2239	[1871, 194]	3356	[3809, 1714]
6	[13, 14]	1123	[1816, 1817]	2240	[3026, 1815]	3357	[1467, 1645]
7	[15, 16]	1124	[50, 1773]	2241	[1486, 798]	3358	[3279, 659]
8	[17, 18]	1125	[216, 1818]	2242	[1653, 193]	3359	[1479, 1470]
9	[19, 20]	1126	[799, 1819]	2243	[3027, 3028]	3360	[3312, 1998]
10	[21, 22]	1127	[1820, 1764]	2244	[3029, 1616]	3361	[3078, 140]
11	[23, 24]	1128	[547, 1821]	2245	[3030, 1806]	3362	[3810, 1739]
12	[25, 26]	1129	[1751, 1572]	2246	[3031, 1654]	3363	[14, 3811]
13	[27, 28]	1130	[602, 730]	2247	[1883, 1663]	3364	[3287, 777]
14	[29, 30]	1131	[1617, 1822]	2248	[3032, 1914]	3365	[3168, 2040]
15	[31, 32]	1132	[1823, 1824]	2249	[1978, 1585]	3366	[3013, 3812]
16	[33, 34]	1133	[1825, 1826]	2250	[2092, 3033]	3367	[1662, 737]

17	[35, 36]	1134	[1612, 1827]	2251	[3034, 3035]	3368	[2036, 186]
18	[37, 38]	1135	[1828, 1706]	2252	[2015, 3036]	3369	[3122, 185]
19	[39, 40]	1136	[1829, 584]	2253	[1656, 2046]	3370	[195, 3051]
20	[41, 42]	1137	[157, 1830]	2254	[1500, 1534]	3371	[3257, 1866]
21	[43, 44]	1138	[1831, 1832]	2255	[3037, 494]	3372	[2045, 1658]
22	[45, 46]	1139	[239, 1715]	2256	[3038, 533]	3373	[3262, 1965]
23	[47, 48]	1140	[1775, 1833]	2257	[46, 1895]	3374	[552, 1643]
24	[49, 50]	1141	[1516, 1834]	2258	[145, 1484]	3375	[3231, 1678]
25	[51, 52]	1142	[1835, 692]	2259	[744, 1776]	3376	[2950, 140]
26	[53, 54]	1143	[1836, 607]	2260	[3039, 770]	3377	[2086, 817]
27	[55, 56]	1144	[1837, 1838]	2261	[3040, 1660]	3378	[2964, 1537]
28	[57, 58]	1145	[1603, 1644]	2262	[3041, 670]	3379	[811, 3813]
29	[59, 60]	1146	[1839, 685]	2263	[3042, 834]	3380	[3814, 1826]
30	[61, 62]	1147	[1840, 1841]	2264	[1512, 652]	3381	[1822, 3298]
31	[63, 64]	1148	[1804, 1842]	2265	[1620, 1692]	3382	[3330, 3815]
32	[65, 66]	1149	[1843, 1844]	2266	[1644, 1800]	3383	[1864, 1495]
33	[67, 68]	1150	[1845, 1602]	2267	[610, 2083]	3384	[3151, 1724]
34	[69, 70]	1151	[211, 631]	2268	[1715, 1829]	3385	[3239, 805]
35	[71, 72]	1152	[710, 1846]	2269	[1874, 1715]	3386	[1806, 3194]
36	[73, 74]	1153	[1847, 491]	2270	[1578, 239]	3387	[1822, 827]
37	[75, 76]	1154	[1848, 1529]	2271	[638, 1579]	3388	[1580, 3186]
38	[77, 78]	1155	[186, 561]	2272	[520, 817]	3389	[572, 14]
39	[79, 80]	1156	[1849, 1850]	2273	[773, 584]	3390	[695, 1657]
40	[81, 82]	1157	[1851, 747]	2274	[1577, 238]	3391	[3816, 2051]
41	[83, 84]	1158	[1852, 1693]	2275	[1576, 1902]	3392	[3817, 1925]
42	[85, 86]	1159	[1853, 611]	2276	[3043, 190]	3393	[3818, 790]
43	[87, 88]	1160	[1854, 1715]	2277	[3044, 3045]	3394	[3228, 1774]
44	[89, 90]	1161	[1855, 1856]	2278	[720, 3046]	3395	[3187, 195]
45	[91, 92]	1162	[775, 1857]	2279	[3047, 187]	3396	[3200, 1712]
46	[93, 94]	1163	[135, 744]	2280	[3048, 2043]	3397	[3819, 1878]
47	[95, 96]	1164	[1640, 733]	2281	[534, 2945]	3398	[1555, 1926]
48	[97, 98]	1165	[1858, 1859]	2282	[2041, 3049]	3399	[596, 727]
49	[99, 100]	1166	[1860, 514]	2283	[2055, 490]	3400	[2983, 3012]
50	[101, 102]	1167	[1861, 1862]	2284	[1746, 3050]	3401	[3820, 1990]
51	[103, 104]	1168	[1493, 1863]	2285	[2081, 576]	3402	[3039, 673]
52	[105, 106]	1169	[537, 1478]	2286	[2081, 1843]	3403	[717, 1508]
53	[107, 108]	1170	[1486, 1553]	2287	[760, 1819]	3404	[2032, 3106]
54	[109, 110]	1171	[1864, 834]	2288	[2976, 1918]	3405	[3223, 718]
55	[111, 112]	1172	[542, 641]	2289	[707, 3051]	3406	[764, 184]
56	[113, 114]	1173	[1865, 37]	2290	[3052, 654]	3407	[1697, 2073]
57	[115, 116]	1174	[1684, 1736]	2291	[1752, 1573]	3408	[3821, 701]
58	[117, 118]	1175	[197, 1733]	2292	[1843, 3053]	3409	[3181, 3822]
59	[119, 120]	1176	[1814, 1866]	2293	[1712, 803]	3410	[3315, 3117]
60	[121, 122]	1177	[1867, 1868]	2294	[1687, 1627]	3411	[3823, 1534]

61	[123, 124]	1178	[768, 1869]	2295	[3054, 3055]	3412	[3824, 1637]
62	[125, 126]	1179	[1870, 1505]	2296	[3056, 3057]	3413	[3825, 555]
63	[127, 128]	1180	[707, 1621]	2297	[507, 209]	3414	[1495, 835]
64	[129, 130]	1181	[1871, 34]	2298	[1761, 2016]	3415	[3826, 663]
65	[131, 132]	1182	[1872, 1873]	2299	[3058, 3059]	3416	[1991, 3827]
66	[133, 134]	1183	[1818, 1586]	2300	[231, 572]	3417	[1521, 2035]
67	[135, 136]	1184	[1558, 1706]	2301	[2006, 3060]	3418	[1785, 1973]
68	[137, 138]	1185	[1578, 1874]	2302	[3061, 1913]	3419	[3828, 1723]
69	[139, 140]	1186	[821, 1629]	2303	[2009, 821]	3420	[3829, 1579]
70	[141, 142]	1187	[1875, 1842]	2304	[3062, 2994]	3421	[3294, 2972]
71	[143, 144]	1188	[1876, 541]	2305	[50, 569]	3422	[3830, 667]
72	[145, 146]	1189	[1877, 1878]	2306	[2024, 3063]	3423	[3284, 1987]
73	[147, 148]	1190	[179, 245]	2307	[650, 1802]	3424	[3237, 3216]
74	[149, 150]	1191	[755, 1879]	2308	[1941, 3064]	3425	[1874, 583]
75	[151, 152]	1192	[1880, 789]	2309	[3065, 1697]	3426	[3160, 539]
76	[153, 154]	1193	[1881, 1581]	2310	[3066, 3067]	3427	[3831, 178]
77	[155, 156]	1194	[1626, 730]	2311	[3068, 1730]	3428	[166, 559]
78	[157, 157]	1195	[1882, 1883]	2312	[1490, 144]	3429	[3832, 3833]
79	[158, 159]	1196	[1562, 1884]	2313	[208, 508]	3430	[2070, 3096]
80	[160, 161]	1197	[1885, 1886]	2314	[1720, 644]	3431	[1975, 3834]
81	[162, 163]	1198	[1887, 627]	2315	[583, 1829]	3432	[3202, 713]
82	[164, 165]	1199	[1557, 1828]	2316	[3069, 1910]	3433	[3087, 1993]
83	[166, 167]	1200	[1794, 53]	2317	[3070, 525]	3434	[1584, 1979]
84	[168, 169]	1201	[1888, 1889]	2318	[1683, 1805]	3435	[1860, 2055]
85	[170, 171]	1202	[140, 1890]	2319	[1872, 3071]	3436	[3830, 547]
86	[172, 173]	1203	[1588, 1891]	2320	[1509, 3072]	3437	[143, 1516]
87	[174, 175]	1204	[1892, 1893]	2321	[702, 537]	3438	[2060, 1571]
88	[176, 177]	1205	[561, 1894]	2322	[3073, 1841]	3439	[3835, 205]
89	[178, 172]	1206	[793, 1712]	2323	[1927, 1996]	3440	[3835, 3836]
90	[179, 180]	1207	[1895, 1896]	2324	[3074, 581]	3441	[3837, 505]
91	[181, 182]	1208	[1897, 740]	2325	[3075, 57]	3442	[3327, 833]
92	[183, 184]	1209	[41, 1898]	2326	[1868, 1684]	3443	[3265, 1755]
93	[185, 186]	1210	[1899, 1900]	2327	[35, 1469]	3444	[3267, 3221]
94	[187, 188]	1211	[577, 746]	2328	[505, 1921]	3445	[3136, 549]
95	[189, 190]	1212	[1901, 1673]	2329	[1758, 3076]	3446	[1672, 678]
96	[191, 177]	1213	[601, 1626]	2330	[3077, 684]	3447	[1744, 1996]
97	[192, 193]	1214	[1579, 1461]	2331	[128, 1897]	3448	[785, 242]
98	[194, 195]	1215	[1902, 666]	2332	[3032, 1886]	3449	[3007, 545]
99	[196, 197]	1216	[1721, 55]	2333	[1583, 706]	3450	[3325, 36]
100	[198, 175]	1217	[1903, 1535]	2334	[3078, 1622]	3451	[3838, 633]
101	[199, 200]	1218	[599, 1904]	2335	[3079, 191]	3452	[1950, 1880]
102	[178, 201]	1219	[777, 557]	2336	[1488, 1595]	3453	[3839, 190]
103	[202, 203]	1220	[1791, 1905]	2337	[1760, 2015]	3454	[3840, 1662]
104	[204, 205]	1221	[1741, 495]	2338	[1883, 687]	3455	[3841, 1562]

105	[206, 207]	1222	[1906, 1574]	2339	[1536, 1714]	3456	[1943, 1832]
106	[208, 209]	1223	[741, 1907]	2340	[238, 1874]	3457	[3300, 2980]
107	[210, 211]	1224	[1908, 547]	2341	[3080, 3076]	3458	[3334, 3120]
108	[212, 213]	1225	[1909, 1910]	2342	[3081, 153]	3459	[3842, 1842]
109	[214, 215]	1226	[14, 1911]	2343	[596, 733]	3460	[3290, 1978]
110	[216, 217]	1227	[1813, 1912]	2344	[3082, 3083]	3461	[3828, 3236]
111	[218, 219]	1228	[1913, 148]	2345	[187, 810]	3462	[3843, 1556]
112	[220, 221]	1229	[1885, 1914]	2346	[1945, 3084]	3463	[3844, 3232]
113	[222, 174]	1230	[1835, 714]	2347	[3074, 3085]	3464	[3845, 1642]
114	[223, 224]	1231	[595, 1640]	2348	[1544, 3086]	3465	[3846, 3805]
115	[149, 225]	1232	[1826, 1915]	2349	[1880, 1897]	3466	[1908, 667]
116	[226, 227]	1233	[1916, 1917]	2350	[1512, 2996]	3467	[3847, 3833]
117	[228, 229]	1234	[1918, 135]	2351	[751, 3084]	3468	[1633, 1648]
118	[230, 231]	1235	[1919, 1853]	2352	[1673, 1559]	3469	[3848, 229]
119	[232, 233]	1236	[1920, 1921]	2353	[1749, 178]	3470	[1694, 1942]
120	[234, 235]	1237	[1922, 818]	2354	[1904, 1492]	3471	[3849, 747]
121	[236, 237]	1238	[1923, 1856]	2355	[2082, 546]	3472	[3850, 3217]
122	[238, 239]	1239	[1924, 1925]	2356	[1596, 229]	3473	[2960, 2072]
123	[240, 241]	1240	[1809, 43]	2357	[3087, 1861]	3474	[3851, 3271]
124	[242, 150]	1241	[1926, 1927]	2358	[630, 1514]	3475	[491, 3014]
125	[243, 244]	1242	[505, 1928]	2359	[1875, 3088]	3476	[3816, 563]
126	[245, 246]	1243	[1929, 1802]	2360	[180, 566]	3477	[1654, 743]
127	[247, 248]	1244	[1930, 1931]	2361	[3072, 3089]	3478	[807, 3852]
128	[249, 250]	1245	[1932, 651]	2362	[1828, 3090]	3479	[3853, 540]
129	[251, 252]	1246	[700, 1884]	2363	[627, 8]	3480	[3252, 3005]
130	[253, 254]	1247	[1511, 651]	2364	[3091, 2]	3481	[3854, 1954]
131	[255, 256]	1248	[1933, 793]	2365	[3092, 1577]	3482	[230, 571]
132	[257, 258]	1249	[1934, 241]	2366	[1944, 156]	3483	[3324, 183]
133	[259, 260]	1250	[1935, 1936]	2367	[3093, 219]	3484	[3008, 1853]
134	[261, 262]	1251	[1645, 1869]	2368	[3094, 758]	3485	[3855, 2973]
135	[263, 264]	1252	[726, 755]	2369	[3095, 692]	3486	[3856, 600]
136	[265, 266]	1253	[1937, 1938]	2370	[3096, 3097]	3487	[1617, 826]
137	[267, 268]	1254	[1653, 766]	2371	[1738, 1903]	3488	[1507, 718]
138	[269, 270]	1255	[1551, 1939]	2372	[831, 3097]	3489	[2023, 1873]
139	[271, 272]	1256	[667, 1821]	2373	[1510, 3089]	3490	[1698, 1553]
140	[273, 274]	1257	[1940, 671]	2374	[635, 3098]	3491	[3220, 3106]
141	[275, 276]	1258	[1941, 1942]	2375	[2031, 2020]	3492	[3857, 1750]
142	[277, 278]	1259	[1943, 637]	2376	[3099, 515]	3493	[3858, 3852]
143	[279, 280]	1260	[1944, 774]	2377	[3100, 3101]	3494	[3226, 3859]
144	[281, 282]	1261	[1945, 752]	2378	[3068, 3102]	3495	[1574, 3860]
145	[283, 284]	1262	[1946, 1947]	2379	[3103, 760]	3496	[2992, 1575]
146	[285, 286]	1263	[555, 1543]	2380	[3104, 149]	3497	[8, 531]
147	[96, 287]	1264	[1948, 1949]	2381	[3090, 723]	3498	[2001, 627]
148	[288, 289]	1265	[1950, 128]	2382	[1816, 3105]	3499	[3100, 3822]

149	[290, 291]	1266	[8, 1906]	2383	[674, 595]	3500	[226, 3107]
150	[292, 293]	1267	[10, 487]	2384	[3106, 3107]	3501	[3037, 1741]
151	[294, 295]	1268	[1951, 187]	2385	[647, 3108]	3502	[3861, 819]
152	[296, 297]	1269	[1777, 1554]	2386	[1786, 1589]	3503	[2010, 237]
153	[298, 299]	1270	[1952, 1953]	2387	[1788, 211]	3504	[3862, 136]
154	[300, 301]	1271	[693, 46]	2388	[1530, 736]	3505	[3863, 3132]
155	[302, 303]	1272	[1954, 815]	2389	[3109, 1742]	3506	[3864, 1679]
156	[304, 305]	1273	[1955, 1553]	2390	[3110, 1694]	3507	[3190, 2015]
157	[306, 307]	1274	[1956, 1957]	2391	[3111, 797]	3508	[3865, 1899]
158	[308, 309]	1275	[1958, 1959]	2392	[1533, 3063]	3509	[3866, 3028]
159	[310, 311]	1276	[670, 1960]	2393	[1477, 2078]	3510	[3867, 3105]
160	[312, 313]	1277	[1961, 1962]	2394	[2002, 3112]	3511	[3868, 3869]
161	[314, 315]	1278	[1963, 721]	2395	[128, 789]	3512	[3338, 3869]
162	[316, 317]	1279	[1964, 1965]	2396	[3113, 1904]	3513	[659, 1572]
163	[318, 319]	1280	[1587, 1966]	2397	[3114, 2088]	3514	[3870, 3871]
164	[320, 321]	1281	[1967, 1638]	2398	[3115, 575]	3515	[480, 548]
165	[322, 323]	1282	[1968, 1895]	2399	[3116, 3117]	3516	[3138, 1915]
166	[324, 325]	1283	[545, 1503]	2400	[778, 3118]	3517	[3841, 700]
167	[326, 327]	1284	[191, 1969]	2401	[2951, 1786]	3518	[1651, 2959]
168	[328, 75]	1285	[1685, 54]	2402	[1987, 1679]	3519	[1823, 1985]
169	[329, 298]	1286	[1643, 1799]	2403	[1854, 583]	3520	[3872, 813]
170	[330, 331]	1287	[1934, 639]	2404	[2971, 3119]	3521	[3873, 150]
171	[332, 333]	1288	[1970, 1971]	2405	[736, 595]	3522	[3837, 1920]
172	[334, 335]	1289	[185, 560]	2406	[232, 3120]	3523	[1904, 3287]
173	[336, 337]	1290	[834, 1525]	2407	[1673, 679]	3524	[765, 3229]
174	[338, 339]	1291	[1972, 1796]	2408	[2979, 3121]	3525	[3169, 61]
175	[340, 341]	1292	[1973, 1891]	2409	[588, 563]	3526	[3874, 1511]
176	[342, 343]	1293	[1747, 58]	2410	[3122, 1591]	3527	[3276, 138]
177	[344, 345]	1294	[1738, 1534]	2411	[1644, 3003]	3528	[3875, 40]
178	[346, 347]	1295	[1974, 1526]	2412	[657, 245]	3529	[2958, 646]
179	[348, 349]	1296	[1975, 1976]	2413	[1981, 549]	3530	[3876, 830]
180	[350, 351]	1297	[1652, 192]	2414	[3073, 476]	3531	[3031, 1918]
181	[352, 353]	1298	[33, 194]	2415	[833, 2969]	3532	[3280, 200]
182	[354, 81]	1299	[1889, 1681]	2416	[616, 3123]	3533	[3877, 203]
183	[355, 356]	1300	[1948, 725]	2417	[1858, 1727]	3534	[1598, 1548]
184	[357, 358]	1301	[1977, 489]	2418	[1771, 1617]	3535	[3174, 3309]
185	[359, 360]	1302	[623, 1836]	2419	[612, 2066]	3536	[532, 3860]
186	[361, 362]	1303	[1978, 1979]	2420	[3124, 3125]	3537	[3314, 1667]
187	[363, 364]	1304	[792, 1710]	2421	[722, 1707]	3538	[760, 800]
188	[365, 366]	1305	[1484, 481]	2422	[1546, 1674]	3539	[1638, 2073]
189	[367, 368]	1306	[1882, 686]	2423	[1742, 3126]	3540	[3131, 1620]
190	[369, 370]	1307	[36, 1480]	2424	[3127, 1790]	3541	[556, 778]
191	[371, 372]	1308	[13, 1531]	2425	[3128, 1611]	3542	[3214, 682]
192	[373, 374]	1309	[1953, 1674]	2426	[1773, 570]	3543	[3878, 2]

193	[375, 376]	1310	[1604, 1980]	2427	[1475, 1784]	3544	[3879, 1795]
194	[377, 378]	1311	[1591, 186]	2428	[3129, 513]	3545	[3880, 1962]
195	[68, 379]	1312	[480, 1981]	2429	[1586, 2041]	3546	[3881, 1539]
196	[380, 381]	1313	[1982, 1983]	2430	[3021, 203]	3547	[1778, 736]
197	[382, 383]	1314	[1984, 1985]	2431	[786, 704]	3548	[3882, 1880]
198	[384, 385]	1315	[1788, 630]	2432	[1624, 627]	3549	[3883, 1857]
199	[386, 387]	1316	[1986, 1987]	2433	[3130, 3131]	3550	[3884, 3885]
200	[388, 389]	1317	[1724, 224]	2434	[3132, 1490]	3551	[3886, 3887]
201	[390, 391]	1318	[1981, 1988]	2435	[3133, 3059]	3552	[576, 1844]
202	[392, 393]	1319	[144, 1517]	2436	[3134, 796]	3553	[781, 1845]
203	[394, 395]	1320	[1989, 1503]	2437	[1659, 3135]	3554	[1540, 3060]
204	[396, 397]	1321	[615, 1990]	2438	[3136, 1988]	3555	[1839, 1474]
205	[398, 399]	1322	[1991, 1992]	2439	[479, 3137]	3556	[3888, 1795]
206	[400, 401]	1323	[1993, 1994]	2440	[1825, 3138]	3557	[3317, 1623]
207	[402, 403]	1324	[1769, 179]	2441	[754, 3109]	3558	[3889, 1729]
208	[404, 405]	1325	[488, 1995]	2442	[3139, 739]	3559	[2033, 3890]
209	[406, 407]	1326	[1996, 1872]	2443	[3140, 3141]	3560	[1680, 1798]
210	[408, 409]	1327	[1997, 701]	2444	[3142, 207]	3561	[3891, 661]
211	[410, 411]	1328	[1935, 1998]	2445	[2063, 3143]	3562	[3892, 1992]
212	[412, 413]	1329	[244, 1643]	2446	[1804, 3088]	3563	[1748, 536]
213	[414, 415]	1330	[1999, 1563]	2447	[1815, 639]	3564	[3065, 1638]
214	[416, 417]	1331	[2000, 240]	2448	[1917, 831]	3565	[3844, 1473]
215	[418, 419]	1332	[586, 1519]	2449	[568, 144]	3566	[3246, 3336]
216	[420, 421]	1333	[1489, 208]	2450	[3144, 1905]	3567	[1754, 1863]
217	[422, 423]	1334	[2001, 1625]	2451	[3145, 1689]	3568	[3891, 62]
218	[424, 425]	1335	[2002, 691]	2452	[3146, 3147]	3569	[3893, 3890]
219	[426, 427]	1336	[1662, 165]	2453	[1754, 3148]	3570	[3894, 744]
220	[428, 332]	1337	[193, 767]	2454	[2988, 2024]	3571	[3895, 1696]
221	[66, 429]	1338	[139, 1622]	2455	[1993, 1862]	3572	[1957, 1619]
222	[430, 431]	1339	[1786, 1891]	2456	[2968, 1795]	3573	[217, 1586]
223	[432, 285]	1340	[2003, 1694]	2457	[1930, 2019]	3574	[3896, 834]
224	[433, 434]	1341	[2004, 2005]	2458	[214, 1983]	3575	[3897, 588]
225	[435, 436]	1342	[2006, 1541]	2459	[619, 231]	3576	[3898, 1727]
226	[437, 438]	1343	[2007, 2008]	2460	[1575, 666]	3577	[3212, 3263]
227	[439, 73]	1344	[1832, 638]	2461	[818, 1902]	3578	[3204, 1729]
228	[440, 441]	1345	[2009, 1461]	2462	[525, 3149]	3579	[1774, 1512]
229	[442, 443]	1346	[2010, 2011]	2463	[1847, 816]	3580	[3899, 1592]
230	[444, 445]	1347	[2012, 1554]	2464	[1645, 769]	3581	[557, 3118]
231	[446, 447]	1348	[597, 12]	2465	[146, 179]	3582	[3900, 2088]
232	[448, 449]	1349	[1570, 2013]	2466	[3027, 3150]	3583	[3901, 3860]
233	[450, 451]	1350	[794, 644]	2467	[3137, 548]	3584	[3902, 728]
234	[452, 453]	1351	[2014, 716]	2468	[535, 710]	3585	[3903, 633]
235	[454, 455]	1352	[1625, 628]	2469	[3151, 223]	3586	[3298, 3271]
236	[456, 457]	1353	[2015, 2016]	2470	[3152, 230]	3587	[1724, 1647]

237	[458, 459]	1354	[685, 1639]	2471	[3153, 2041]	3588	[3904, 3905]
238	[460, 461]	1355	[1686, 2017]	2472	[2990, 3154]	3589	[1649, 1802]
239	[341, 462]	1356	[830, 2018]	2473	[56, 830]	3590	[3880, 1497]
240	[323, 463]	1357	[1866, 2019]	2474	[3155, 1633]	3591	[3225, 1804]
241	[464, 465]	1358	[1841, 2020]	2475	[3156, 1889]	3592	[2978, 1474]
242	[466, 467]	1359	[1927, 1745]	2476	[3157, 2005]	3593	[3906, 1902]
243	[468, 469]	1360	[1946, 1811]	2477	[3129, 1860]	3594	[3907, 2050]
244	[470, 471]	1361	[489, 2021]	2478	[2085, 1851]	3595	[3908, 540]
245	[472, 450]	1362	[1461, 1831]	2479	[3158, 640]	3596	[3909, 1683]
246	[473, 474]	1363	[1831, 637]	2480	[1739, 683]	3597	[3910, 661]
247	[475, 476]	1364	[814, 2022]	2481	[734, 1658]	3598	[3911, 34]
248	[477, 478]	1365	[1996, 2023]	2482	[1995, 623]	3599	[3912, 742]
249	[479, 480]	1366	[1756, 1696]	2483	[1668, 1871]	3600	[3913, 215]
250	[146, 481]	1367	[1661, 164]	2484	[530, 3159]	3601	[3825, 739]
251	[482, 483]	1368	[1532, 2024]	2485	[3160, 2065]	3602	[3914, 1605]
252	[484, 485]	1369	[1750, 201]	2486	[3161, 590]	3603	[2007, 3807]
253	[231, 13]	1370	[2025, 1564]	2487	[3162, 234]	3604	[584, 1578]
254	[486, 487]	1371	[2026, 2027]	2488	[1818, 3153]	3605	[3900, 626]
255	[488, 489]	1372	[2028, 1759]	2489	[476, 2020]	3606	[1780, 648]
256	[490, 491]	1373	[1956, 1618]	2490	[504, 1920]	3607	[2003, 1941]
257	[492, 493]	1374	[1912, 1930]	2491	[687, 1664]	3608	[3873, 225]
258	[494, 495]	1375	[2029, 545]	2492	[1889, 1798]	3609	[3876, 219]
259	[496, 497]	1376	[225, 2030]	2493	[1762, 668]	3610	[3199, 185]
260	[498, 499]	1377	[2031, 1793]	2494	[529, 1845]	3611	[3915, 218]
261	[500, 501]	1378	[2032, 226]	2495	[188, 2056]	3612	[3916, 3137]
262	[502, 503]	1379	[2033, 2034]	2496	[3042, 1495]	3613	[3917, 42]
263	[504, 505]	1380	[133, 2035]	2497	[1694, 3064]	3614	[1622, 1890]
264	[163, 506]	1381	[192, 766]	2498	[1678, 3163]	3615	[1518, 1675]
265	[507, 508]	1382	[56, 219]	2499	[502, 1755]	3616	[3918, 1765]
266	[509, 510]	1383	[2036, 560]	2500	[1803, 1875]	3617	[1892, 3919]
267	[511, 512]	1384	[2037, 1526]	2501	[1603, 1799]	3618	[648, 2985]
268	[513, 514]	1385	[2038, 1735]	2502	[1496, 1962]	3619	[1987, 3163]
269	[515, 516]	1386	[1868, 1805]	2503	[1841, 1793]	3620	[3829, 820]
270	[517, 518]	1387	[2039, 183]	2504	[1655, 529]	3621	[1923, 3166]
271	[519, 520]	1388	[587, 1666]	2505	[809, 188]	3622	[3093, 830]
272	[521, 522]	1389	[1972, 2040]	2506	[3164, 3165]	3623	[825, 1818]
273	[523, 524]	1390	[2041, 1966]	2507	[3146, 169]	3624	[3920, 1939]
274	[525, 526]	1391	[2042, 2043]	2508	[2970, 1831]	3625	[3320, 682]
275	[527, 528]	1392	[1980, 1731]	2509	[1855, 3166]	3626	[3921, 1470]
276	[529, 530]	1393	[2044, 1546]	2510	[3095, 714]	3627	[3922, 1738]
277	[531, 532]	1394	[2045, 735]	2511	[1693, 1941]	3628	[3115, 2081]
278	[533, 534]	1395	[2046, 1552]	2512	[560, 2997]	3629	[3923, 3292]
279	[535, 536]	1396	[1676, 2025]	2513	[1900, 539]	3630	[1990, 3260]
280	[537, 518]	1397	[1474, 711]	2514	[1513, 1486]	3631	[2998, 622]

281	[538, 539]	1398	[2047, 655]	2515	[694, 37]	3632	[3134, 1504]
282	[540, 541]	1399	[2048, 1722]	2516	[150, 2030]	3633	[3838, 2965]
283	[542, 543]	1400	[478, 1768]	2517	[1695, 1757]	3634	[1977, 1995]
284	[544, 545]	1401	[1667, 551]	2518	[1926, 1744]	3635	[2986, 478]
285	[546, 547]	1402	[703, 787]	2519	[3167, 1655]	3636	[2948, 617]
286	[548, 549]	1403	[2049, 2050]	2520	[1845, 3159]	3637	[3924, 140]
287	[550, 551]	1404	[821, 1831]	2521	[3058, 524]	3638	[3311, 3242]
288	[243, 552]	1405	[1666, 2051]	2522	[634, 3149]	3639	[1481, 1971]
289	[540, 553]	1406	[1933, 1711]	2523	[3168, 1796]	3640	[1690, 3925]
290	[554, 555]	1407	[2052, 2053]	2524	[3169, 660]	3641	[201, 173]
291	[556, 557]	1408	[2054, 525]	2525	[3170, 1883]	3642	[3926, 1663]
292	[558, 559]	1409	[2055, 1847]	2526	[745, 578]	3643	[58, 1515]
293	[560, 561]	1410	[810, 2056]	2527	[3038, 732]	3644	[3927, 161]
294	[562, 563]	1411	[1534, 2057]	2528	[582, 3171]	3645	[3928, 3227]
295	[564, 565]	1412	[2025, 2058]	2529	[731, 1554]	3646	[2982, 1611]
296	[245, 566]	1413	[54, 2059]	2530	[3172, 1954]	3647	[3197, 3307]
297	[567, 568]	1414	[1498, 653]	2531	[3173, 2085]	3648	[3273, 1889]
298	[569, 570]	1415	[1752, 655]	2532	[3174, 3175]	3649	[3929, 1723]
299	[571, 572]	1416	[2060, 2013]	2533	[1773, 806]	3650	[3930, 673]
300	[573, 574]	1417	[2061, 2062]	2534	[748, 1762]	3651	[3931, 159]
301	[575, 576]	1418	[2063, 2064]	2535	[773, 1577]	3652	[3895, 1757]
302	[577, 578]	1419	[1900, 2065]	2536	[219, 3176]	3653	[3932, 489]
303	[579, 580]	1420	[1781, 649]	2537	[794, 803]	3654	[3243, 3933]
304	[580, 581]	1421	[129, 2066]	2538	[3177, 174]	3655	[193, 2053]
305	[582, 43]	1422	[1953, 1547]	2539	[3178, 1786]	3656	[206, 3934]
306	[239, 583]	1423	[2067, 1767]	2540	[1711, 794]	3657	[2046, 1939]
307	[584, 238]	1424	[2068, 212]	2541	[590, 1551]	3658	[1779, 2078]
308	[585, 586]	1425	[2069, 2070]	2542	[1967, 1697]	3659	[1961, 1497]
309	[587, 588]	1426	[1593, 2071]	2543	[1809, 3171]	3660	[3935, 2988]
310	[589, 590]	1427	[1895, 2072]	2544	[828, 211]	3661	[3936, 1565]
311	[591, 200]	1428	[2073, 50]	2545	[225, 3179]	3662	[1499, 1738]
312	[592, 593]	1429	[816, 1566]	2546	[764, 3012]	3663	[3077, 2978]
313	[594, 485]	1430	[573, 2074]	2547	[3180, 241]	3664	[3817, 483]
314	[595, 596]	1431	[57, 137]	2548	[3181, 3101]	3665	[3937, 36]
315	[597, 598]	1432	[536, 2075]	2549	[3182, 1633]	3666	[3938, 609]
316	[599, 600]	1433	[1461, 1629]	2550	[3183, 752]	3667	[3818, 2954]
317	[601, 602]	1434	[819, 1579]	2551	[3103, 182]	3668	[3939, 3086]
318	[603, 604]	1435	[682, 1536]	2552	[3184, 1912]	3669	[3940, 3296]
319	[481, 245]	1436	[583, 773]	2553	[3185, 1465]	3670	[3207, 1846]
320	[605, 606]	1437	[1832, 819]	2554	[571, 13]	3671	[2044, 1953]
321	[607, 499]	1438	[2076, 765]	2555	[1881, 3186]	3672	[1763, 38]
322	[608, 609]	1439	[2077, 174]	2556	[1531, 1911]	3673	[3247, 3941]
323	[610, 611]	1440	[59, 2078]	2557	[3158, 1728]	3674	[3188, 135]
324	[612, 130]	1441	[2079, 695]	2558	[1962, 2977]	3675	[3230, 584]

325	[613, 614]	1442	[1919, 610]	2559	[3187, 707]	3676	[3839, 1648]
326	[615, 616]	1443	[2080, 2081]	2560	[721, 647]	3677	[3942, 1861]
327	[550, 617]	1444	[2082, 1908]	2561	[3188, 743]	3678	[3939, 1545]
328	[618, 499]	1445	[40, 1754]	2562	[824, 216]	3679	[3943, 1581]
329	[619, 571]	1446	[1853, 2083]	2563	[3189, 1928]	3680	[3305, 3135]
330	[620, 570]	1447	[2084, 1771]	2564	[3190, 1761]	3681	[3944, 1465]
331	[621, 622]	1448	[2085, 47]	2565	[3191, 3112]	3682	[3110, 1941]
332	[489, 623]	1449	[2086, 1714]	2566	[613, 3020]	3683	[3945, 59]
333	[498, 624]	1450	[2087, 522]	2567	[3192, 1783]	3684	[3824, 2027]
334	[625, 626]	1451	[538, 2065]	2568	[1814, 1930]	3685	[3946, 1995]
335	[627, 628]	1452	[625, 2088]	2569	[3029, 1771]	3686	[3947, 3086]
336	[515, 629]	1453	[555, 1557]	2570	[1924, 483]	3687	[1867, 1683]
337	[630, 631]	1454	[1618, 2089]	2571	[3138, 2091]	3688	[2997, 1894]
338	[632, 633]	1455	[1837, 2090]	2572	[2049, 3193]	3689	[3902, 784]
339	[634, 526]	1456	[1805, 1736]	2573	[638, 820]	3690	[1626, 1491]
340	[635, 636]	1457	[2012, 593]	2574	[1973, 1589]	3691	[3948, 1860]
341	[637, 638]	1458	[1826, 2091]	2575	[3094, 1501]	3692	[782, 3813]
342	[240, 639]	1459	[2092, 1631]	2576	[1736, 3194]	3693	[3842, 3088]
343	[640, 641]	1460	[1437, 2093]	2577	[1802, 1675]	3694	[3855, 663]
344	[642, 643]	1461	[2094, 1136]	2578	[698, 495]	3695	[3949, 739]
345	[644, 645]	1462	[2095, 1006]	2579	[3195, 1833]	3696	[3926, 687]
346	[646, 647]	1463	[2096, 2097]	2580	[3196, 3017]	3697	[1906, 532]
347	[648, 649]	1464	[2098, 2099]	2581	[3197, 1466]	3698	[3950, 60]
348	[650, 586]	1465	[2100, 2101]	2582	[1700, 516]	3699	[3918, 3246]
349	[651, 652]	1466	[2102, 2103]	2583	[1636, 2027]	3700	[3865, 1502]
350	[653, 654]	1467	[2104, 337]	2584	[1556, 1744]	3701	[3951, 3952]
351	[655, 656]	1468	[2105, 2106]	2585	[709, 536]	3702	[3953, 3227]
352	[657, 180]	1469	[882, 2107]	2586	[2024, 1677]	3703	[3954, 1612]
353	[658, 659]	1470	[72, 2108]	2587	[744, 697]	3704	[3182, 189]
354	[660, 661]	1471	[2109, 2110]	2588	[1732, 683]	3705	[3849, 48]
355	[662, 663]	1472	[2111, 2112]	2589	[3132, 568]	3706	[3955, 1718]
356	[664, 154]	1473	[2113, 2114]	2590	[1899, 538]	3707	[500, 702]
357	[521, 665]	1474	[2115, 1174]	2591	[789, 740]	3708	[640, 543]
358	[666, 520]	1475	[2116, 1064]	2592	[3082, 3198]	3709	[3956, 2058]
359	[546, 667]	1476	[2117, 2118]	2593	[590, 2046]	3710	[3957, 1803]
360	[58, 138]	1477	[2119, 2120]	2594	[3030, 1736]	3711	[3886, 3885]
361	[222, 198]	1478	[2121, 2122]	2595	[3199, 1591]	3712	[1713, 1601]
362	[668, 669]	1479	[2123, 1079]	2596	[3200, 794]	3713	[3205, 209]
363	[210, 630]	1480	[2124, 2125]	2597	[3201, 604]	3714	[3958, 1578]
364	[670, 671]	1481	[2126, 946]	2598	[3152, 619]	3715	[3861, 638]
365	[672, 673]	1482	[2127, 2128]	2599	[2945, 1851]	3716	[3062, 3321]
366	[674, 675]	1483	[362, 2129]	2600	[588, 2051]	3717	[2966, 2997]
367	[676, 677]	1484	[1415, 350]	2601	[3202, 3203]	3718	[3921, 1480]
368	[678, 679]	1485	[2130, 2131]	2602	[3204, 3068]	3719	[3278, 2997]

369	[680, 681]	1486	[2132, 2133]	2603	[501, 537]	3720	[1468, 552]
370	[682, 520]	1487	[2134, 1248]	2604	[695, 38]	3721	[3959, 1490]
371	[197, 683]	1488	[2135, 404]	2605	[180, 246]	3722	[3960, 1838]
372	[684, 685]	1489	[2136, 901]	2606	[3205, 508]	3723	[1522, 3961]
373	[686, 687]	1490	[2137, 2138]	2607	[3206, 1595]	3724	[1957, 2089]
374	[688, 689]	1491	[1073, 2139]	2608	[551, 696]	3725	[3913, 1983]
375	[690, 691]	1492	[1069, 2140]	2609	[3137, 1981]	3726	[3946, 489]
376	[692, 693]	1493	[80, 2141]	2610	[3207, 2075]	3727	[3962, 130]
377	[694, 695]	1494	[2142, 2143]	2611	[3099, 1700]	3728	[3963, 1920]
378	[617, 696]	1495	[2144, 2145]	2612	[1548, 1524]	3729	[1932, 1512]
379	[136, 697]	1496	[2146, 2147]	2613	[3208, 3131]	3730	[3964, 130]
380	[698, 509]	1497	[2148, 2149]	2614	[1937, 3209]	3731	[3937, 1469]
381	[699, 146]	1498	[2150, 1167]	2615	[1574, 3210]	3732	[3965, 1693]
382	[700, 701]	1499	[2151, 2152]	2616	[3015, 3211]	3733	[1582, 705]
383	[702, 517]	1500	[2153, 2154]	2617	[1605, 1731]	3734	[45, 1968]
384	[703, 704]	1501	[2155, 959]	2618	[819, 820]	3735	[3342, 1830]
385	[705, 706]	1502	[2156, 957]	2619	[1536, 817]	3736	[3966, 1556]
386	[34, 707]	1503	[2157, 2158]	2620	[817, 1576]	3737	[3916, 480]
387	[172, 708]	1504	[2159, 65]	2621	[536, 1846]	3738	[3967, 1709]
388	[709, 710]	1505	[2160, 2161]	2622	[3177, 198]	3739	[1682, 660]
389	[685, 711]	1506	[2162, 1142]	2623	[3156, 1680]	3740	[591, 1614]
390	[712, 713]	1507	[2163, 2164]	2624	[2026, 1637]	3741	[3848, 1597]
391	[714, 693]	1508	[2165, 2166]	2625	[3212, 1965]	3742	[3957, 3225]
392	[715, 716]	1509	[2167, 2168]	2626	[3213, 1521]	3743	[3968, 195]
393	[717, 718]	1510	[2169, 2170]	2627	[609, 765]	3744	[3969, 758]
394	[719, 720]	1511	[2171, 2172]	2628	[3153, 1587]	3745	[3322, 3970]
395	[721, 141]	1512	[2173, 2174]	2629	[3214, 666]	3746	[3971, 1569]
396	[722, 723]	1513	[2175, 2176]	2630	[3215, 3216]	3747	[3893, 2034]
397	[724, 725]	1514	[1448, 2177]	2631	[2004, 3217]	3748	[3308, 3175]
398	[159, 726]	1515	[2178, 2179]	2632	[486, 1719]	3749	[1974, 2977]
399	[727, 728]	1516	[2180, 2181]	2633	[3106, 227]	3750	[1700, 629]
400	[729, 730]	1517	[1011, 2182]	2634	[543, 3024]	3751	[3972, 1860]
401	[731, 593]	1518	[2183, 2184]	2635	[160, 3067]	3752	[3343, 2957]
402	[732, 534]	1519	[1041, 921]	2636	[732, 3173]	3753	[3973, 2954]
403	[733, 728]	1520	[2185, 261]	2637	[3072, 3218]	3754	[2077, 198]
404	[734, 735]	1521	[993, 2186]	2638	[1903, 2057]	3755	[3974, 517]
405	[736, 675]	1522	[2187, 2188]	2639	[820, 1461]	3756	[3975, 2083]
406	[164, 737]	1523	[926, 2189]	2640	[757, 1713]	3757	[801, 3812]
407	[687, 738]	1524	[2190, 2159]	2641	[3191, 691]	3758	[2962, 221]
408	[554, 739]	1525	[2143, 2191]	2642	[3124, 2957]	3759	[2067, 175]
409	[740, 602]	1526	[2147, 2192]	2643	[3219, 1525]	3760	[3820, 616]
410	[741, 742]	1527	[2193, 2194]	2644	[3220, 226]	3761	[1703, 1685]
411	[743, 744]	1528	[2195, 2196]	2645	[3034, 3221]	3762	[3976, 2074]
412	[745, 746]	1529	[2197, 2198]	2646	[1527, 781]	3763	[3870, 3952]

413	[47, 747]	1530	[2199, 2200]	2647	[3222, 559]	3764	[757, 653]
414	[748, 749]	1531	[1242, 382]	2648	[686, 1663]	3765	[3977, 1890]
415	[750, 503]	1532	[2201, 2202]	2649	[3223, 1508]	3766	[3044, 3978]
416	[751, 752]	1533	[2203, 2204]	2650	[9, 486]	3767	[3979, 1489]
417	[753, 128]	1534	[2152, 2205]	2651	[1836, 498]	3768	[3980, 3209]
418	[754, 755]	1535	[2206, 2207]	2652	[646, 141]	3769	[1670, 3097]
419	[11, 598]	1536	[2208, 2209]	2653	[2952, 622]	3770	[3981, 757]
420	[756, 757]	1537	[2145, 2210]	2654	[2084, 1616]	3771	[3268, 1795]
421	[758, 759]	1538	[2211, 2212]	2655	[623, 1542]	3772	[3911, 194]
422	[181, 760]	1539	[1141, 2213]	2656	[1583, 2944]	3773	[3982, 1857]
423	[761, 762]	1540	[2214, 314]	2657	[3224, 3225]	3774	[3983, 2991]
424	[763, 764]	1541	[2215, 2216]	2658	[805, 1908]	3775	[3984, 704]
425	[765, 506]	1542	[2217, 2218]	2659	[3226, 3227]	3776	[3985, 588]
426	[766, 767]	1543	[2219, 2220]	2660	[3228, 1511]	3777	[3986, 501]
427	[768, 769]	1544	[2221, 466]	2661	[163, 3229]	3778	[39, 1710]
428	[672, 770]	1545	[859, 2222]	2662	[1608, 1579]	3779	[3109, 1879]
429	[132, 771]	1546	[2223, 2224]	2663	[3230, 1577]	3780	[3333, 3126]
430	[772, 773]	1547	[2225, 87]	2664	[527, 3141]	3781	[2023, 3071]
431	[155, 774]	1548	[2226, 2227]	2665	[2076, 163]	3782	[3906, 1575]
432	[775, 776]	1549	[2228, 2229]	2666	[3231, 1987]	3783	[3987, 1463]
433	[777, 778]	1550	[1326, 2230]	2667	[1713, 654]	3784	[3301, 1903]
434	[714, 45]	1551	[2231, 2232]	2668	[1504, 1569]	3785	[3988, 1871]
435	[779, 780]	1552	[1051, 2233]	2669	[1723, 223]	3786	[3989, 177]
436	[781, 530]	1553	[2176, 2093]	2670	[576, 3053]	3787	[3990, 1638]
437	[782, 783]	1554	[2234, 2235]	2671	[186, 2997]	3788	[2069, 1917]
438	[733, 784]	1555	[2236, 2237]	2672	[1472, 3232]	3789	[3326, 233]
439	[785, 149]	1556	[2238, 2239]	2673	[485, 754]	3790	[3983, 3154]
440	[786, 787]	1557	[2240, 2241]	2674	[1493, 3148]	3791	[3804, 3991]
441	[788, 714]	1558	[987, 2242]	2675	[219, 2018]	3792	[3992, 1464]
442	[789, 601]	1559	[2243, 1414]	2676	[1982, 215]	3793	[3993, 1768]
443	[790, 791]	1560	[2244, 955]	2677	[3233, 783]	3794	[3994, 2025]
444	[792, 40]	1561	[2245, 2246]	2678	[3192, 1475]	3795	[1531, 3811]
445	[793, 794]	1562	[1299, 2247]	2679	[3075, 1747]	3796	[3995, 3811]
446	[795, 796]	1563	[2248, 2249]	2680	[1833, 1741]	3797	[1851, 48]
447	[797, 798]	1564	[2250, 922]	2681	[3219, 835]	3798	[3996, 3020]
448	[799, 800]	1565	[2251, 2252]	2682	[1699, 515]	3799	[3864, 3163]
449	[801, 802]	1566	[2253, 2254]	2683	[3234, 1805]	3800	[3282, 688]
450	[803, 804]	1567	[2255, 257]	2684	[3235, 493]	3801	[3997, 1656]
451	[805, 546]	1568	[2256, 2257]	2685	[3009, 1953]	3802	[3164, 1529]
452	[569, 806]	1569	[2258, 2259]	2686	[658, 1751]	3803	[3998, 1149]
453	[628, 531]	1570	[2260, 2261]	2687	[1876, 553]	3804	[3999, 2729]
454	[807, 808]	1571	[2262, 363]	2688	[1997, 1884]	3805	[2876, 4000]
455	[809, 810]	1572	[2263, 2264]	2689	[1970, 1482]	3806	[4001, 2806]
456	[811, 783]	1573	[2265, 2266]	2690	[758, 1753]	3807	[356, 2305]

457	[812, 813]	1574	[1412, 2267]	2691	[2079, 37]	3808	[2269, 1037]
458	[814, 815]	1575	[2268, 2269]	2692	[2975, 1644]	3809	[1344, 2270]
459	[490, 816]	1576	[2270, 2271]	2693	[3236, 1724]	3810	[4002, 2483]
460	[817, 818]	1577	[1362, 2272]	2694	[3237, 3238]	3811	[1017, 2151]
461	[637, 819]	1578	[2158, 2273]	2695	[1714, 1576]	3812	[4003, 4004]
462	[820, 821]	1579	[2274, 2275]	2696	[3239, 2082]	3813	[2212, 4005]
463	[609, 163]	1580	[2276, 326]	2697	[830, 3176]	3814	[4006, 4007]
464	[822, 567]	1581	[2277, 2278]	2698	[3240, 3148]	3815	[2507, 4008]
465	[495, 823]	1582	[2279, 2280]	2699	[3241, 575]	3816	[1446, 2150]
466	[824, 825]	1583	[403, 2281]	2700	[3162, 1612]	3817	[4009, 4010]
467	[826, 827]	1584	[2282, 2283]	2701	[141, 3108]	3818	[4011, 1391]
468	[828, 630]	1585	[2284, 2285]	2702	[1913, 3242]	3819	[4012, 2526]
469	[829, 59]	1586	[1444, 2286]	2703	[1572, 655]	3820	[4013, 4014]
470	[218, 830]	1587	[423, 2287]	2704	[3243, 3244]	3821	[2499, 3592]
471	[201, 708]	1588	[868, 2198]	2705	[1731, 1635]	3822	[2850, 4015]
472	[831, 832]	1589	[2288, 2289]	2706	[1783, 1476]	3823	[4016, 2206]
473	[833, 771]	1590	[2290, 986]	2707	[228, 1597]	3824	[4017, 4018]
474	[834, 835]	1591	[2291, 2292]	2708	[825, 217]	3825	[4019, 2240]
475	[836, 837]	1592	[1036, 2293]	2709	[3245, 1498]	3826	[4020, 3416]
476	[838, 839]	1593	[2294, 2295]	2710	[3130, 32]	3827	[4021, 4022]
477	[840, 841]	1594	[2296, 2297]	2711	[552, 1603]	3828	[4023, 4024]
478	[842, 843]	1595	[1176, 2298]	2712	[242, 225]	3829	[1186, 3604]
479	[844, 845]	1596	[2299, 1325]	2713	[32, 1620]	3830	[4025, 407]
480	[846, 847]	1597	[2300, 2301]	2714	[3006, 3246]	3831	[4026, 3469]
481	[848, 849]	1598	[2302, 1227]	2715	[2029, 761]	3832	[4027, 2774]
482	[850, 851]	1599	[2303, 2304]	2716	[1989, 762]	3833	[2363, 4028]
483	[852, 853]	1600	[2305, 329]	2717	[3247, 3248]	3834	[4029, 4030]
484	[854, 855]	1601	[2252, 2306]	2718	[1917, 3096]	3835	[4031, 3631]
485	[856, 857]	1602	[1376, 1283]	2719	[1887, 1625]	3836	[2459, 2615]
486	[858, 859]	1603	[2307, 2308]	2720	[1542, 607]	3837	[4032, 2731]
487	[20, 860]	1604	[2309, 2310]	2721	[1568, 132]	3838	[4033, 4034]
488	[861, 862]	1605	[74, 2311]	2722	[3131, 220]	3839	[4035, 1272]
489	[863, 864]	1606	[2312, 2313]	2723	[1725, 825]	3840	[4036, 322]
490	[865, 866]	1607	[2314, 344]	2724	[3249, 1615]	3841	[4037, 2686]
491	[867, 868]	1608	[2315, 2094]	2725	[2988, 1533]	3842	[3652, 2756]
492	[869, 870]	1609	[2316, 2317]	2726	[1521, 134]	3843	[4038, 4039]
493	[871, 872]	1610	[2120, 2121]	2727	[2047, 1573]	3844	[4040, 2201]
494	[873, 874]	1611	[379, 2318]	2728	[3250, 643]	3845	[4041, 4042]
495	[875, 876]	1612	[2319, 908]	2729	[3196, 1808]	3846	[4043, 4044]
496	[877, 878]	1613	[2320, 2321]	2730	[2954, 1632]	3847	[4045, 1457]
497	[879, 880]	1614	[2322, 1357]	2731	[3091, 3251]	3848	[4046, 2527]
498	[881, 882]	1615	[2323, 2324]	2732	[3252, 606]	3849	[474, 1122]
499	[883, 884]	1616	[2325, 2326]	2733	[3253, 1584]	3850	[4047, 1322]
500	[885, 886]	1617	[2327, 2328]	2734	[1797, 1681]	3851	[2604, 415]

501	[887, 888]	1618	[2329, 21]	2735	[1740, 494]	3852	[4048, 2674]
502	[889, 890]	1619	[2330, 371]	2736	[1951, 809]	3853	[4049, 982]
503	[891, 892]	1620	[64, 2331]	2737	[1801, 750]	3854	[4050, 1430]
504	[893, 894]	1621	[70, 1074]	2738	[1795, 2040]	3855	[4051, 4052]
505	[895, 896]	1622	[2332, 2333]	2739	[3254, 157]	3856	[4053, 4054]
506	[897, 898]	1623	[272, 1037]	2740	[3255, 3098]	3857	[4055, 4056]
507	[899, 900]	1624	[2334, 2335]	2741	[1848, 3165]	3858	[4057, 4058]
508	[901, 902]	1625	[2336, 943]	2742	[1753, 1876]	3859	[1288, 4059]
509	[903, 904]	1626	[1389, 1405]	2743	[1625, 8]	3860	[2285, 4060]
510	[874, 905]	1627	[2337, 2338]	2744	[3256, 732]	3861	[1137, 3425]
511	[906, 907]	1628	[1039, 2339]	2745	[3257, 1930]	3862	[1439, 2634]
512	[908, 909]	1629	[2275, 2340]	2746	[3052, 1601]	3863	[4061, 1010]
513	[910, 865]	1630	[2341, 2342]	2747	[202, 3022]	3864	[4062, 1303]
514	[911, 912]	1631	[1043, 2343]	2748	[3258, 2062]	3865	[4063, 4064]
515	[913, 914]	1632	[2344, 2345]	2749	[170, 3259]	3866	[4065, 4066]
516	[915, 916]	1633	[2346, 2347]	2750	[616, 3260]	3867	[4067, 4068]
517	[917, 918]	1634	[2348, 2349]	2751	[150, 3179]	3868	[4069, 4070]
518	[919, 920]	1635	[2278, 2350]	2752	[2956, 3125]	3869	[2756, 2282]
519	[921, 922]	1636	[2351, 255]	2753	[778, 1790]	3870	[4071, 4072]
520	[923, 924]	1637	[1183, 2352]	2754	[1877, 3261]	3871	[2451, 4073]
521	[925, 926]	1638	[2353, 101]	2755	[200, 768]	3872	[4074, 4075]
522	[927, 928]	1639	[1219, 2354]	2756	[513, 2055]	3873	[2654, 928]
523	[929, 930]	1640	[2355, 1293]	2757	[3262, 3263]	3874	[4076, 4077]
524	[931, 932]	1641	[2356, 2169]	2758	[3264, 153]	3875	[4078, 2517]
525	[933, 934]	1642	[2357, 2150]	2759	[3265, 503]	3876	[4079, 2751]
526	[935, 936]	1643	[469, 2358]	2760	[2038, 1782]	3877	[4080, 4081]
527	[937, 437]	1644	[2359, 2360]	2761	[1674, 1809]	3878	[4082, 4083]
528	[938, 373]	1645	[387, 1180]	2762	[2042, 3266]	3879	[4084, 4085]
529	[939, 940]	1646	[2361, 280]	2763	[2037, 2977]	3880	[4086, 4087]
530	[941, 942]	1647	[2362, 2363]	2764	[3267, 3035]	3881	[4088, 4089]
531	[943, 944]	1648	[2364, 306]	2765	[1918, 743]	3882	[4090, 4091]
532	[18, 945]	1649	[2365, 2366]	2766	[3268, 1972]	3883	[4092, 4093]
533	[946, 947]	1650	[2367, 2368]	2767	[2967, 674]	3884	[4094, 1402]
534	[948, 95]	1651	[415, 2156]	2768	[3269, 505]	3885	[1192, 4095]
535	[949, 950]	1652	[2369, 375]	2769	[3270, 1913]	3886	[4096, 3664]
536	[951, 952]	1653	[372, 1353]	2770	[3224, 1803]	3887	[2893, 3363]
537	[953, 954]	1654	[276, 2370]	2771	[1722, 218]	3888	[4097, 2572]
538	[955, 956]	1655	[2371, 2372]	2772	[827, 3271]	3889	[4098, 2479]
539	[957, 958]	1656	[872, 2373]	2773	[3173, 2945]	3890	[4099, 4100]
540	[959, 960]	1657	[2374, 923]	2774	[3272, 1914]	3891	[1228, 2603]
541	[961, 962]	1658	[2283, 458]	2775	[3273, 1680]	3892	[4101, 910]
542	[963, 964]	1659	[2375, 2376]	2776	[3274, 1788]	3893	[4102, 4103]
543	[965, 966]	1660	[2377, 2378]	2777	[1849, 3275]	3894	[4104, 2545]
544	[967, 968]	1661	[2379, 2380]	2778	[2960, 1896]	3895	[4105, 2542]

545	[331, 969]	1662	[870, 2381]	2779	[3276, 1515]	3896	[4106, 4107]
546	[970, 971]	1663	[2382, 470]	2780	[3277, 3137]	3897	[4108, 4109]
547	[972, 852]	1664	[459, 2383]	2781	[1492, 556]	3898	[4110, 4111]
548	[973, 974]	1665	[2384, 2385]	2782	[608, 162]	3899	[2489, 123]
549	[847, 975]	1666	[2386, 2387]	2783	[3278, 561]	3900	[4112, 1218]
550	[976, 977]	1667	[2388, 2389]	2784	[3279, 1751]	3901	[1236, 262]
551	[978, 979]	1668	[2390, 2391]	2785	[147, 3242]	3902	[2577, 2828]
552	[980, 981]	1669	[2392, 2393]	2786	[3280, 1614]	3903	[4113, 3766]
553	[982, 983]	1670	[2394, 2395]	2787	[3281, 1571]	3904	[4114, 273]
554	[984, 985]	1671	[2396, 2397]	2788	[3189, 1921]	3905	[3539, 1427]
555	[986, 987]	1672	[2398, 2399]	2789	[3282, 1548]	3906	[2864, 2191]
556	[988, 989]	1673	[2400, 1115]	2790	[1958, 3283]	3907	[4115, 4099]
557	[990, 991]	1674	[2401, 2402]	2791	[212, 3046]	3908	[284, 3524]
558	[992, 993]	1675	[1161, 2268]	2792	[32, 220]	3909	[4116, 2585]
559	[994, 995]	1676	[2403, 2404]	2793	[3284, 1678]	3910	[2866, 2136]
560	[996, 997]	1677	[1365, 2405]	2794	[1888, 1680]	3911	[918, 4073]
561	[998, 999]	1678	[2406, 2407]	2795	[199, 1614]	3912	[4117, 2777]
562	[1000, 1001]	1679	[2408, 2094]	2796	[1980, 1634]	3913	[4118, 4119]
563	[1002, 1003]	1680	[2409, 107]	2797	[3167, 1606]	3914	[4120, 2481]
564	[1004, 1005]	1681	[2410, 2411]	2798	[3240, 1863]	3915	[1190, 1451]
565	[1006, 1007]	1682	[2412, 125]	2799	[3285, 1803]	3916	[4121, 4122]
566	[349, 1008]	1683	[1163, 2413]	2800	[3286, 11]	3917	[4123, 105]
567	[1009, 281]	1684	[2414, 2415]	2801	[3287, 556]	3918	[4124, 4125]
568	[1010, 1011]	1685	[327, 2416]	2802	[151, 3288]	3919	[4126, 4127]
569	[1012, 1013]	1686	[2417, 2418]	2803	[3018, 2974]	3920	[4064, 1192]
570	[102, 1014]	1687	[2419, 2420]	2804	[182, 1819]	3921	[1122, 2321]
571	[1015, 29]	1688	[2421, 2346]	2805	[3289, 2059]	3922	[2501, 86]
572	[1016, 1017]	1689	[2422, 2423]	2806	[3290, 1584]	3923	[4128, 1020]
573	[1018, 1019]	1690	[2424, 2425]	2807	[534, 2085]	3924	[4129, 4130]
574	[1020, 1021]	1691	[1125, 2426]	2808	[1485, 797]	3925	[2636, 2772]
575	[1022, 1023]	1692	[2427, 2392]	2809	[3291, 61]	3926	[1093, 459]
576	[1024, 1025]	1693	[2428, 2429]	2810	[2995, 1822]	3927	[4131, 1447]
577	[1026, 1027]	1694	[2430, 2291]	2811	[51, 3292]	3928	[4132, 4133]
578	[1028, 406]	1695	[2431, 2432]	2812	[3225, 1875]	3929	[4134, 2472]
579	[1029, 1030]	1696	[2281, 2096]	2813	[533, 3173]	3930	[4135, 4136]
580	[1031, 1032]	1697	[2433, 2434]	2814	[3293, 233]	3931	[4137, 4138]
581	[1033, 1034]	1698	[2435, 2324]	2815	[1955, 798]	3932	[4139, 1109]
582	[1035, 1036]	1699	[2436, 915]	2816	[1761, 3036]	3933	[900, 2400]
583	[1037, 1038]	1700	[2437, 1182]	2817	[1922, 1576]	3934	[110, 4140]
584	[1038, 1039]	1701	[2438, 2439]	2818	[3294, 3119]	3935	[4141, 2203]
585	[1040, 1041]	1702	[2440, 2441]	2819	[580, 3085]	3936	[4142, 938]
586	[1042, 1043]	1703	[2442, 2394]	2820	[3295, 1808]	3937	[4143, 4144]
587	[1044, 1045]	1704	[2443, 2444]	2821	[813, 3019]	3938	[4145, 4146]
588	[1046, 1047]	1705	[2445, 2446]	2822	[1909, 3296]	3939	[4147, 4148]

589	[1048, 1049]	1706	[2241, 2447]	2823	[3001, 3053]	3940	[4149, 4150]
590	[1050, 1051]	1707	[2448, 2449]	2824	[3297, 1653]	3941	[4151, 4152]
591	[1052, 1053]	1708	[2450, 2451]	2825	[2989, 1824]	3942	[4153, 4154]
592	[1054, 1055]	1709	[2452, 2453]	2826	[3298, 3299]	3943	[4155, 994]
593	[1056, 1057]	1710	[2454, 2455]	2827	[1852, 2003]	3944	[4156, 3763]
594	[1058, 1059]	1711	[1294, 1410]	2828	[61, 661]	3945	[4157, 2925]
595	[1060, 1061]	1712	[2456, 2457]	2829	[2080, 575]	3946	[4158, 4159]
596	[1062, 1063]	1713	[2458, 2459]	2830	[1605, 1634]	3947	[4160, 3353]
597	[1064, 1065]	1714	[922, 2460]	2831	[1728, 543]	3948	[4161, 911]
598	[1066, 1067]	1715	[461, 2461]	2832	[3172, 814]	3949	[4162, 2219]
599	[1068, 1069]	1716	[2340, 2268]	2833	[2021, 1836]	3950	[2425, 2656]
600	[1070, 1071]	1717	[2462, 2463]	2834	[3092, 584]	3951	[4163, 3711]
601	[1072, 1073]	1718	[2464, 2465]	2835	[3300, 3121]	3952	[4164, 1255]
602	[1074, 1075]	1719	[2466, 2467]	2836	[3301, 1534]	3953	[4165, 4166]
603	[1076, 1077]	1720	[2468, 1151]	2837	[3302, 1655]	3954	[4167, 4168]
604	[1078, 1079]	1721	[2469, 113]	2838	[3155, 189]	3955	[4169, 4170]
605	[1080, 1078]	1722	[954, 426]	2839	[3178, 1973]	3956	[4171, 304]
606	[1081, 1082]	1723	[2470, 2471]	2840	[3303, 3059]	3957	[4172, 2672]
607	[1083, 1084]	1724	[2472, 2473]	2841	[1558, 3090]	3958	[2573, 341]
608	[1085, 318]	1725	[2474, 2475]	2842	[562, 2051]	3959	[1456, 1021]
609	[1086, 1087]	1726	[2476, 2388]	2843	[3304, 1893]	3960	[4173, 2532]
610	[1088, 1089]	1727	[1409, 2462]	2844	[827, 3299]	3961	[4174, 3487]
611	[1090, 1091]	1728	[2477, 2478]	2845	[2021, 1542]	3962	[4175, 316]
612	[1092, 1093]	1729	[2196, 1429]	2846	[3305, 1660]	3963	[4176, 4177]
613	[1094, 1095]	1730	[2479, 2480]	2847	[3306, 486]	3964	[4178, 1086]
614	[1096, 1097]	1731	[2481, 2482]	2848	[1465, 3307]	3965	[4179, 2430]
615	[1098, 1099]	1732	[945, 115]	2849	[3308, 3309]	3966	[4180, 2502]
616	[1100, 1101]	1733	[2483, 2484]	2850	[3310, 1946]	3967	[4181, 4182]
617	[1102, 1103]	1734	[2485, 2486]	2851	[46, 2960]	3968	[4183, 2913]
618	[1104, 73]	1735	[2487, 2488]	2852	[3311, 148]	3969	[4184, 1171]
619	[1105, 1016]	1736	[2297, 1128]	2853	[3312, 1936]	3970	[268, 933]
620	[1106, 354]	1737	[2415, 2489]	2854	[3213, 133]	3971	[88, 1315]
621	[1107, 1096]	1738	[2490, 2491]	2855	[3236, 223]	3972	[4185, 4186]
622	[1108, 16]	1739	[2492, 2493]	2856	[482, 1925]	3973	[4187, 4188]
623	[1109, 1110]	1740	[2494, 2495]	2857	[3313, 1556]	3974	[1270, 2463]
624	[1111, 1112]	1741	[2496, 2497]	2858	[1964, 3263]	3975	[1196, 3708]
625	[1113, 1114]	1742	[2498, 2499]	2859	[3171, 44]	3976	[4189, 1418]
626	[1115, 1116]	1743	[2500, 2501]	2860	[3314, 550]	3977	[3585, 1116]
627	[1117, 1118]	1744	[2502, 2503]	2861	[1729, 3102]	3978	[3520, 4190]
628	[1119, 1120]	1745	[2504, 2505]	2862	[692, 45]	3979	[4191, 4192]
629	[1121, 1122]	1746	[2506, 2507]	2863	[236, 2011]	3980	[4193, 2749]
630	[1123, 386]	1747	[383, 269]	2864	[1575, 682]	3981	[4194, 2458]
631	[1124, 1125]	1748	[2508, 2509]	2865	[3315, 3316]	3982	[4195, 4196]
632	[1126, 1127]	1749	[2510, 390]	2866	[1962, 1526]	3983	[4197, 2752]

633	[1128, 1129]	1750	[2511, 1257]	2867	[558, 167]	3984	[4198, 4199]
634	[1130, 1131]	1751	[2512, 2513]	2868	[759, 1876]	3985	[4200, 4201]
635	[1132, 1133]	1752	[2514, 1169]	2869	[523, 3059]	3986	[4202, 917]
636	[1134, 1135]	1753	[2515, 2516]	2870	[3293, 3120]	3987	[4203, 4204]
637	[1136, 1137]	1754	[2517, 2518]	2871	[788, 692]	3988	[4205, 69]
638	[1138, 1139]	1755	[2519, 2520]	2872	[1547, 582]	3989	[2558, 373]
639	[1140, 1141]	1756	[2521, 2171]	2873	[3317, 1890]	3990	[4206, 4207]
640	[1142, 1143]	1757	[2128, 2522]	2874	[3318, 1510]	3991	[974, 23]
641	[1144, 1145]	1758	[2523, 2197]	2875	[772, 1829]	3992	[4208, 3431]
642	[1146, 1147]	1759	[1328, 336]	2876	[1616, 2995]	3993	[3560, 2568]
643	[293, 1148]	1760	[2524, 2525]	2877	[3295, 3017]	3994	[4209, 2250]
644	[1149, 1150]	1761	[2526, 1207]	2878	[664, 2999]	3995	[3390, 2492]
645	[1151, 1152]	1762	[2527, 2528]	2879	[3061, 147]	3996	[4210, 2714]
646	[417, 1153]	1763	[2529, 1267]	2880	[3289, 2017]	3997	[4211, 2892]
647	[1154, 1155]	1764	[2530, 2531]	2881	[3319, 3074]	3998	[3904, 4212]
648	[1156, 1157]	1765	[2532, 2533]	2882	[1787, 210]	3999	[620, 806]
649	[1158, 1159]	1766	[2534, 2492]	2883	[2052, 767]	4000	[1587, 3049]
650	[1160, 1161]	1767	[431, 2535]	2884	[3320, 666]	4001	[3936, 497]
651	[1162, 1163]	1768	[2368, 2536]	2885	[2993, 3321]	4002	[4213, 530]
652	[1164, 402]	1769	[2537, 472]	2886	[3144, 1792]	4003	[3286, 597]
653	[1165, 1166]	1770	[2538, 2539]	2887	[3322, 3055]	4004	[2995, 826]
654	[1167, 473]	1771	[2439, 2540]	2888	[2061, 3323]	4005	[3246, 1766]
655	[1168, 1056]	1772	[1289, 2541]	2889	[3324, 764]	4006	[3857, 178]
656	[1169, 1170]	1773	[1008, 1339]	2890	[3325, 1469]	4007	[4214, 3198]
657	[1171, 473]	1774	[2542, 2543]	2891	[3326, 3120]	4008	[54, 2017]
658	[1172, 1173]	1775	[2544, 873]	2892	[690, 3112]	4009	[3821, 1884]
659	[1174, 1168]	1776	[2545, 2546]	2893	[600, 3287]	4010	[4215, 3248]
660	[1175, 1176]	1777	[2547, 2548]	2894	[1929, 586]	4011	[3914, 1980]
661	[1177, 1178]	1778	[2549, 1060]	2895	[3327, 132]	4012	[4216, 1727]
662	[1179, 1081]	1779	[2550, 2462]	2896	[2947, 1563]	4013	[4217, 176]
663	[1180, 1181]	1780	[2551, 2552]	2897	[3069, 3296]	4014	[4218, 684]
664	[1182, 1183]	1781	[1077, 1390]	2898	[3328, 1583]	4015	[1543, 1828]
665	[909, 1184]	1782	[2553, 2554]	2899	[826, 3298]	4016	[4219, 183]
666	[1185, 1186]	1783	[2555, 2556]	2900	[3329, 713]	4017	[4220, 677]
667	[1187, 1188]	1784	[2557, 2558]	2901	[1861, 1994]	4018	[4221, 1860]
668	[1189, 1190]	1785	[2559, 2288]	2902	[1866, 1931]	4019	[4222, 1486]
669	[1191, 1192]	1786	[2118, 2560]	2903	[3208, 32]	4020	[4223, 1819]
670	[1193, 1194]	1787	[2561, 410]	2904	[3330, 3331]	4021	[3310, 1810]
671	[1195, 1196]	1788	[2562, 1124]	2905	[3026, 240]	4022	[217, 3153]
672	[1197, 1198]	1789	[2563, 2564]	2906	[1920, 1928]	4023	[3234, 1684]
673	[1199, 1134]	1790	[2103, 2512]	2907	[617, 3011]	4024	[4224, 1905]
674	[1200, 1062]	1791	[2565, 2566]	2908	[3332, 3086]	4025	[1865, 695]
675	[1201, 1202]	1792	[2567, 2568]	2909	[3333, 1743]	4026	[3972, 513]
676	[1203, 1204]	1793	[837, 1362]	2910	[3127, 3118]	4027	[4225, 3049]

677	[1205, 1206]	1794	[2569, 2417]	2911	[3334, 233]	4028	[3090, 1707]
678	[1207, 1208]	1795	[2570, 2571]	2912	[600, 1492]	4029	[3872, 3018]
679	[1209, 1210]	1796	[2572, 2573]	2913	[1663, 738]	4030	[726, 3109]
680	[1211, 1212]	1797	[2574, 327]	2914	[3133, 524]	4031	[3901, 3210]
681	[443, 1213]	1798	[2575, 2576]	2915	[3000, 750]	4032	[3809, 817]
682	[1214, 1215]	1799	[981, 2464]	2916	[3335, 1904]	4033	[3971, 1505]
683	[1216, 1217]	1800	[2308, 2577]	2917	[712, 3203]	4034	[3892, 3827]
684	[1218, 1219]	1801	[2578, 2579]	2918	[1765, 3336]	4035	[4226, 725]
685	[1220, 1221]	1802	[2580, 2581]	2919	[3145, 3337]	4036	[4227, 610]
686	[907, 1222]	1803	[1247, 2582]	2920	[3096, 832]	4037	[3853, 1876]
687	[1223, 1224]	1804	[2583, 2584]	2921	[3338, 3339]	4038	[4228, 710]
688	[1225, 1226]	1805	[2585, 2586]	2922	[2953, 216]	4039	[3291, 660]
689	[1227, 1228]	1806	[2413, 2587]	2923	[1628, 1831]	4040	[3157, 3217]
690	[1229, 1230]	1807	[2588, 2251]	2924	[3340, 1610]	4041	[3898, 1859]
691	[1231, 1232]	1808	[282, 2589]	2925	[1462, 3341]	4042	[2028, 3076]
692	[1233, 1234]	1809	[2224, 2590]	2926	[3342, 157]	4043	[4229, 3071]
693	[1235, 1236]	1810	[413, 2591]	2927	[1471, 732]	4044	[3183, 3084]
694	[1237, 1238]	1811	[2592, 2593]	2928	[1990, 3123]	4045	[3995, 1911]
695	[1239, 5]	1812	[2594, 2595]	2929	[822, 3132]	4046	[4230, 2965]
696	[1240, 1241]	1813	[2596, 2597]	2930	[667, 2981]	4047	[4231, 611]
697	[264, 1242]	1814	[2598, 2599]	2931	[2039, 764]	4048	[3847, 4232]
698	[1243, 1244]	1815	[2600, 1022]	2932	[1812, 1913]	4049	[2949, 189]
699	[1245, 348]	1816	[2601, 2226]	2933	[2070, 831]	4050	[4233, 57]
700	[1246, 1247]	1817	[2602, 2603]	2934	[3343, 3125]	4051	[4234, 2959]
701	[1248, 1205]	1818	[1442, 2604]	2935	[3344, 1540]	4052	[3304, 3919]
702	[313, 919]	1819	[353, 2605]	2936	[234, 1827]	4053	[4235, 1841]
703	[1249, 1250]	1820	[2606, 2607]	2937	[2987, 1532]	4054	[4236, 750]
704	[1251, 1035]	1821	[2608, 867]	2938	[176, 1969]	4055	[4237, 230]
705	[321, 1252]	1822	[2540, 2609]	2939	[3041, 1940]	4056	[3249, 512]
706	[1253, 1254]	1823	[2610, 2611]	2940	[3345, 3346]	4057	[4238, 604]
707	[1255, 1256]	1824	[1296, 2612]	2941	[2943, 3275]	4058	[4239, 3259]
708	[1257, 1258]	1825	[2613, 2614]	2942	[3319, 580]	4059	[1510, 3218]
709	[1259, 1260]	1826	[2615, 2300]	2943	[3347, 3348]	4060	[743, 136]
710	[1261, 1262]	1827	[2616, 2617]	2944	[3349, 2718]	4061	[4240, 1533]
711	[1135, 1263]	1828	[297, 2448]	2945	[1298, 97]	4062	[3128, 677]
712	[1264, 1265]	1829	[2618, 2619]	2946	[3350, 1451]	4063	[3139, 555]
713	[1266, 1267]	1830	[1830, 1830]	2947	[3351, 3352]	4064	[3329, 3203]
714	[1268, 93]	1831	[2093, 1434]	2948	[3353, 3354]	4065	[4238, 1613]
715	[1269, 1270]	1832	[2620, 2274]	2949	[3355, 2364]	4066	[4241, 1691]
716	[1271, 1272]	1833	[258, 903]	2950	[3356, 2694]	4067	[715, 3023]
717	[1273, 1274]	1834	[280, 2621]	2951	[3357, 3358]	4068	[3040, 3135]
718	[1275, 1276]	1835	[2622, 2623]	2952	[3359, 3360]	4069	[4225, 1966]
719	[1277, 1278]	1836	[2318, 1111]	2953	[3361, 3362]	4070	[3984, 787]
720	[1279, 1280]	1837	[2624, 2625]	2954	[3363, 3364]	4071	[3867, 1817]

721	[1281, 1282]	1838	[2626, 2627]	2955	[3348, 1001]	4072	[4242, 3244]
722	[1283, 1284]	1839	[2112, 2628]	2956	[3365, 2626]	4073	[188, 1665]
723	[1285, 1286]	1840	[2629, 2630]	2957	[3366, 3367]	4074	[3047, 809]
724	[1287, 1288]	1841	[2631, 2632]	2958	[3368, 1154]	4075	[4243, 3211]
725	[1150, 1289]	1842	[2633, 2634]	2959	[3369, 3370]	4076	[3959, 568]
726	[1059, 1290]	1843	[2635, 2636]	2960	[92, 2804]	4077	[4244, 1642]
727	[1291, 1292]	1844	[2637, 1151]	2961	[3371, 2322]	4078	[3966, 1926]
728	[1293, 359]	1845	[2372, 2638]	2962	[3372, 1263]	4079	[3963, 505]
729	[1110, 1159]	1846	[950, 2639]	2963	[78, 2695]	4080	[4245, 626]
730	[455, 1294]	1847	[2465, 2640]	2964	[3373, 2800]	4081	[4246, 3005]
731	[1295, 1296]	1848	[2641, 2642]	2965	[289, 3374]	4082	[3953, 3859]
732	[1297, 1298]	1849	[2643, 2644]	2966	[3375, 2701]	4083	[4247, 1946]
733	[1202, 1299]	1850	[2645, 2427]	2967	[3376, 1201]	4084	[4248, 1536]
734	[1300, 1301]	1851	[1358, 2123]	2968	[3377, 3378]	4085	[3878, 3251]
735	[1302, 1303]	1852	[2646, 2647]	2969	[6, 2395]	4086	[3908, 1876]
736	[1304, 1305]	1853	[1075, 2648]	2970	[2535, 2620]	4087	[4249, 793]
737	[1306, 1307]	1854	[1435, 2618]	2971	[3379, 3380]	4088	[4234, 1768]
738	[1308, 1309]	1855	[2649, 2650]	2972	[2821, 3381]	4089	[564, 2984]
739	[1310, 1311]	1856	[368, 2651]	2973	[2520, 988]	4090	[4228, 536]
740	[250, 1312]	1857	[1321, 2652]	2974	[3382, 1381]	4091	[1487, 1562]
741	[1313, 1314]	1858	[2653, 2654]	2975	[3383, 2902]	4092	[4250, 1473]
742	[1095, 1315]	1859	[2655, 2656]	2976	[3384, 1316]	4093	[3233, 3813]
743	[1316, 1317]	1860	[2657, 2658]	2977	[3385, 3386]	4094	[3899, 44]
744	[1318, 1319]	1861	[2659, 452]	2978	[1114, 3387]	4095	[1879, 3126]
745	[1320, 1321]	1862	[2660, 1246]	2979	[3388, 1408]	4096	[729, 1491]
746	[1322, 1323]	1863	[82, 2661]	2980	[2571, 3389]	4097	[4251, 638]
747	[1067, 67]	1864	[2662, 1459]	2981	[407, 3390]	4098	[4252, 1739]
748	[1324, 1189]	1865	[2663, 2374]	2982	[3391, 2277]	4099	[4253, 1540]
749	[1325, 1326]	1866	[2664, 2371]	2983	[3392, 254]	4100	[2073, 1772]
750	[1284, 346]	1867	[2665, 2666]	2984	[3393, 442]	4101	[4254, 1665]
751	[1327, 1328]	1868	[2293, 2667]	2985	[3394, 1088]	4102	[4255, 708]
752	[126, 1329]	1869	[1258, 1106]	2986	[3395, 3369]	4103	[4256, 809]
753	[1330, 1331]	1870	[2668, 2669]	2987	[3396, 3397]	4104	[4219, 764]
754	[309, 1332]	1871	[2229, 2670]	2988	[3398, 3399]	4105	[4230, 633]
755	[857, 1333]	1872	[983, 1400]	2989	[3400, 3401]	4106	[4257, 1829]
756	[1334, 1335]	1873	[1034, 2671]	2990	[3402, 3403]	4107	[3806, 2008]
757	[1047, 1336]	1874	[2272, 1363]	2991	[3404, 2831]	4108	[3862, 744]
758	[319, 1337]	1875	[2672, 2673]	2992	[2461, 1214]	4109	[4258, 199]
759	[1338, 961]	1876	[2674, 2675]	2993	[3405, 2553]	4110	[4259, 1808]
760	[1339, 1340]	1877	[2676, 2677]	2994	[896, 1164]	4111	[3856, 1904]
761	[1341, 1342]	1878	[2678, 846]	2995	[2932, 3406]	4112	[3992, 622]
762	[1343, 1344]	1879	[1332, 2600]	2996	[2543, 3407]	4113	[3993, 2959]
763	[1345, 1346]	1880	[2679, 2680]	2997	[2292, 931]	4114	[3851, 3299]
764	[1347, 1348]	1881	[2681, 2682]	2998	[3408, 3409]	4115	[3996, 614]

765	[1349, 1350]	1882	[2683, 2684]	2999	[3410, 2500]	4116	[4240, 2024]
766	[1351, 1352]	1883	[2685, 1308]	3000	[3411, 891]	4117	[4216, 1859]
767	[1353, 1354]	1884	[2686, 2687]	3001	[3412, 2177]	4118	[4220, 1611]
768	[1355, 1356]	1885	[2688, 2689]	3002	[3413, 1452]	4119	[4260, 619]
769	[1357, 1358]	1886	[2536, 2690]	3003	[2902, 3414]	4120	[3932, 1995]
770	[1359, 1360]	1887	[2691, 17]	3004	[3415, 2562]	4121	[3882, 128]
771	[256, 1361]	1888	[2692, 2410]	3005	[3416, 3417]	4122	[3930, 770]
772	[370, 1362]	1889	[2267, 2693]	3006	[3418, 3419]	4123	[4261, 3010]
773	[1363, 460]	1890	[2694, 2695]	3007	[3420, 3421]	4124	[4217, 191]
774	[1364, 1365]	1891	[2696, 2697]	3008	[3422, 2929]	4125	[4262, 640]
775	[1366, 1279]	1892	[2698, 2699]	3009	[3423, 2401]	4126	[3185, 3197]
776	[1367, 1368]	1893	[2700, 1199]	3010	[1378, 115]	4127	[628, 1906]
777	[1071, 1369]	1894	[2701, 2498]	3011	[977, 398]	4128	[4263, 3261]
778	[1370, 1046]	1895	[1170, 2702]	3012	[3424, 3425]	4129	[4264, 238]
779	[1371, 1372]	1896	[2467, 2703]	3013	[3426, 3427]	4130	[3987, 3341]
780	[1373, 1374]	1897	[248, 1104]	3014	[866, 1009]	4131	[4265, 3288]
781	[1375, 1376]	1898	[2704, 2705]	3015	[3428, 3429]	4132	[4266, 2058]
782	[1377, 1378]	1899	[2568, 2706]	3016	[2887, 998]	4133	[4267, 670]
783	[1379, 1380]	1900	[2707, 2708]	3017	[2161, 2795]	4134	[3915, 56]
784	[1381, 1382]	1901	[2709, 2243]	3018	[2753, 1359]	4135	[3303, 524]
785	[1383, 292]	1902	[1433, 2208]	3019	[1426, 3430]	4136	[3990, 1697]
786	[1384, 1385]	1903	[86, 1108]	3020	[3431, 1454]	4137	[4268, 1477]
787	[876, 1386]	1904	[2710, 2711]	3021	[3432, 2116]	4138	[2000, 1815]
788	[1387, 91]	1905	[2376, 2712]	3022	[3433, 2454]	4139	[585, 1802]
789	[1388, 1389]	1906	[16, 2713]	3023	[2807, 3434]	4140	[532, 3210]
790	[1390, 1271]	1907	[2714, 2669]	3024	[2478, 3435]	4141	[3922, 1500]
791	[1391, 1392]	1908	[2715, 2608]	3025	[3436, 2160]	4142	[3977, 1623]
792	[1393, 1394]	1909	[2716, 394]	3026	[3437, 1140]	4143	[4269, 530]
793	[966, 1395]	1910	[2717, 2384]	3027	[3438, 3439]	4144	[2048, 55]
794	[1396, 1397]	1911	[2718, 2193]	3028	[3440, 2194]	4145	[4270, 1753]
795	[1398, 1399]	1912	[2719, 2720]	3029	[3441, 2327]	4146	[4271, 3141]
796	[1400, 1401]	1913	[916, 2721]	3030	[2896, 270]	4147	[4272, 3217]
797	[1402, 927]	1914	[2638, 2355]	3031	[3442, 279]	4148	[3313, 1926]
798	[1403, 1404]	1915	[2614, 2722]	3032	[3443, 3444]	4149	[4273, 1846]
799	[1405, 395]	1916	[2723, 2724]	3033	[419, 1191]	4150	[4274, 1957]
800	[1406, 1251]	1917	[2725, 2726]	3034	[3445, 444]	4151	[4253, 2006]
801	[1407, 1200]	1918	[884, 265]	3035	[3446, 3447]	4152	[1897, 601]
802	[1408, 1409]	1919	[2727, 2728]	3036	[3448, 123]	4153	[4275, 1815]
803	[1410, 1411]	1920	[2729, 2730]	3037	[1103, 875]	4154	[4276, 1568]
804	[1397, 1412]	1921	[2731, 2620]	3038	[3449, 3450]	4155	[4277, 175]
805	[1286, 1413]	1922	[2639, 921]	3039	[3451, 3452]	4156	[3245, 757]
806	[1414, 1415]	1923	[2732, 2733]	3040	[3453, 3454]	4157	[4251, 819]
807	[1416, 1417]	1924	[2734, 2645]	3041	[3455, 1195]	4158	[4268, 59]
808	[1418, 1419]	1925	[1091, 2735]	3042	[3456, 3457]	4159	[3025, 796]

809	[287, 1420]	1926	[2736, 2504]	3043	[3458, 3434]	4160	[3881, 1718]
810	[1421, 1422]	1927	[2737, 2738]	3044	[3459, 2353]	4161	[3994, 1563]
811	[1423, 1424]	1928	[894, 2339]	3045	[3460, 1302]	4162	[4278, 1477]
812	[1425, 1426]	1929	[2739, 2740]	3046	[3461, 1000]	4163	[4279, 742]
813	[1427, 1428]	1930	[2741, 2742]	3047	[3462, 3463]	4164	[3056, 4280]
814	[1429, 418]	1931	[2720, 2743]	3048	[3464, 3465]	4165	[3950, 2078]
815	[1430, 1431]	1932	[2744, 1164]	3049	[2286, 3466]	4166	[1520, 133]
816	[1432, 342]	1933	[2745, 2456]	3050	[3467, 1355]	4167	[4281, 192]
817	[1215, 1433]	1934	[1292, 2652]	3051	[958, 3468]	4168	[4282, 2071]
818	[924, 1185]	1935	[2746, 1233]	3052	[3469, 398]	4169	[4283, 177]
819	[1434, 1435]	1936	[1133, 1231]	3053	[1023, 3470]	4170	[4284, 1959]
820	[358, 1436]	1937	[2747, 2748]	3054	[3471, 3472]	4171	[3903, 2965]
821	[1139, 1437]	1938	[2749, 2265]	3055	[2122, 3473]	4172	[158, 485]
822	[1438, 1439]	1939	[2750, 2751]	3056	[3474, 338]	4173	[4285, 1473]
823	[975, 1440]	1940	[2752, 2753]	3057	[1361, 3475]	4174	[3264, 664]
824	[1441, 1442]	1941	[2754, 2755]	3058	[3476, 2790]	4175	[4286, 3288]
825	[1443, 1444]	1942	[2429, 2756]	3059	[2192, 3477]	4176	[4264, 1578]
826	[1057, 1445]	1943	[462, 2639]	3060	[3478, 2253]	4177	[3907, 3193]
827	[1440, 1446]	1944	[2757, 2758]	3061	[3479, 288]	4178	[3826, 2973]
828	[1447, 1448]	1945	[2759, 2760]	3062	[3480, 3481]	4179	[4287, 1752]
829	[1449, 1450]	1946	[2423, 2761]	3063	[2202, 2422]	4180	[475, 1841]
830	[1451, 296]	1947	[2762, 89]	3064	[2899, 3482]	4181	[3845, 2955]
831	[1452, 1453]	1948	[2763, 2764]	3065	[3483, 3484]	4182	[4288, 2064]
832	[1454, 982]	1949	[2289, 2765]	3066	[3485, 3486]	4183	[544, 761]
833	[1455, 1456]	1950	[2766, 1388]	3067	[3487, 2878]	4184	[3974, 537]
834	[1457, 1458]	1951	[2767, 365]	3068	[3488, 3489]	4185	[3879, 1972]
835	[1459, 1214]	1952	[2768, 2769]	3069	[3490, 3491]	4186	[1650, 478]
836	[1460, 1461]	1953	[2770, 2771]	3070	[3492, 3493]	4187	[4281, 1653]
837	[1462, 1463]	1954	[2772, 2773]	3071	[2505, 2494]	4188	[4289, 3803]
838	[621, 1464]	1955	[2774, 909]	3072	[3494, 3495]	4189	[4290, 2090]
839	[1465, 1466]	1956	[2775, 2776]	3073	[3496, 2863]	4190	[675, 1640]
840	[1467, 768]	1957	[2777, 2778]	3074	[3495, 3497]	4191	[3843, 1926]
841	[1468, 244]	1958	[2779, 2780]	3075	[3498, 2900]	4192	[3066, 161]
842	[1469, 1470]	1959	[2758, 2781]	3076	[3499, 3500]	4193	[4263, 1878]
843	[501, 517]	1960	[2782, 354]	3077	[3501, 1220]	4194	[4291, 619]
844	[1471, 533]	1961	[2783, 2784]	3078	[3502, 3503]	4195	[3927, 3067]
845	[1472, 1473]	1962	[2785, 1050]	3079	[3504, 3505]	4196	[4292, 3175]
846	[684, 1474]	1963	[2786, 2787]	3080	[3506, 3507]	4197	[3332, 1545]
847	[1475, 1476]	1964	[2788, 2789]	3081	[3508, 3509]	4198	[4293, 1733]
848	[829, 1477]	1965	[2790, 2791]	3082	[3510, 3511]	4199	[4294, 1976]
849	[517, 1478]	1966	[2792, 111]	3083	[3512, 972]	4200	[4295, 547]
850	[1479, 1480]	1967	[2793, 2794]	3084	[266, 3513]	4201	[699, 1484]
851	[1481, 1482]	1968	[2795, 2796]	3085	[3514, 3515]	4202	[4287, 1572]
852	[561, 1483]	1969	[2797, 2098]	3086	[2441, 3516]	4203	[3080, 1759]

853	[1484, 179]	1970	[2798, 2799]	3087	[3517, 2660]	4204	[4296, 11]
854	[1485, 1486]	1971	[2800, 2801]	3088	[2166, 2545]	4205	[4297, 141]
855	[1487, 700]	1972	[2802, 2803]	3089	[2168, 3518]	4206	[3269, 1920]
856	[1488, 1489]	1973	[2804, 2725]	3090	[2207, 889]	4207	[4298, 182]
857	[567, 1490]	1974	[2447, 872]	3091	[3519, 3520]	4208	[4299, 503]
858	[602, 1491]	1975	[2805, 2770]	3092	[1404, 1344]	4209	[1716, 1576]
859	[1492, 777]	1976	[2806, 2807]	3093	[2666, 2233]	4210	[3956, 1564]
860	[40, 1493]	1977	[2808, 2809]	3094	[3521, 2515]	4211	[3335, 600]
861	[1494, 1495]	1978	[1226, 2810]	3095	[3522, 1235]	4212	[956, 4300]
862	[1496, 1497]	1979	[2811, 2812]	3096	[2917, 3523]	4213	[1173, 2661]
863	[756, 1498]	1980	[2321, 2361]	3097	[2918, 3524]	4214	[4301, 3588]
864	[1499, 1500]	1981	[845, 2813]	3098	[385, 2628]	4215	[4302, 4303]
865	[1501, 759]	1982	[2814, 963]	3099	[3525, 3526]	4216	[4304, 976]
866	[1502, 538]	1983	[2781, 2184]	3100	[3527, 3528]	4217	[4305, 4306]
867	[761, 1503]	1984	[2815, 2678]	3101	[4, 1266]	4218	[4307, 4308]
868	[1504, 1505]	1985	[1055, 2816]	3102	[3529, 1284]	4219	[4309, 3424]
869	[1506, 735]	1986	[2817, 2818]	3103	[3530, 3531]	4220	[4310, 4311]
870	[1507, 1508]	1987	[397, 2819]	3104	[3532, 3533]	4221	[4312, 4313]
871	[1509, 1510]	1988	[1380, 1244]	3105	[3534, 2136]	4222	[4314, 1403]
872	[1511, 1512]	1989	[2820, 2821]	3106	[3535, 3536]	4223	[1159, 2454]
873	[1513, 797]	1990	[2822, 1130]	3107	[3537, 3538]	4224	[4315, 913]
874	[211, 1514]	1991	[2823, 2824]	3108	[1282, 3539]	4225	[3406, 3518]
875	[137, 1515]	1992	[2650, 253]	3109	[3477, 3540]	4226	[4316, 4317]
876	[1516, 1517]	1993	[2825, 2826]	3110	[2432, 3541]	4227	[4318, 1090]
877	[1518, 1519]	1994	[2827, 2828]	3111	[3542, 3543]	4228	[4319, 4320]
878	[1520, 1521]	1995	[2829, 2217]	3112	[1131, 2821]	4229	[1290, 1228]
879	[1522, 1523]	1996	[1129, 2830]	3113	[3544, 3545]	4230	[4321, 3617]
880	[688, 1524]	1997	[1307, 2831]	3114	[3546, 3547]	4231	[1013, 846]
881	[1495, 1525]	1998	[2832, 2833]	3115	[3548, 3372]	4232	[366, 2100]
882	[1497, 1526]	1999	[2834, 2835]	3116	[3549, 3550]	4233	[4322, 267]
883	[1489, 507]	2000	[2836, 2837]	3117	[3551, 3552]	4234	[991, 2712]
884	[494, 509]	2001	[2838, 2839]	3118	[989, 3553]	4235	[4323, 4324]
885	[1527, 529]	2002	[2840, 2744]	3119	[969, 433]	4236	[4325, 2519]
886	[1528, 1529]	2003	[1230, 2841]	3120	[2576, 1072]	4237	[4326, 4327]
887	[1530, 674]	2004	[2842, 2843]	3121	[3554, 277]	4238	[4328, 4329]
888	[572, 1531]	2005	[1217, 27]	3122	[3555, 3556]	4239	[4330, 4035]
889	[796, 1505]	2006	[2844, 2845]	3123	[1099, 2386]	4240	[3547, 1365]
890	[1532, 1533]	2007	[2846, 2847]	3124	[3557, 3558]	4241	[4331, 1042]
891	[642, 1499]	2008	[2848, 964]	3125	[3559, 2901]	4242	[4332, 355]
892	[1534, 1535]	2009	[2339, 1404]	3126	[1333, 2312]	4243	[4333, 2296]
893	[519, 1536]	2010	[2849, 2850]	3127	[2906, 3560]	4244	[4334, 4335]
894	[680, 1537]	2011	[2819, 2851]	3128	[3561, 3562]	4245	[4336, 4337]
895	[1538, 1539]	2012	[2852, 2853]	3129	[3563, 2905]	4246	[4338, 4339]
896	[1540, 1541]	2013	[2854, 2855]	3130	[3564, 3565]	4247	[4340, 2592]

897	[1542, 498]	2014	[2856, 2857]	3131	[2669, 3566]	4248	[2460, 2315]
898	[739, 1543]	2015	[2858, 2859]	3132	[979, 3567]	4249	[4341, 4016]
899	[1544, 1545]	2016	[2860, 2668]	3133	[3568, 3569]	4250	[4342, 4343]
900	[1546, 1547]	2017	[2861, 2701]	3134	[3570, 2258]	4251	[3425, 358]
901	[1548, 689]	2018	[114, 1083]	3135	[1250, 2637]	4252	[4344, 1216]
902	[1549, 1550]	2019	[1213, 2862]	3136	[3571, 2876]	4253	[4345, 4346]
903	[1551, 1552]	2020	[2863, 2864]	3137	[2648, 3572]	4254	[1394, 2363]
904	[495, 510]	2021	[862, 881]	3138	[2186, 3573]	4255	[1335, 1309]
905	[797, 1553]	2022	[2865, 1285]	3139	[3574, 3575]	4256	[4347, 3684]
906	[592, 1554]	2023	[2503, 2866]	3140	[3576, 3577]	4257	[307, 2864]
907	[1555, 1556]	2024	[2867, 2868]	3141	[3578, 3579]	4258	[4348, 3728]
908	[1557, 1558]	2025	[2869, 1364]	3142	[3580, 2248]	4259	[4349, 4350]
909	[678, 1559]	2026	[2870, 2871]	3143	[2349, 3581]	4260	[4351, 1015]
910	[1560, 1502]	2027	[2872, 304]	3144	[3582, 2437]	4261	[4352, 2825]
911	[1561, 1562]	2028	[2873, 2874]	3145	[3583, 2820]	4262	[4353, 1144]
912	[1563, 1564]	2029	[2875, 2157]	3146	[3584, 3585]	4263	[4354, 2858]
913	[496, 1565]	2030	[928, 2876]	3147	[2141, 3586]	4264	[2209, 2535]
914	[491, 1566]	2031	[2877, 2878]	3148	[2612, 3587]	4265	[4355, 4356]
915	[1567, 1568]	2032	[2879, 439]	3149	[2904, 2792]	4266	[4070, 2352]
916	[796, 1569]	2033	[2880, 2829]	3150	[3588, 941]	4267	[4357, 4358]
917	[1570, 1571]	2034	[2881, 2323]	3151	[441, 433]	4268	[4359, 4360]
918	[1572, 1573]	2035	[2882, 2409]	3152	[3589, 3590]	4269	[4361, 3587]
919	[531, 1574]	2036	[1350, 998]	3153	[2735, 3591]	4270	[2755, 1419]
920	[485, 726]	2037	[2480, 2338]	3154	[1274, 3592]	4271	[4362, 4363]
921	[818, 1575]	2038	[2883, 2679]	3155	[3593, 3594]	4272	[4364, 4365]
922	[1576, 1575]	2039	[2884, 357]	3156	[3595, 3596]	4273	[4366, 2522]
923	[1577, 1578]	2040	[2885, 2270]	3157	[3597, 1028]	4274	[4367, 2330]
924	[1579, 821]	2041	[2621, 2785]	3158	[3598, 3599]	4275	[4368, 4369]
925	[1580, 1581]	2042	[2886, 2887]	3159	[2661, 990]	4276	[4370, 4371]
926	[1582, 1583]	2043	[2888, 1318]	3160	[3600, 278]	4277	[4372, 1134]
927	[1584, 1585]	2044	[2889, 2890]	3161	[3601, 2231]	4278	[4373, 121]
928	[1586, 1587]	2045	[2891, 2477]	3162	[3602, 2616]	4279	[4374, 2329]
929	[1588, 1589]	2046	[2892, 2893]	3163	[3603, 3604]	4280	[1453, 2319]
930	[1590, 565]	2047	[2894, 429]	3164	[3605, 3488]	4281	[4375, 4376]
931	[1573, 656]	2048	[2895, 2896]	3165	[3606, 3607]	4282	[4377, 3350]
932	[1591, 560]	2049	[2897, 2898]	3166	[3434, 1448]	4283	[2702, 3579]
933	[43, 1592]	2050	[2878, 2899]	3167	[3608, 1375]	4284	[4378, 2336]
934	[514, 490]	2051	[1045, 2234]	3168	[401, 3554]	4285	[4379, 3398]
935	[1593, 1594]	2052	[2900, 2422]	3169	[3609, 3610]	4286	[4380, 3366]
936	[1595, 507]	2053	[2901, 2902]	3170	[3611, 2382]	4287	[1145, 2265]
937	[1596, 1597]	2054	[2903, 2904]	3171	[3414, 1175]	4288	[4381, 2631]
938	[1598, 688]	2055	[2905, 1432]	3172	[3612, 3613]	4289	[4382, 4383]
939	[1599, 189]	2056	[1420, 2206]	3173	[2110, 3614]	4290	[4384, 3692]
940	[543, 1600]	2057	[2491, 2906]	3174	[3615, 3616]	4291	[4385, 446]

941	[653, 1601]	2058	[2404, 2315]	3175	[3617, 3618]	4292	[4386, 871]
942	[530, 1602]	2059	[2416, 2907]	3176	[2233, 3619]	4293	[262, 1374]
943	[244, 1603]	2060	[2908, 1100]	3177	[3620, 3621]	4294	[4387, 4388]
944	[1595, 208]	2061	[2909, 951]	3178	[3622, 2696]	4295	[3637, 902]
945	[36, 1470]	2062	[2383, 2214]	3179	[467, 3623]	4296	[4389, 1066]
946	[1604, 1605]	2063	[2910, 2911]	3180	[2828, 1368]	4297	[4390, 277]
947	[1606, 529]	2064	[2912, 858]	3181	[3624, 2710]	4298	[4391, 4392]
948	[1607, 191]	2065	[1082, 2913]	3182	[3625, 369]	4299	[3518, 2511]
949	[1608, 820]	2066	[2591, 2848]	3183	[3626, 3499]	4300	[3171, 1592]
950	[1609, 1610]	2067	[2914, 1360]	3184	[3627, 2664]	4301	[4279, 1907]
951	[676, 1611]	2068	[2915, 414]	3185	[3628, 3629]	4302	[4393, 1646]
952	[1612, 235]	2069	[2916, 2917]	3186	[1204, 3630]	4303	[4394, 1747]
953	[603, 1613]	2070	[2198, 2918]	3187	[2106, 958]	4304	[4395, 1539]
954	[1614, 768]	2071	[2919, 2920]	3188	[2449, 1318]	4305	[4295, 667]
955	[511, 1615]	2072	[2796, 980]	3189	[3631, 2222]	4306	[3195, 1740]
956	[1616, 1617]	2073	[2794, 1012]	3190	[3632, 2860]	4307	[4396, 546]
957	[1618, 1619]	2074	[2921, 2180]	3191	[3633, 3634]	4308	[4397, 3154]
958	[668, 1550]	2075	[2509, 1138]	3192	[3635, 2117]	4309	[3808, 1874]
959	[1620, 221]	2076	[2922, 2097]	3193	[839, 3541]	4310	[3975, 611]
960	[195, 1621]	2077	[2923, 2924]	3194	[2179, 1291]	4311	[1820, 1702]
961	[641, 1600]	2078	[2925, 2618]	3195	[3636, 3637]	4312	[4235, 476]
962	[1622, 1623]	2079	[2926, 77]	3196	[3638, 3639]	4313	[3897, 1666]
963	[1624, 1625]	2080	[2927, 2635]	3197	[438, 2655]	4314	[1460, 821]
964	[740, 1626]	2081	[2652, 2928]	3198	[3640, 3641]	4315	[3004, 3023]
965	[492, 1627]	2082	[2868, 1187]	3199	[3642, 996]	4316	[4293, 683]
966	[1490, 1516]	2083	[2929, 2930]	3200	[1221, 3643]	4317	[4398, 1523]
967	[1628, 1629]	2084	[2931, 2932]	3201	[3644, 3645]	4318	[3894, 136]
968	[1630, 1631]	2085	[1329, 2933]	3202	[3646, 2719]	4319	[4257, 773]
969	[790, 1632]	2086	[2619, 2573]	3203	[24, 3647]	4320	[3255, 636]
970	[1599, 1633]	2087	[2934, 2935]	3204	[3648, 3649]	4321	[3989, 1969]
971	[647, 142]	2088	[2488, 2936]	3205	[3650, 2743]	4322	[3948, 513]
972	[1634, 1635]	2089	[2937, 2938]	3206	[3651, 3652]	4323	[2963, 1874]
973	[1636, 1637]	2090	[2939, 2511]	3207	[2911, 2096]	4324	[2087, 665]
974	[1638, 49]	2091	[2940, 883]	3208	[3653, 428]	4325	[4213, 1845]
975	[1474, 1639]	2092	[2941, 2942]	3209	[3654, 3655]	4326	[3896, 1495]
976	[594, 159]	2093	[1902, 682]	3210	[2713, 2155]	4327	[4236, 502]
977	[1640, 727]	2094	[1830, 157]	3211	[3656, 3657]	4328	[4250, 3232]
978	[1641, 1642]	2095	[2943, 1850]	3212	[3658, 2262]	4329	[1984, 1824]
979	[1643, 1644]	2096	[705, 2944]	3213	[3659, 3660]	4330	[4229, 1873]
980	[1614, 1645]	2097	[2945, 47]	3214	[2191, 78]	4331	[4399, 2072]
981	[1634, 1646]	2098	[1573, 1669]	3215	[3661, 2530]	4332	[618, 624]
982	[223, 1647]	2099	[1606, 781]	3216	[274, 3354]	4333	[4261, 780]
983	[189, 1648]	2100	[607, 624]	3217	[2675, 3662]	4334	[4400, 512]
984	[1649, 586]	2101	[675, 596]	3218	[3663, 2148]	4335	[4401, 3275]

985	[1650, 1651]	2102	[1708, 2946]	3219	[3664, 2301]	4336	[4272, 2005]
986	[1652, 1653]	2103	[1502, 1900]	3220	[3665, 3666]	4337	[484, 159]
987	[1654, 135]	2104	[2947, 2025]	3221	[3667, 2113]	4338	[4266, 1564]
988	[1655, 781]	2105	[2948, 551]	3222	[3668, 3669]	4339	[4402, 1781]
989	[1656, 1551]	2106	[2949, 1633]	3223	[3670, 3404]	4340	[3997, 590]
990	[37, 1657]	2107	[1912, 1866]	3224	[3671, 3650]	4341	[4403, 668]
991	[1562, 701]	2108	[144, 1834]	3225	[2831, 2633]	4342	[4259, 3017]
992	[1506, 1658]	2109	[2950, 1622]	3226	[3672, 3534]	4343	[3949, 555]
993	[1659, 1660]	2110	[2951, 1973]	3227	[3673, 2861]	4344	[3823, 1903]
994	[1661, 1662]	2111	[2952, 1464]	3228	[3674, 1162]	4345	[3979, 1595]
995	[1568, 833]	2112	[2953, 825]	3229	[317, 2912]	4346	[4404, 3331]
996	[763, 183]	2113	[49, 1772]	3230	[1436, 2158]	4347	[3931, 485]
997	[1663, 1664]	2114	[2954, 791]	3231	[3675, 3603]	4348	[4403, 1549]
998	[810, 1665]	2115	[1641, 2955]	3232	[3497, 3554]	4349	[3180, 639]
999	[644, 804]	2116	[2956, 2957]	3233	[3676, 3677]	4350	[4215, 3941]
1000	[1666, 563]	2117	[2958, 721]	3234	[2703, 2920]	4351	[4278, 59]
1001	[1667, 617]	2118	[478, 2959]	3235	[3678, 3679]	4352	[4405, 161]
1002	[1668, 33]	2119	[724, 1949]	3236	[1198, 2362]	4353	[4406, 1603]
1003	[655, 1669]	2120	[1810, 1947]	3237	[3680, 3681]	4354	[4407, 1615]
1004	[1670, 832]	2121	[1968, 2960]	3238	[1116, 1240]	4355	[4408, 1589]
1005	[1671, 1502]	2122	[1556, 1927]	3239	[3682, 3683]	4356	[4284, 3283]
1006	[1672, 1673]	2123	[1739, 1733]	3240	[3684, 3435]	4357	[4275, 240]
1007	[1674, 582]	2124	[2961, 591]	3241	[3685, 3686]	4358	[4409, 550]
1008	[586, 1675]	2125	[509, 823]	3242	[3687, 3688]	4359	[4248, 520]
1009	[759, 540]	2126	[2962, 1692]	3243	[3689, 2914]	4360	[3215, 3238]
1010	[1676, 1563]	2127	[2054, 634]	3244	[2862, 3690]	4361	[3924, 1622]
1011	[1533, 1677]	2128	[693, 1968]	3245	[3691, 1165]	4362	[4400, 1615]
1012	[1678, 1679]	2129	[198, 1767]	3246	[3692, 2844]	4363	[4410, 578]
1013	[1680, 1681]	2130	[2963, 239]	3247	[3693, 310]	4364	[4408, 1891]
1014	[200, 1645]	2131	[2964, 681]	3248	[2942, 2872]	4365	[4411, 3045]
1015	[1682, 61]	2132	[632, 2965]	3249	[3694, 3695]	4366	[4226, 1949]
1016	[1683, 1684]	2133	[1954, 2022]	3250	[3696, 2490]	4367	[4252, 197]
1017	[1685, 1686]	2134	[2966, 561]	3251	[1267, 3697]	4368	[4269, 1845]
1018	[1687, 493]	2135	[2967, 736]	3252	[3698, 3699]	4369	[3250, 1499]
1019	[1688, 1689]	2136	[749, 1549]	3253	[3700, 3701]	4370	[4396, 1908]
1020	[1690, 1691]	2137	[2968, 1972]	3254	[2695, 370]	4371	[4412, 3105]
1021	[220, 1692]	2138	[132, 2969]	3255	[3702, 3703]	4372	[3272, 1886]
1022	[1693, 1694]	2139	[1753, 540]	3256	[3704, 948]	4373	[3958, 238]
1023	[720, 213]	2140	[710, 2075]	3257	[2871, 1213]	4374	[4407, 512]
1024	[1695, 1696]	2141	[159, 754]	3258	[3705, 3706]	4375	[4237, 619]
1025	[1697, 49]	2142	[2970, 1629]	3259	[1263, 1031]	4376	[1726, 1859]
1026	[1698, 798]	2143	[2971, 2972]	3260	[3707, 3560]	4377	[4290, 1838]
1027	[1699, 1700]	2144	[662, 2973]	3261	[2611, 3708]	4378	[3920, 1552]
1028	[1701, 1702]	2145	[813, 2974]	3262	[3709, 2854]	4379	[4395, 1718]

1029	[1703, 53]	2146	[2975, 1799]	3263	[930, 2750]	4380	[3910, 62]
1030	[1704, 1705]	2147	[2976, 1654]	3264	[3710, 3410]	4381	[4399, 1896]
1031	[1706, 1707]	2148	[1497, 2977]	3265	[2287, 2627]	4382	[3140, 528]
1032	[1543, 1558]	2149	[2978, 685]	3266	[3711, 3712]	4383	[4413, 3057]
1033	[1708, 1709]	2150	[131, 833]	3267	[3713, 15]	4384	[4405, 3067]
1034	[1710, 1493]	2151	[1684, 1806]	3268	[3714, 2885]	4385	[4222, 797]
1035	[1711, 1712]	2152	[1686, 2059]	3269	[3715, 3716]	4386	[4414, 1679]
1036	[1498, 1713]	2153	[1986, 1678]	3270	[3717, 3687]	4387	[4255, 173]
1037	[520, 1714]	2154	[1549, 669]	3271	[2609, 2537]	4388	[4415, 1605]
1038	[1715, 773]	2155	[34, 195]	3272	[3718, 2717]	4389	[4233, 1747]
1039	[1714, 818]	2156	[749, 668]	3273	[3719, 3720]	4390	[3256, 533]
1040	[1716, 818]	2157	[2979, 2980]	3274	[3721, 3722]	4391	[3968, 707]
1041	[1609, 1717]	2158	[1829, 1577]	3275	[3723, 3724]	4392	[4416, 2082]
1042	[1538, 1718]	2159	[182, 800]	3276	[3725, 920]	4393	[4122, 898]
1043	[10, 1719]	2160	[2961, 199]	3277	[3726, 3727]	4394	[4417, 117]
1044	[1720, 803]	2161	[547, 2981]	3278	[3728, 2907]	4395	[4418, 1379]
1045	[1721, 1722]	2162	[2982, 677]	3279	[3729, 2263]	4396	[1112, 3641]
1046	[660, 62]	2163	[2983, 184]	3280	[1014, 2446]	4397	[4419, 1193]
1047	[1723, 1724]	2164	[2068, 720]	3281	[3730, 2822]	4398	[4420, 420]
1048	[1725, 216]	2165	[1590, 2984]	3282	[3731, 3732]	4399	[1120, 2118]
1049	[1726, 1727]	2166	[1781, 2985]	3283	[3733, 3734]	4400	[4421, 2922]
1050	[1728, 641]	2167	[2986, 1651]	3284	[3735, 2408]	4401	[4422, 2357]
1051	[1729, 1730]	2168	[2987, 2988]	3285	[3736, 2583]	4402	[4423, 1158]
1052	[481, 180]	2169	[2989, 1985]	3286	[3737, 3738]	4403	[4136, 2343]
1053	[1731, 1646]	2170	[727, 784]	3287	[3739, 1370]	4404	[4424, 4425]
1054	[1732, 1733]	2171	[753, 1880]	3288	[2125, 3740]	4405	[4426, 887]
1055	[1734, 1735]	2172	[1745, 1872]	3289	[3741, 402]	4406	[90, 2359]
1056	[1736, 1737]	2173	[2990, 2991]	3290	[3742, 2811]	4407	[4427, 2685]
1057	[643, 1738]	2174	[194, 707]	3291	[3743, 3744]	4408	[2938, 3607]
1058	[1494, 834]	2175	[2992, 1902]	3292	[3745, 472]	4409	[4428, 978]
1059	[477, 1651]	2176	[2993, 2994]	3293	[3746, 3747]	4410	[4429, 4430]
1060	[196, 1739]	2177	[1771, 2995]	3294	[3748, 2700]	4411	[4431, 4432]
1061	[1633, 190]	2178	[1940, 1960]	3295	[3749, 879]	4412	[4433, 4434]
1062	[1740, 1741]	2179	[651, 2996]	3296	[2689, 3750]	4413	[4435, 4436]
1063	[53, 1686]	2180	[766, 2053]	3297	[3751, 3725]	4414	[4044, 458]
1064	[1742, 1743]	2181	[2997, 1483]	3298	[2328, 842]	4415	[4437, 2348]
1065	[1744, 1745]	2182	[1563, 2058]	3299	[1392, 1052]	4416	[4438, 970]
1066	[1746, 1705]	2183	[2998, 1464]	3300	[3752, 3753]	4417	[4291, 230]
1067	[1747, 137]	2184	[153, 2999]	3301	[3754, 2385]	4418	[4223, 800]
1068	[1748, 710]	2185	[3000, 502]	3302	[3755, 2894]	4419	[3964, 2066]
1069	[795, 1504]	2186	[1706, 723]	3303	[3756, 3757]	4420	[4254, 2056]
1070	[1749, 1750]	2187	[3001, 1844]	3304	[3758, 2736]	4421	[4265, 152]
1071	[1751, 1752]	2188	[3002, 1917]	3305	[3759, 3760]	4422	[4277, 1767]
1072	[1501, 1753]	2189	[514, 1847]	3306	[3761, 3762]	4423	[4227, 1853]

1073	[1710, 1754]	2190	[1567, 131]	3307	[3763, 3764]	4424	[3883, 776]
1074	[140, 1623]	2191	[1629, 1832]	3308	[3765, 2337]	4425	[4439, 3905]
1075	[750, 1755]	2192	[1799, 3003]	3309	[3766, 2178]	4426	[4440, 483]
1076	[1756, 1757]	2193	[1741, 509]	3310	[3767, 3768]	4427	[4440, 1925]
1077	[1758, 1759]	2194	[548, 1988]	3311	[3538, 2855]	4428	[4406, 1643]
1078	[1760, 1761]	2195	[3004, 716]	3312	[3769, 3770]	4429	[4273, 2075]
1079	[1762, 1549]	2196	[605, 3005]	3313	[3771, 2737]	4430	[4441, 1475]
1080	[1763, 1657]	2197	[3006, 1765]	3314	[3772, 3773]	4431	[4393, 1635]
1081	[1701, 1764]	2198	[162, 765]	3315	[3774, 2704]	4432	[4442, 53]
1082	[1765, 1766]	2199	[3007, 761]	3316	[1417, 875]	4433	[4245, 2088]
1083	[174, 1767]	2200	[3008, 610]	3317	[3775, 2936]	4434	[4443, 1565]
1084	[1651, 1768]	2201	[3009, 1546]	3318	[3776, 3777]	4435	[4444, 1566]
1085	[1769, 481]	2202	[755, 1742]	3319	[3778, 1033]	4436	[4445, 152]
1086	[1770, 1771]	2203	[779, 3010]	3320	[2271, 923]	4437	[127, 1880]
1087	[1772, 1773]	2204	[1500, 1903]	3321	[3516, 3779]	4438	[4297, 647]
1088	[1469, 1480]	2205	[1806, 1737]	3322	[3780, 119]	4439	[4446, 4447]
1089	[1774, 651]	2206	[551, 3011]	3323	[335, 3781]	4440	[4448, 3723]
1090	[1775, 1740]	2207	[183, 3012]	3324	[3782, 3783]	4441	[4449, 4450]
1091	[136, 1776]	2208	[666, 1536]	3325	[3784, 3785]	4442	[4451, 4452]
1092	[1777, 593]	2209	[1629, 637]	3326	[3786, 2165]	4443	[4453, 3578]
1093	[1778, 674]	2210	[1772, 569]	3327	[3787, 3697]	4444	[2546, 2938]
1094	[1779, 60]	2211	[1870, 1569]	3328	[3788, 3349]	4445	[4454, 3559]
1095	[1780, 1781]	2212	[3013, 802]	3329	[3789, 2598]	4446	[4444, 3014]
1096	[1734, 1782]	2213	[1833, 494]	3330	[3790, 3512]	4447	[4455, 663]
1097	[1783, 1784]	2214	[816, 3014]	3331	[3791, 2359]	4448	[4299, 1755]
1098	[1785, 1786]	2215	[3015, 3016]	3332	[3792, 290]	4449	[3985, 1666]
1099	[1787, 1788]	2216	[1750, 172]	3333	[2738, 323]	4450	[4456, 749]
1100	[1789, 614]	2217	[55, 218]	3334	[3793, 1275]	4451	[3113, 600]
1101	[557, 1790]	2218	[575, 1843]	3335	[3794, 3739]	4452	[4457, 3023]
1102	[1791, 1792]	2219	[1561, 700]	3336	[3419, 2574]	4453	[4414, 3163]
1103	[568, 1516]	2220	[1477, 60]	3337	[376, 3795]	4454	[4231, 2083]
1104	[476, 1793]	2221	[1807, 3017]	3338	[3796, 2570]	4455	[4458, 4459]
1105	[1794, 1685]	2222	[3018, 3019]	3339	[2584, 3797]	4456	[4460, 4461]
1106	[1795, 1796]	2223	[1560, 1899]	3340	[3798, 3667]	4457	[4462, 408]
1107	[1797, 1798]	2224	[643, 1500]	3341	[952, 897]	4458	[4283, 1969]
1108	[1799, 1800]	2225	[1607, 176]	3342	[2273, 306]	4459	[4411, 3978]
1109	[1801, 502]	2226	[1789, 3020]	3343	[3799, 3800]	4460	[4270, 759]
1110	[1802, 1519]	2227	[1879, 1743]	3344	[3801, 3478]	4461	[4463, 3010]
1111	[1803, 1804]	2228	[3021, 3022]	3345	[3802, 3467]	4462	[4286, 152]
1112	[1805, 1806]	2229	[1712, 644]	3346	[3439, 3643]	4463	[4464, 2659]
1113	[1807, 1808]	2230	[1995, 2021]	3347	[3043, 1648]	4464	[4285, 3232]
1114	[1770, 1616]	2231	[2014, 3023]	3348	[719, 212]		
1115	[1547, 1809]	2232	[739, 1557]	3349	[3345, 3803]		
1116	[1810, 1811]	2233	[641, 3024]	3350	[3804, 3805]		

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	745	1	1490	1	2235	0	2980	0	3725	0
1	0	746	0	1491	1	2236	1	2981	0	3726	1
2	1	747	0	1492	1	2237	0	2982	1	3727	1
3	0	748	0	1493	1	2238	1	2983	0	3728	1
4	0	749	0	1494	0	2239	1	2984	0	3729	0
5	1	750	1	1495	1	2240	0	2985	0	3730	1
6	1	751	1	1496	0	2241	0	2986	0	3731	1
7	0	752	1	1497	0	2242	0	2987	1	3732	0
8	0	753	1	1498	0	2243	1	2988	1	3733	1
9	0	754	0	1499	0	2244	0	2989	0	3734	0
10	0	755	0	1500	1	2245	1	2990	0	3735	0
11	1	756	1	1501	0	2246	1	2991	0	3736	0
12	0	757	1	1502	0	2247	0	2992	0	3737	1
13	1	758	1	1503	1	2248	0	2993	1	3738	0
14	0	759	0	1504	1	2249	0	2994	1	3739	0
15	0	760	0	1505	0	2250	1	2995	1	3740	1
16	0	761	0	1506	1	2251	1	2996	1	3741	1
17	0	762	0	1507	0	2252	0	2997	1	3742	0
18	0	763	1	1508	1	2253	1	2998	0	3743	1
19	0	764	0	1509	0	2254	1	2999	1	3744	1
20	0	765	0	1510	0	2255	0	3000	0	3745	1
21	0	766	0	1511	1	2256	1	3001	0	3746	0
22	0	767	0	1512	0	2257	1	3002	0	3747	0
23	1	768	0	1513	0	2258	1	3003	1	3748	1
24	1	769	1	1514	1	2259	0	3004	1	3749	1
25	0	770	1	1515	1	2260	0	3005	0	3750	1
26	1	771	0	1516	0	2261	0	3006	0	3751	1
27	1	772	0	1517	0	2262	0	3007	1	3752	0
28	1	773	0	1518	0	2263	1	3008	0	3753	1
29	0	774	1	1519	0	2264	0	3009	0	3754	1
30	0	775	1	1520	0	2265	0	3010	0	3755	1
31	0	776	1	1521	1	2266	0	3011	0	3756	0
32	0	777	1	1522	0	2267	0	3012	0	3757	1
33	0	778	1	1523	1	2268	1	3013	0	3758	1
34	0	779	0	1524	0	2269	0	3014	0	3759	0
35	0	780	1	1525	0	2270	1	3015	0	3760	1
36	1	781	0	1526	0	2271	0	3016	1	3761	1
37	0	782	1	1527	1	2272	0	3017	1	3762	1
38	0	783	1	1528	1	2273	0	3018	1	3763	0
39	0	784	1	1529	0	2274	0	3019	0	3764	1
40	0	785	0	1530	1	2275	1	3020	1	3765	1

41	0	786	0	1531	1	2276	1	3021	1	3766	1
42	1	787	0	1532	0	2277	1	3022	0	3767	1
43	0	788	0	1533	0	2278	0	3023	0	3768	1
44	1	789	0	1534	0	2279	1	3024	1	3769	0
45	0	790	1	1535	1	2280	0	3025	0	3770	0
46	1	791	1	1536	1	2281	0	3026	0	3771	0
47	1	792	1	1537	0	2282	1	3027	1	3772	1
48	1	793	1	1538	1	2283	0	3028	0	3773	0
49	1	794	0	1539	0	2284	1	3029	0	3774	1
50	0	795	1	1540	1	2285	1	3030	1	3775	0
51	0	796	0	1541	0	2286	1	3031	1	3776	1
52	0	797	1	1542	1	2287	0	3032	0	3777	0
53	1	798	0	1543	1	2288	0	3033	1	3778	0
54	1	799	0	1544	1	2289	0	3034	1	3779	1
55	1	800	0	1545	1	2290	1	3035	1	3780	1
56	0	801	1	1546	0	2291	0	3036	0	3781	0
57	1	802	0	1547	0	2292	1	3037	0	3782	1
58	0	803	0	1548	0	2293	1	3038	1	3783	0
59	0	804	1	1549	1	2294	0	3039	0	3784	1
60	0	805	1	1550	1	2295	0	3040	0	3785	0
61	0	806	0	1551	0	2296	1	3041	0	3786	1
62	0	807	1	1552	1	2297	1	3042	1	3787	1
63	0	808	0	1553	1	2298	1	3043	1	3788	0
64	0	809	0	1554	0	2299	1	3044	1	3789	1
65	0	810	0	1555	1	2300	1	3045	0	3790	1
66	0	811	0	1556	1	2301	0	3046	1	3791	1
67	0	812	0	1557	0	2302	0	3047	1	3792	1
68	1	813	0	1558	1	2303	1	3048	0	3793	1
69	0	814	1	1559	1	2304	0	3049	1	3794	0
70	1	815	0	1560	0	2305	0	3050	1	3795	1
71	0	816	1	1561	1	2306	1	3051	0	3796	1
72	1	817	0	1562	0	2307	0	3052	1	3797	0
73	1	818	0	1563	0	2308	0	3053	0	3798	1
74	1	819	1	1564	1	2309	1	3054	0	3799	0
75	0	820	1	1565	1	2310	0	3055	1	3800	1
76	0	821	1	1566	1	2311	0	3056	1	3801	0
77	0	822	1	1567	0	2312	1	3057	1	3802	1
78	1	823	1	1568	1	2313	0	3058	1	3803	1
79	0	824	0	1569	1	2314	0	3059	1	3804	1
80	1	825	0	1570	0	2315	0	3060	1	3805	1
81	0	826	1	1571	0	2316	0	3061	0	3806	1
82	1	827	0	1572	1	2317	1	3062	0	3807	1
83	0	828	0	1573	0	2318	0	3063	0	3808	0
84	1	829	1	1574	1	2319	1	3064	1	3809	0

85	1	830	1	1575	1	2320	0	3065	1	3810	0
86	1	831	1	1576	1	2321	0	3066	0	3811	0
87	0	832	1	1577	0	2322	0	3067	0	3812	1
88	0	833	0	1578	1	2323	1	3068	0	3813	0
89	1	834	0	1579	0	2324	1	3069	0	3814	1
90	0	835	1	1580	1	2325	1	3070	1	3815	0
91	0	836	0	1581	1	2326	1	3071	0	3816	1
92	1	837	1	1582	1	2327	0	3072	1	3817	0
93	1	838	1	1583	1	2328	1	3073	0	3818	0
94	1	839	0	1584	1	2329	1	3074	1	3819	1
95	1	840	1	1585	1	2330	0	3075	1	3820	1
96	1	841	1	1586	0	2331	0	3076	0	3821	0
97	1	842	0	1587	0	2332	0	3077	0	3822	1
98	1	843	1	1588	1	2333	1	3078	1	3823	0
99	1	844	0	1589	0	2334	1	3079	1	3824	0
100	1	845	0	1590	1	2335	1	3080	0	3825	0
101	0	846	0	1591	0	2336	0	3081	1	3826	1
102	1	847	1	1592	0	2337	1	3082	0	3827	1
103	0	848	1	1593	0	2338	0	3083	1	3828	1
104	1	849	0	1594	1	2339	1	3084	0	3829	1
105	0	850	0	1595	1	2340	0	3085	0	3830	0
106	0	851	1	1596	1	2341	0	3086	0	3831	1
107	1	852	0	1597	1	2342	1	3087	0	3832	0
108	1	853	0	1598	0	2343	1	3088	1	3833	1
109	1	854	1	1599	1	2344	0	3089	1	3834	1
110	1	855	0	1600	0	2345	1	3090	1	3835	0
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113	0	858	1	1603	0	2348	1	3093	0	3838	0
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115	1	860	0	1605	1	2350	0	3095	0	3840	0
116	1	861	0	1606	1	2351	1	3096	0	3841	0
117	0	862	0	1607	0	2352	1	3097	0	3842	1
118	1	863	1	1608	0	2353	0	3098	0	3843	1
119	0	864	0	1609	0	2354	1	3099	1	3844	1
120	0	865	0	1610	1	2355	0	3100	0	3845	0
121	0	866	0	1611	1	2356	1	3101	0	3846	0
122	0	867	0	1612	1	2357	0	3102	0	3847	1
123	0	868	1	1613	0	2358	1	3103	1	3848	1
124	0	869	1	1614	0	2359	0	3104	1	3849	0
125	0	870	0	1615	1	2360	0	3105	0	3850	1
126	1	871	0	1616	1	2361	1	3106	0	3851	1
127	0	872	1	1617	0	2362	0	3107	1	3852	1
128	0	873	0	1618	1	2363	1	3108	0	3853	0

129	0	874	0	1619	0	2364	1	3109	1	3854	0
130	1	875	1	1620	0	2365	1	3110	1	3855	0
131	0	876	0	1621	1	2366	1	3111	1	3856	1
132	1	877	0	1622	0	2367	0	3112	0	3857	1
133	0	878	0	1623	1	2368	0	3113	1	3858	0
134	1	879	0	1624	1	2369	0	3114	0	3859	0
135	0	880	1	1625	0	2370	0	3115	1	3860	1
136	1	881	1	1626	0	2371	0	3116	0	3861	1
137	1	882	0	1627	1	2372	1	3117	0	3862	1
138	0	883	0	1628	1	2373	0	3118	1	3863	0
139	0	884	0	1629	1	2374	1	3119	1	3864	0
140	1	885	1	1630	0	2375	1	3120	1	3865	1
141	1	886	1	1631	0	2376	1	3121	1	3866	0
142	1	887	1	1632	0	2377	0	3122	1	3867	0
143	0	888	0	1633	0	2378	0	3123	0	3868	0
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148	0	893	0	1638	0	2383	0	3128	0	3873	0
149	1	894	0	1639	1	2384	0	3129	0	3874	1
150	1	895	1	1640	0	2385	0	3130	1	3875	0
151	0	896	1	1641	1	2386	0	3131	1	3876	1
152	1	897	1	1642	0	2387	0	3132	1	3877	0
153	0	898	1	1643	1	2388	1	3133	0	3878	0
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155	0	900	0	1645	1	2390	1	3135	1	3880	1
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158	0	903	0	1648	1	2393	1	3138	0	3883	0
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160	1	905	1	1650	0	2395	0	3140	0	3885	1
161	1	906	1	1651	1	2396	1	3141	1	3886	0
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168	1	913	0	1658	0	2403	0	3148	0	3893	0
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171	1	916	0	1661	1	2406	0	3151	0	3896	1
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175	1	920	0	1665	0	2410	1	3155	1	3900	1
176	0	921	0	1666	0	2411	0	3156	1	3901	0
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179	0	924	0	1669	0	2414	0	3159	1	3904	1
180	0	925	1	1670	0	2415	0	3160	0	3905	0
181	0	926	1	1671	1	2416	0	3161	0	3906	1
182	1	927	1	1672	1	2417	0	3162	0	3907	1
183	1	928	0	1673	1	2418	0	3163	0	3908	1
184	1	929	1	1674	1	2419	0	3164	1	3909	0
185	1	930	1	1675	1	2420	0	3165	1	3910	1
186	0	931	0	1676	0	2421	1	3166	1	3911	1
187	1	932	0	1677	1	2422	0	3167	0	3912	1
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190	0	935	0	1680	1	2425	0	3170	0	3915	0
191	1	936	1	1681	1	2426	1	3171	1	3916	1
192	1	937	1	1682	0	2427	1	3172	1	3917	1
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203	1	948	0	1693	0	2438	1	3183	1	3928	0
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213	0	958	0	1703	1	2448	1	3193	0	3938	1
214	1	959	0	1704	0	2449	0	3194	1	3939	0
215	0	960	1	1705	0	2450	1	3195	1	3940	0
216	1	961	0	1706	0	2451	0	3196	0	3941	1

217	0	962	0	1707	1	2452	0	3197	1	3942	1
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219	0	964	1	1709	0	2454	1	3199	0	3944	0
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222	0	967	1	1712	1	2457	0	3202	1	3947	0
223	1	968	0	1713	1	2458	1	3203	1	3948	0
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225	0	970	1	1715	1	2460	1	3205	0	3950	0
226	1	971	0	1716	0	2461	0	3206	1	3951	1
227	0	972	1	1717	0	2462	0	3207	1	3952	1
228	0	973	1	1718	1	2463	1	3208	0	3953	0
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230	1	975	1	1720	0	2465	1	3210	0	3955	0
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232	0	977	0	1722	0	2467	1	3212	1	3957	0
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235	1	980	0	1725	1	2470	1	3215	1	3960	1
236	0	981	1	1726	1	2471	1	3216	0	3961	0
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238	0	983	1	1728	0	2473	0	3218	0	3963	1
239	1	984	1	1729	1	2474	1	3219	0	3964	1
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245	1	990	0	1735	0	2480	0	3225	0	3970	0
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249	0	994	1	1739	0	2484	0	3229	0	3974	1
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253	1	998	0	1743	1	2488	1	3233	0	3978	1
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259	0	1004	0	1749	0	2494	1	3239	1	3984	0
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265	1	1010	0	1755	0	2500	1	3245	0	3990	1
266	0	1011	0	1756	1	2501	0	3246	1	3991	0
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268	0	1013	1	1758	1	2503	0	3248	0	3993	1
269	0	1014	1	1759	1	2504	0	3249	0	3994	0
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271	0	1016	0	1761	1	2506	1	3251	0	3996	1
272	1	1017	0	1762	1	2507	0	3252	0	3997	0
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274	0	1019	1	1764	1	2509	1	3254	1	3999	1
275	1	1020	0	1765	0	2510	0	3255	0	4000	0
276	1	1021	1	1766	0	2511	0	3256	0	4001	1
277	1	1022	0	1767	0	2512	1	3257	0	4002	0
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279	0	1024	0	1769	0	2514	0	3259	0	4004	1
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283	1	1028	1	1773	1	2518	0	3263	1	4008	1
284	1	1029	1	1774	0	2519	0	3264	0	4009	0
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286	1	1031	0	1776	0	2521	1	3266	0	4011	0
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288	0	1033	1	1778	0	2523	1	3268	0	4013	1
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294	0	1039	1	1784	1	2529	1	3274	1	4019	0
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296	1	1041	0	1786	0	2531	1	3276	0	4021	1
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323	0	1068	0	1813	1	2558	1	3303	0	4048	1
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381	0	1126	0	1871	1	2616	0	3361	1	4106	1
382	1	1127	0	1872	1	2617	1	3362	0	4107	1
383	0	1128	1	1873	1	2618	1	3363	0	4108	1
384	1	1129	1	1874	0	2619	1	3364	0	4109	1
385	0	1130	1	1875	0	2620	0	3365	1	4110	0
386	0	1131	0	1876	1	2621	1	3366	0	4111	1
387	1	1132	1	1877	0	2622	1	3367	0	4112	1
388	1	1133	0	1878	0	2623	1	3368	0	4113	1
389	0	1134	1	1879	1	2624	0	3369	1	4114	1
390	0	1135	0	1880	1	2625	1	3370	1	4115	1
391	0	1136	1	1881	0	2626	1	3371	0	4116	0
392	0	1137	1	1882	1	2627	1	3372	1	4117	1

393	1	1138	0	1883	0	2628	1	3373	1	4118	0
394	1	1139	1	1884	1	2629	1	3374	0	4119	0
395	0	1140	0	1885	1	2630	1	3375	0	4120	0
396	1	1141	0	1886	0	2631	0	3376	0	4121	1
397	1	1142	1	1887	0	2632	1	3377	1	4122	0
398	1	1143	0	1888	0	2633	0	3378	1	4123	1
399	0	1144	0	1889	0	2634	1	3379	0	4124	1
400	0	1145	0	1890	0	2635	1	3380	1	4125	0
401	1	1146	1	1891	1	2636	0	3381	0	4126	1
402	0	1147	1	1892	0	2637	1	3382	1	4127	1
403	1	1148	1	1893	0	2638	1	3383	0	4128	1
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405	1	1150	1	1895	0	2640	1	3385	1	4130	0
406	1	1151	0	1896	1	2641	0	3386	0	4131	0
407	0	1152	0	1897	1	2642	0	3387	0	4132	0
408	1	1153	1	1898	0	2643	0	3388	1	4133	1
409	1	1154	0	1899	1	2644	1	3389	0	4134	0
410	0	1155	0	1900	0	2645	1	3390	1	4135	0
411	1	1156	0	1901	0	2646	1	3391	1	4136	1
412	1	1157	0	1902	0	2647	0	3392	0	4137	1
413	1	1158	1	1903	1	2648	1	3393	0	4138	1
414	0	1159	1	1904	1	2649	1	3394	0	4139	0
415	1	1160	0	1905	1	2650	0	3395	0	4140	0
416	1	1161	1	1906	0	2651	0	3396	1	4141	0
417	1	1162	1	1907	0	2652	1	3397	1	4142	1
418	0	1163	0	1908	0	2653	0	3398	1	4143	1
419	1	1164	0	1909	1	2654	0	3399	1	4144	1
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421	1	1166	1	1911	1	2656	1	3401	1	4146	0
422	0	1167	1	1912	0	2657	1	3402	0	4147	0
423	0	1168	1	1913	0	2658	1	3403	1	4148	0
424	1	1169	1	1914	1	2659	1	3404	0	4149	0
425	0	1170	0	1915	0	2660	0	3405	1	4150	0
426	0	1171	0	1916	1	2661	1	3406	0	4151	1
427	0	1172	1	1917	1	2662	0	3407	1	4152	1
428	1	1173	0	1918	0	2663	0	3408	0	4153	1
429	1	1174	0	1919	1	2664	1	3409	1	4154	1
430	0	1175	1	1920	0	2665	1	3410	1	4155	1
431	0	1176	1	1921	1	2666	0	3411	0	4156	0
432	1	1177	1	1922	1	2667	1	3412	0	4157	0
433	1	1178	0	1923	0	2668	1	3413	0	4158	1
434	0	1179	1	1924	1	2669	1	3414	1	4159	0
435	0	1180	0	1925	1	2670	0	3415	1	4160	0
436	0	1181	1	1926	0	2671	0	3416	0	4161	0

437	1	1182	1	1927	1	2672	0	3417	1	4162	0
438	1	1183	1	1928	0	2673	0	3418	0	4163	1
439	0	1184	1	1929	1	2674	1	3419	1	4164	1
440	0	1185	1	1930	0	2675	0	3420	1	4165	0
441	0	1186	1	1931	1	2676	0	3421	1	4166	0
442	0	1187	0	1932	0	2677	0	3422	0	4167	1
443	1	1188	1	1933	0	2678	0	3423	0	4168	1
444	1	1189	0	1934	1	2679	1	3424	0	4169	0
445	1	1190	0	1935	1	2680	0	3425	0	4170	1
446	1	1191	0	1936	0	2681	0	3426	0	4171	1
447	1	1192	1	1937	0	2682	0	3427	1	4172	0
448	0	1193	0	1938	1	2683	1	3428	0	4173	1
449	1	1194	0	1939	0	2684	0	3429	0	4174	0
450	0	1195	1	1940	1	2685	0	3430	0	4175	1
451	1	1196	0	1941	0	2686	1	3431	1	4176	1
452	0	1197	1	1942	0	2687	1	3432	1	4177	1
453	1	1198	0	1943	1	2688	1	3433	0	4178	1
454	1	1199	0	1944	1	2689	0	3434	1	4179	0
455	0	1200	0	1945	0	2690	1	3435	1	4180	0
456	0	1201	0	1946	0	2691	0	3436	0	4181	0
457	0	1202	1	1947	1	2692	0	3437	0	4182	1
458	1	1203	1	1948	0	2693	0	3438	1	4183	1
459	0	1204	0	1949	0	2694	0	3439	0	4184	1
460	0	1205	0	1950	0	2695	1	3440	0	4185	1
461	1	1206	1	1951	0	2696	1	3441	0	4186	0
462	1	1207	0	1952	1	2697	1	3442	1	4187	1
463	1	1208	1	1953	1	2698	0	3443	0	4188	0
464	1	1209	0	1954	0	2699	1	3444	0	4189	1
465	1	1210	1	1955	1	2700	0	3445	1	4190	0
466	0	1211	0	1956	1	2701	1	3446	1	4191	1
467	1	1212	0	1957	0	2702	0	3447	0	4192	0
468	0	1213	0	1958	0	2703	1	3448	0	4193	1
469	1	1214	0	1959	0	2704	0	3449	1	4194	0
470	1	1215	0	1960	0	2705	0	3450	1	4195	0
471	0	1216	0	1961	1	2706	0	3451	0	4196	1
472	1	1217	1	1962	1	2707	0	3452	0	4197	1
473	0	1218	0	1963	1	2708	0	3453	0	4198	0
474	0	1219	1	1964	0	2709	0	3454	0	4199	0
475	0	1220	0	1965	0	2710	1	3455	0	4200	1
476	1	1221	1	1966	0	2711	0	3456	1	4201	0
477	1	1222	0	1967	0	2712	0	3457	0	4202	0
478	0	1223	0	1968	0	2713	0	3458	1	4203	0
479	0	1224	0	1969	0	2714	0	3459	1	4204	0
480	0	1225	1	1970	0	2715	0	3460	0	4205	0

481	1	1226	0	1971	1	2716	1	3461	1	4206	1
482	0	1227	1	1972	0	2717	1	3462	1	4207	1
483	0	1228	0	1973	1	2718	1	3463	1	4208	1
484	1	1229	1	1974	1	2719	0	3464	0	4209	0
485	0	1230	1	1975	1	2720	1	3465	0	4210	1
486	1	1231	1	1976	0	2721	1	3466	0	4211	0
487	0	1232	1	1977	1	2722	1	3467	1	4212	1
488	0	1233	1	1978	0	2723	1	3468	0	4213	0
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490	0	1235	1	1980	0	2725	1	3470	1	4215	0
491	0	1236	0	1981	0	2726	1	3471	0	4216	1
492	1	1237	1	1982	0	2727	1	3472	1	4217	1
493	0	1238	0	1983	1	2728	0	3473	1	4218	1
494	0	1239	1	1984	1	2729	0	3474	1	4219	0
495	1	1240	1	1985	0	2730	0	3475	0	4220	0
496	0	1241	0	1986	1	2731	1	3476	1	4221	1
497	0	1242	1	1987	1	2732	0	3477	1	4222	0
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499	0	1244	0	1989	1	2734	1	3479	0	4224	1
500	1	1245	0	1990	1	2735	1	3480	0	4225	0
501	1	1246	1	1991	0	2736	0	3481	0	4226	0
502	0	1247	1	1992	0	2737	1	3482	1	4227	0
503	1	1248	0	1993	0	2738	1	3483	1	4228	1
504	0	1249	1	1994	1	2739	1	3484	0	4229	0
505	1	1250	1	1995	0	2740	0	3485	0	4230	1
506	1	1251	1	1996	1	2741	0	3486	1	4231	1
507	1	1252	1	1997	1	2742	1	3487	0	4232	0
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509	0	1254	0	1999	1	2744	0	3489	0	4234	0
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511	1	1256	0	2001	1	2746	1	3491	1	4236	0
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513	0	1258	0	2003	1	2748	0	3493	0	4238	0
514	1	1259	1	2004	0	2749	1	3494	1	4239	0
515	0	1260	1	2005	1	2750	0	3495	1	4240	0
516	0	1261	0	2006	0	2751	1	3496	0	4241	1
517	0	1262	0	2007	0	2752	1	3497	0	4242	1
518	1	1263	0	2008	0	2753	1	3498	1	4243	1
519	0	1264	0	2009	1	2754	0	3499	0	4244	0
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521	1	1266	0	2011	0	2756	0	3501	0	4246	0
522	1	1267	0	2012	0	2757	1	3502	1	4247	0
523	1	1268	0	2013	1	2758	0	3503	1	4248	1
524	0	1269	0	2014	0	2759	0	3504	1	4249	1

525	0	1270	1	2015	0	2760	1	3505	0	4250	0
526	0	1271	1	2016	1	2761	1	3506	0	4251	0
527	1	1272	0	2017	1	2762	1	3507	0	4252	0
528	0	1273	1	2018	1	2763	0	3508	1	4253	1
529	1	1274	1	2019	0	2764	0	3509	0	4254	1
530	0	1275	0	2020	0	2765	0	3510	0	4255	0
531	1	1276	0	2021	0	2766	0	3511	0	4256	1
532	0	1277	1	2022	1	2767	0	3512	1	4257	1
533	1	1278	1	2023	0	2768	1	3513	0	4258	1
534	0	1279	0	2024	1	2769	0	3514	0	4259	0
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536	1	1281	0	2026	0	2771	0	3516	0	4261	1
537	1	1282	0	2027	0	2772	0	3517	0	4262	0
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539	1	1284	1	2029	0	2774	1	3519	1	4264	1
540	0	1285	0	2030	0	2775	1	3520	1	4265	0
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542	1	1287	1	2032	0	2777	0	3522	0	4267	1
543	1	1288	0	2033	1	2778	1	3523	1	4268	1
544	1	1289	1	2034	0	2779	0	3524	0	4269	1
545	1	1290	0	2035	0	2780	1	3525	1	4270	1
546	1	1291	0	2036	0	2781	1	3526	1	4271	0
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550	0	1295	1	2040	1	2785	1	3530	1	4275	1
551	1	1296	1	2041	1	2786	1	3531	1	4276	1
552	0	1297	0	2042	1	2787	1	3532	1	4277	1
553	1	1298	0	2043	1	2788	0	3533	0	4278	0
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555	0	1300	0	2045	1	2790	0	3535	0	4280	0
556	0	1301	1	2046	1	2791	1	3536	0	4281	1
557	0	1302	1	2047	1	2792	0	3537	1	4282	1
558	1	1303	0	2048	1	2793	0	3538	0	4283	0
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561	0	1306	1	2051	0	2796	0	3541	0	4286	1
562	0	1307	1	2052	1	2797	0	3542	1	4287	0
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564	0	1309	1	2054	0	2799	0	3544	1	4289	0
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566	1	1311	0	2056	1	2801	0	3546	0	4291	0
567	0	1312	0	2057	0	2802	0	3547	0	4292	1
568	0	1313	0	2058	0	2803	1	3548	1	4293	0

569	0	1314	1	2059	0	2804	1	3549	0	4294	0
570	1	1315	0	2060	1	2805	1	3550	1	4295	1
571	0	1316	1	2061	1	2806	0	3551	0	4296	0
572	0	1317	0	2062	0	2807	0	3552	0	4297	0
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574	0	1319	1	2064	0	2809	1	3554	1	4299	1
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576	0	1321	0	2066	0	2811	0	3556	0	4301	1
577	0	1322	0	2067	0	2812	0	3557	0	4302	0
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579	1	1324	0	2069	0	2814	0	3559	1	4304	1
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581	1	1326	1	2071	0	2816	1	3561	0	4306	1
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584	1	1329	1	2074	1	2819	0	3564	1	4309	0
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591	1	1336	0	2081	1	2826	1	3571	1	4316	0
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617	0	1362	0	2107	0	2852	0	3597	1	4342	0
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623	1	1368	0	2113	1	2858	0	3603	0	4348	1
624	1	1369	0	2114	0	2859	1	3604	1	4349	0
625	1	1370	1	2115	1	2860	1	3605	1	4350	0
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628	1	1373	1	2118	0	2863	0	3608	0	4353	0
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630	1	1375	0	2120	1	2865	1	3610	0	4355	0
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632	0	1377	1	2122	1	2867	1	3612	1	4357	1
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636	1	1381	1	2126	1	2871	0	3616	1	4361	1
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646	1	1391	1	2136	0	2881	0	3626	1	4371	0
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659	0	1404	1	2149	1	2894	1	3639	1	4384	1
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663	0	1408	0	2153	1	2898	0	3643	0	4388	0
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674	0	1419	0	2164	0	2909	1	3654	0	4399	1
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677	0	1422	1	2167	0	2912	0	3657	1	4402	0
678	0	1423	0	2168	1	2913	1	3658	1	4403	1
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742	1	1487	0	2232	1	2977	1	3722	1		
743	1	1488	0	2233	0	2978	1	3723	0		
744	0	1489	0	2234	0	2979	1	3724	0		

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