

## An analog of multiplier sequences for the set of totally positive sequences

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We recall that a real sequence  $(b_k)_{k=0}^{\infty}$  is called totally positive if all minors of the infinite matrix  $\|b_{j-i}\|_{i,j=0}^{\infty}$  are nonnegative (here  $b_k = 0$  for  $k < 0$ ). We investigate the following problem posed by Alan Sokal: to describe the set of sequences  $(a_k)_{k=0}^{\infty}$  such that for every totally positive sequence  $(b_k)_{k=0}^{\infty}$  the sequence  $(a_k b_k)_{k=0}^{\infty}$  is also totally positive. Joint with Olga Katkova we obtain the description of such sequences  $(a_k)_{k=0}^{\infty}$  in two cases: when the generating function of the sequence  $\sum_{k=0}^{\infty} a_k z^k$  has at least one pole, and when the sequence  $(a_k)_{k=0}^{\infty}$  has not more than 4 nonzero terms. Some connected results (including results concerning multiplier sequences) and a number of open problems will be also discussed.