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## Variations on Majority Coloring of Graphs

In every coloring of the vertices of a graph, some edges are *good* (properly colored), while others may be *bad* (monochromatic). In a *majority* coloring of a graph, every vertex shoud have at least as many good as bad edges among the ones it is incident to. It is well known and easy to prove that every *finite* simple graph has a majority coloring by using just *two* colors. It is not known however if the same is true for countable graphs (see [1], [7]).

Majority coloring can be considered for other combinatorial structures, like digraphs, hypergraphs, oriented hypergraphs, etc. For instance, in a majority coloring of a directed graph, every vertex should have at least as many good as bad among its *outgoing* edges. It is easy to prove that every finite digraph is majority 4-colorable, but it is conjectured that actually three colors should be sufficient (see [6]). A more general result for the *list* version of majority coloring of digraphs is proved in [3]. Other related results for majority *choosability* of graphs and digraphs are proved in [2], [4] and [5].

I will present some further problems and results concerning this topics.

## References

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