# ON THE INTERSECTED SMARANDACHE PRODUCT SEQUENCES

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Abstract. In this paper we discuss a question concerning the intersected Smarandache product sequences.

Let $U=\{U_n\}_{n=1}^{\infty}$ be an infinite increasing sequence of positive integers. For any positive integer n, let

(1) $s_n = 1+u_1 u_2 \ldots u_n$ .

Then the the sequence $S(U)=\{s_n\}_{n=1}^{\infty}$ is called the Smarandache product sequence of U (see[1]). Further, if there exist infinitely many terms in U belonging to S(U), then S(U), is called intersected. In this paper we pose the following question:

Question. Wich of ordinary Smarandache product sequences are intersected?

We nou give some obvious examples as follows:

Example 1. If $U=\{n\}_{n=1}^{\infty}$ , then S(U) is intersected. In this case, we see from (1) that $s_n = u_{n!+1}$ for any positive integer n.

Exemple 2. Let k be a positive integer with k>1. If $U=\{kn\}_{n=1}^{\infty}$ , then S(U) is non-intersected, since $k \nmid s_n$ for any positive integer n.

Exemple 3. Let k be a positive integer with k>1. If $U=\{n^k\}_{n=1}^{\infty}$ , then S(U) is non-intersected. In this case, we have $s_n = 1+1^k 2^k \ldots n^k = 1+(n!)^k$ , which is not a k-th power.

Example 4. If $U=\{n!\}_{n=1}^{\infty}$ , then S(U) is non-intersected. In this case, we have $s_n = 1+1!2!\ldots n!$, which is an odd integer if n>1. It implies that $u_n \in S(U)$ if and only if n=2.

## Reference

1.F.Iacobescu, Smarandache partition type and other sequences, Bull.Pure appl.Sci.Sect.E 16(1997), No.2, 237-240.