

**Esercizio 1.** Let  $M$  be a graph. A star in  $M$  is a subgraph whose edges all share a common vertex. We say that a coloring of the edges of  $M$  is locally finite if there is a  $k$  such that every star has at most  $k$  colors. Assume  $M$  has the property that for every finite  $A \subseteq M$  there is a  $c \in M$  such that  $A \subseteq r(c, \mathcal{U})$ . (This holds in particular when  $M$  is a random graph.) Prove that for every locally finite coloring of the edges  $M$  has an infinite monochromatic complete subgraph.