An Ore-degree version of Vizing's extension of Brooks' theorem

November 20, 2012

1 Introduction

2 Weeding out easy lists

Let $H := (X, E)$ be a finite k-uniform hypergraph. Let $P := (P_1, \ldots, P_n)$ be an ordered partition of X and $\mathbf{t} \in \mathbb{N}_{\geq 2}^n$. An edge $e \in E$ let $\mathcal{A}_e := \{i \in [n] \mid |e \cap P_i| \geq t_i\}$ be the *compatible indices* for e. Then P is $\mathbf{t}$-acceptable if $\sum_{i \in \mathcal{A}_e} t_i \geq k$ for each $e \in E$.

Question. Which hypergraphs have $\mathbf{t}$-acceptable partitions for some $\mathbf{t} \in \mathbb{N}_{\geq 2}^n$?