

# Balanced Pairs

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In this thesis we study balanced pairs and the related  $\frac{1}{3}$ - $\frac{2}{3}$  conjecture for partially ordered sets. We report about developments in this area since 1968, when Kislitsyn first formulated this conjecture. We will concentrate on a work of Eppstein (2013), in which he generalized the conjecture to basic words of antimatroids. As we will show, there is an error in a proof, that was supposed to verify the conjecture for antimatroids of height 2. But together with a lemma of Eppstein, we can derive a new proof for the original conjecture for posets of height 2.

Motivated by the work of Eppstein, we study antimatroids that are defined by perfect elimination orderings of chordal graphs (PEO-antimatroids). We prove some basic properties for PEO-antimatroids and show that the conjecture is true for PEO-antimatroids of unit interval graphs.