

(F8)

- Rep. Relation, partial order

- Poset ex. boolean poset, div. on $\{1, \dots, n\}$, D_n

(*) Ex. Prove: $\{1, 2, \dots, n\}$ with $a \preceq b$ if $b-a \in 2\mathbb{N}$ is a poset.

- Comparability, total order

- Cover, Hasse diagram (finite poset!)

III. Hasse diag. of $(\{1, \dots, n\}, \preceq)$, B_3 , D_{12} , $(\{1, \dots, 12\}, 1)$, above ex.

- maximal, maximum (greatest elt.)
minimal, minimum (least elt.)

Prop. All finite, nonempty posets have maximal, minimal elt(s).

Pf.

III. max/min in above ex.

handwave
it low
on time

Ex. Show: a poset can have at most one maximum
(and — " — minimum).

- meet/join (glb, lub; ABT: sub, möb)

- Lattice

ex. B_n (mention D_n , don't spoil), total ord.

non-ex. , some above ex.

if time →

- Boolean "algebra"
- Discuss linear ext. / topological sorting (not core of the course)

Ex. Find #lin. ext. of poset in (*); say n even