On 1-2-3 Conjecture

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Abstract: An edge-weighting vertex colouring of a graph G is a mapping $f : E(G) \to \mathbb{R}$ such that for any edge uv of G, $\sum_{e\in E(u)} f(e) \neq \sum_{e\in E(v)} f(e)$. The well-known 1-2-3 conjecture asserts that any graph with no isolated edges has an edge-weighting vertex colouring using weights 1,2 and 3. The list version of this conjecture asserts that if each edge e is given a list $L(e)$ of 3 real numbers as permissible weights, then there is an edge-weighting vertex colouring f using permissible weights for each edge e.

In this talk, I will give a detailed sketch of the proof that if each edge e is given a list $L(e)$ of 5 permissible weights, then there is an edge-weighting vertex colouring f using permissible weights from $L(e)$ for each edge e.