

Preferences and Choice. Part 1

1. Consider the usual notation for indifference and strict preference. Show that if \succsim is complete and transitive, then

1. $x \succ x$ is impossible (irreflexive)
2. $x \succsim x$ for all $x \in X$ (reflexive)
3. $x \succ y \succsim z \implies x \succ z$.

2. (Difficult) Kreps (1990) introduces another formal definition of preferences. His primitive is a binary relation P interpreted as "strictly preferred". He requires P to satisfy

Asymmetry: For no x and y do we have both xPy and yPx .

Negative Transitivity: For all $x, y,$ and $z \in X$, if xPy , then, for any z , either xPz or zPy (or both).

Explain the sense in which Kreps formalization of preferences is equivalent to the traditional definition, i.e., a complete and transitive relation. (Taken from Rubinstein PS1, 2.)

3. Let $B = \{b_1, b_2, b_3\}$ be a set of boys and $G = \{g_1, g_2\}$ a set of girls. A couple is a pair of one boy and one girl, e.g., (b_3, g_2) . A decision maker is facing the problem of choosing a couple from a feasible set of alternatives \mathcal{A} . The family \mathcal{A} of feasible alternatives A (budgets in MWG) has two properties: (1) every $A \subset \mathcal{A}$ contains exactly two couples and, (2) for every $A \in \mathcal{A}$ each boy or girl appears in at most 1 couple.

- (a) Describe formally the set of alternatives X for this problem.
- (b) Provide the list of all the elements in \mathcal{A} .
- (c) If you know that -if given the option- the decision maker chooses always the couple containing g_2 , can you determine the choice rule C ?
- (d) Is the Weak Axiom of Revealed Preference (WARP) satisfied in this case?

4. Consider a choice structure with $X = \{a, b, c, d, e\}$, $\mathcal{A} = \{\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}\}$ and the choice correspondence given by

$$C(\{a, b, c\}) = \{a, c\}$$

$$C(\{a, b, d\}) = \{a\}$$

$$C(\{a, c, d\}) = \{a\}$$

$$C(\{b, c, d\}) = \{c\}$$

Is WARP satisfied?

5. Think about this problem and discuss at the end of the TA session. **No need to hand in your answers**

The following are descriptions of decision-making procedures. Discuss whether the procedures can be described in the framework of the choice model and whether they are compatible with the rational man paradigm.

- (a) The decision maker chooses an alternative in order to maximize another persons suffering.
 - (b) The decision maker asks his two children to rank the alternatives and then chooses the alternative that is the best on average.
 - (c) The decision maker has an ideal point in mind and chooses the alternative that is closest to it.
 - (d) The decision maker looks for the alternative that appears most often in the choice set.
 - (e) The decision maker has an ordering in mind and always chooses the median element.
- (Rubinstein, PS3 1.)