

## Werk

**Label:** Table of literature references

**Jahr:** 1985

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Since for  $x \in E$  the set

$$\left\{ t \in R : |f(t) - h(t)| < \frac{\text{dist}(t, E)}{1 + \text{dist}(t, E)} \right\}$$

is residual at the point  $x$ , we have  $q\text{-}\limsup_{t \rightarrow x} f(t) = q\text{-}\limsup_{t \rightarrow x} h(t)$  and  $q\text{-}\liminf_{t \rightarrow x} f(t) = q\text{-}\liminf_{t \rightarrow x} h(t)$ . Hence  $C_q(f) \cap [E - (C \cup C_1)] = B$ ,  $S_q(f) \cap [E - (C \cup C_1)] = A - C$  and  $S_q^1(f) \cap [E - (C \cup C_1)] = A_1 - C_1$ .

c) Assume that  $x \in R - (E \cup C \cup C_1)$ . The following cases may occur: The set  $R - (A \cup A_1)$  is of the second category at  $x$ . Then for every  $n \in N$  the set  $K_n - (A \cup A_1)$  is of the second category at  $x$ ,

$$\begin{aligned} q\text{-}\limsup_{t \rightarrow x} f(t) &= h(x) + \frac{\text{dist}(x, E)}{1 + \text{dist}(x, E)} \quad \text{and} \quad q\text{-}\liminf_{t \rightarrow x} f(t) = h(x) - \\ &\quad - \frac{\text{dist}(x, E)}{1 + \text{dist}(x, E)}. \end{aligned}$$

There exists a neighbourhood  $U \subseteq R - E$  of  $x$  such that  $U - (A \cup A_1) \in \mathcal{J}$ . Since the sets  $A - B$  and  $A_1 - B$  do not contain sets of the second category having the Baire property, hence the sets  $A - B$  and  $A_1 - B$  are of the second category at  $x$ . Then

$$q\text{-}\limsup_{t \rightarrow x} f(t) = \lim_{t \rightarrow x} \left( h(t) + \frac{\text{dist}(t, E)}{1 + \text{dist}(t, E)} \right) = h(x) + \frac{\text{dist}(x, E)}{1 + \text{dist}(x, E)}$$

and

$$q\text{-}\liminf_{t \rightarrow x} f(t) = h(x) - \frac{\text{dist}(x, E)}{1 + \text{dist}(x, E)}.$$

Thus, if  $x \in A - C$  then  $x \in S_q(f) - [Q(f) \cup T_q(f)]$ , if  $x \in A_1 - C_1$  then  $x \in S_q^1(f) - [Q(f) \cup T_q^1(f)]$  and if  $x \notin A \cup A_1$  then  $x \notin S_q(f) \cup S_q^1(f)$ .

Therefore  $f$  satisfies the condition (ii).

#### References

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