EXERCISES OF WEEK THIRTEEN

Exercise 1. Prove, by showing an example $(A, \leq)$, that even when there is only one maximal element m, it is not the greatest element.

Exercise 2. Show that the union and the intersection of two initial segments is not, in general, a segment (that is, there exists an order relation $(A, \leq)$ and $a, b \in A$ such that $S_a \cup S_b \neq S_c$ for every $c \in A$).

Exercise 3. Express in terms of graph inclusions the statement: (A, R) is a fully ordered class (for instance, the symmetry is expressed in terms of graphs inclusions by the property $id_A \subseteq R$).

Exercise 4.

  (i) If $a = b$, then $S_a = S_b$.
  (ii) is it true that if $S_a = S_b$, then $a = b$?