

## Chains and Matchings

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In what ways can we partition a partially ordered set (poset) into linearly ordered subsets (chains)? We will report some recent progress on a number of old conjectures.

In particular, two chains  $C_1$  and  $C_2$  in a finite ranked poset  $P$  (a finite poset is ranked if all maximal chains have the same size) are said to be *nested* if  $|C_1| \leq |C_2|$  implies that the levels occurring in  $C_1$  are a subset of the levels occurring in  $C_2$ . A thirty-year old conjecture of Griggs gives a sufficient condition—the so-called normalized matching condition—for guaranteeing a decomposition of a poset into pairwise nested chains. We will discuss a recent result that explains one difficulty in proving this conjecture.