Infinite Self-Shuffling Words

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An infinite word $\alpha \in \mathbb{A}^{\mathbb{N}}$ with values in a finite set $\mathbb{A}$, is said to be *self-shuffling* if α admits factorizations: $\alpha = \prod_{i=0}^{\infty}(U_i V_i) = \prod_{i=0}^{\infty} U_i = \prod_{i=0}^{\infty} V_i$. In other words, there exists a shuffle of 2-copies of α which produces α. We study the conditions to be self-shuffling together with applications. This is a joint work with Émilie Charlier, Svetlana Puzynina and Luca Q. Zamboni.