

# 200A Discussion 1

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**Problem 1.**

In general,  $\max(S, \succsim) \subseteq \text{MAX}(S, \succsim)$ . If  $\succsim$  is complete, then  $\max(S, \succsim) = \text{MAX}(S, \succsim)$ ,  $\forall S \subseteq X$ .

**Problem 2.**

Let  $\succsim$  be a complete and transitive preference relation on a set  $X$ . If  $S$  is a nonempty finite subset of  $X$ , then  $\text{MAX}(S, \succsim) \neq \emptyset$

**Problem 3.**

Problem set 1, Problem 3(b), Rubinstein, 2012. (Your textbook)

Let  $Z$  be a finite set and let  $X$  be the set of all nonempty subsets of  $Z$ . Let  $\succsim$  be a preference relation on  $X$  (not  $Z$ ).

Consider the following two properties of preference relations on  $X$ :

1. If  $A \succsim(\succ) B$  and  $C$  is a set disjoint to both  $A$  and  $B$ , then  $A \cup C \succsim(\succ) B \cup C$ .
2. If  $x \in Z$  and  $\{x\} \succ \{y\}$  for all  $y \in A$ , then  $A \cup \{x\} \succ A$ , and  
if  $x \in Z$  and  $\{y\} \succ \{x\}$  for all  $y \in A$ , then  $A \succ A \cup \{x\}$

b. Provide an example of a preference relation that (i) Satisfies the two properties. (ii) Satisfies the first but not the second property. (iii) Satisfies the second but not the first property.