

1080-05-347

Bruce Reed, Jonathan Noel and Hehui Wu* (hehui.wu@mcgill.ca), 3480 University Street
Montreal, School of Computer Science, McGill University, Montreal, QC H3A 0E9, Canada. *Some
progress on Ohba's Conjecture.* Preliminary report.

Given a set $L(v)$ on each vertex v of a graph G , we say G is L -choosable if G has a proper coloring such that each vertex v receives its color from $L(v)$. G is k -choosable if G is L -choosable whenever $L(v)$ has size at least k for each vertex v . The list chromatic number or choosability $ch(G)$ is the maximum k such that G is k -choosable. A graph is chromatic-choosable if its list chromatic number equals its chromatic number.

Ohba conjectured that a graph G is chromatic-choosable whenever it has chromatic number more than half of its vertex number. Let k be its chromatic number. We prove that Ohba's conjecture holds whenever it holds for complete k -partite graph, where the singleton parts all have the same list. We also reduce the case to that parts with size at most 4 have a simple fixed list structure. Based on these, we prove that Ohba's conjecture holds when there are few non-singleton parts. We also improve a result of Bruce and Sudakov, which states that if $|V(G)| \leq \frac{5}{3}\chi(G) - \frac{4}{3}$, then G is chromatic-choosable.

This is joint work with Bruce Reed and Jon Noel. (Received January 31, 2012)