Let \( f(x) \) be a \{0, 1\}–polynomial, let \( k \geq 1 \) be an integer and let \( p \) be a prime. Define a sequence of \{0, 1\}–polynomials by: 
\[
f_1 := f(x) \text{ and, for } i \geq 2, f_i := f_{i-1} + x^{kn}, \text{ if } kn \text{ is the smallest multiple of } k \text{ larger than } d_{i-1}, \text{ the degree of } f_{i-1}, \text{ such that } f_{i-1} + x^{kn} \text{ is reducible modulo } p.
\]
Let \( D = \{d_i \mid i = 1, 2, 3, \ldots \} \) and let \( M = \{d_1 + 1, d_1 + 2, \ldots \} - D \). We investigate conditions on \((f, k, p)\) which determine whether \(M\) is empty, finite or infinite. In addition, we investigate conditions on \((f, k, p)\) which guarantee, in the situation when \(M\) is finite, that \(f_i\) has a zero mod \(p\) for all \(i\) with \(d_i > m\), where \(m\) is the largest element of \(M\). (Received September 30, 2004)