

Werk

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Let I_1 be associated with the sequence $\varepsilon_1^0, \varepsilon_2^0, \dots, \varepsilon_m^0$. Put

$$v = km + \frac{k(k+1)}{2}, \quad \varepsilon_{m+i}^0 = 1 \quad (i = 1, 2, \dots, k).$$

Let

$$J = \left(\frac{l}{2^v}, \frac{l+1}{2^v} \right) \quad (0 \leq l \leq 2^v - 1)$$

be an interval which is associated with the sequence $\varepsilon_1^0, \varepsilon_2^0, \dots, \varepsilon_v^0$. Then obviously $J \subset I_1 \subset I$. If A is an arithmetical set such that $\varrho(A) \in J$, then

$$m+i \in A \quad (i = 1, 2, \dots, k), \quad \sum_{i=1}^k (m+i) = km + \frac{k(k+1)}{2} = v \in A$$

and hence $A \notin T_k$. Therefore $J \cap \varrho(T_k) = \emptyset$. This completes the proof.

Remark. Using the method of the proof of part (ii) of Theorem 2,2 we can show that also the set $H(a)$ (see Lemma 1,1) is a nowhere-dense set in $(0, 1)$. The proof of this fact can be left to the reader.

References

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