

# A NOTE ON P-ADIC VALUATIONS OF THE SCHENKER SUMS

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A prime number  $p$  is called a Schenker prime if there exists such  $n \in \mathbb{N}_+$  that  $p \nmid n$  and  $p \mid a_n$ , where  $a_n = \sum_{j=0}^n \frac{n!}{j!} n^j$  is a so-called Schenker sum. T. Amdeberhan, D. Callan and V. Moll formulated two conjectures concerning  $p$ -adic valuations of  $a_n$  in case when  $p$  is a Schenker prime. In particular, they asked whether for each  $k \in \mathbb{N}_+$  there exists a unique positive integer  $n_k < 5^k$  such that  $v_5(a_{m \cdot 5^k + n_k}) \geq k$  for each nonnegative integer  $m$ . We prove that for every  $k \in \mathbb{N}_+$  the inequality  $v_5(a_n) \geq k$  has exactly one solution modulo  $5^k$ . This confirms the first conjecture stated by the mentioned authors. Moreover, we show that if  $37 \nmid n$  then  $v_{37}(a_n) \leq 1$ , which means that the second conjecture stated by the mentioned authors is not true.