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## ON THE DERIVATIVES OF FUNCTIONS OF BOUNDED VARIATION

The following two questions were submitted by F. S. Cater.

Let  $\mathcal{F}$  denote the family of all absolutely continuous, nondecreasing functions on  $[0, 1]$ . Endow  $\mathcal{F}$  with the complete metric  $d$  defined by

$$d(f, g) = |f(0) - g(0)| + \int_0^1 |f' - g'|$$

Let

$$\mathcal{G} = \{g \in \mathcal{F}; g'(x) = \infty \text{ for uncountably many } x \text{ in each subinterval of } [0, 1]\}.$$

It is easy to prove that  $\mathcal{G}$  and  $\mathcal{F} \setminus \mathcal{G}$  are dense subsets of  $\mathcal{F}$ .

1. Is  $\mathcal{G}$  a first category subset of  $\mathcal{F}$ ?
2. Is  $\mathcal{F} \setminus \mathcal{G}$  a first category subset of  $\mathcal{F}$ ?

