

Parameters of Posets

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Abstract:

A partially ordered set, or poset, is simply a collection of objects where some of the objects are comparable and some aren't, along with a few nice properties. We will explore various natural parameters of posets by modeling several real-life situations, such as little league rankings, employees in a company, and patients in an ER waiting room. Because we all have some experience working with real world posets like these, we possess a good intuition for how things should work. Many of the results I'll discuss follow from our intuitive understanding of posets. However, there are also a few surprising results that are not what we expect! We will see examples of each of these while we try to answer practical questions such as: what is the most fair way to assign salaries to employees? How does ER triage scheduling change when we have multiple doctors? How much could we possibly disagree when ranking sports teams?