

# fixable

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Let  $G$  be a loopless multigraph and  $L$  a list assignment on  $V(G)$ . For different colors  $a, b \in Pot(L)$ , let  $S_{a,b}$  be all the vertices of  $G$  that have exactly one of  $a$  or  $b$  in their list; more precisely,  $S_{a,b} = \{v \in V(G) \mid |\{a, b\} \cap L(v)| = 1\}$ . We say that  $G$  is  $L$ -fixable if

1.  $G$  has an edge coloring  $\pi$  such that  $\pi(xy) \in L(x) \cap L(y)$  for all  $xy \in E(G)$ ; or
2. There are different  $a, b \in Pot(L)$  such that for every partition  $P_1, \dots, P_k$  of  $S_{a,b}$  into sets of size at most two, there is  $J \subseteq [k]$  so that  $G$  is  $L'$ -fixable where  $L'$  is formed from  $L$  by swapping  $a$  and  $b$  in  $L(v)$  for every  $v \in \bigcup_{i \in J} P_i$ .