There is an infinite number of twin primes: An application of set theory. Preliminary report.

In this article, we construct a basic set of $I_0$:

$$I_0 = \{(\alpha, \alpha + 2) : \alpha \in N\},$$

a set of all pairs of two integers, in which the first coordinate belongs to the natural number set $N$, and the second coordinator is adding 2 to the first coordinator always. Then, classifying all elements of $I_0$ by the least prime factor criterion to get an infinite number of nonempty subsets $I_k$, $k \geq 1$, in $I_0$. Let $t_k = \min I_k$, $k \geq 1$. Thus, the process of proving the Conjecture of Twin Primes consists of the following four statements:

1. $I_{k-1} \supset I_k$, $k \geq 1$. It implies the sequence of numbers $\{t_k\}$ is an non-decreasing;
2. Under the condition of $I_k\{p_{k+1}^2 - 3\} \neq \phi$, $t_k$ is a pair twin primes, for all $k \geq 1$;
3. The sequence of numbers $\{t_k\}$ has a strict increasing infinite subsequence;
4. $I_k\{p_{k+1}^2 - 3\} \neq \phi$, for all $k \geq 1$.

(Received September 23, 2012)