

## Exercises

3.239 [036] Let  $I$  be a family of indices and  $B_i, A_i$  sets, for  $i \in I$ , such that  $|A_i| \leq |B_i|$ ; suppose that the sets  $B_i$  are pairwise disjoint. Show that

$$\left| \bigcup_{i \in I} A_i \right| \leq \left| \bigcup_{i \in I} B_i \right| .$$

(In your opinion, is it possible to prove this result without using the axiom of choice, at least in the case in which  $I$  is countable?)

**Solution 1.** [037]