

**Problem Set 1: Part B**  
**Caput Logic, Language and Information: Social Software**  
Institute for Logic, Language and Computation  
Universiteit van Amsterdam

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**Due March 2, 2006**

This is the second part of the homework which is Due on **March 2**

5. Suppose that two players are involved in a dispute over an object. The value of the object to player  $i$  is  $v_i > 0$ . Time is modeled as a continuous variable that starts at 0 and runs indefinitely. Each player chooses when to concede the object to the other player; if the first player to concede does so at a time  $t$ , the other player obtains the object at that time. If both players concede simultaneously, the object is split equally between them, player  $i$  receiving a payoff of  $v_i/2$ . Time is valuable: until the first concession each player loses one unit of payoff per unit of time.

Formulate this as a strategic game and show that in all Nash equilibria one of the players concedes immediately.

6. Show that the requirement in Kuhn's Theorem that the game be finite (the set of histories is finite) cannot be replaced by the requirement that it have a finite horizon (the length of the longest history is finite), nor by the requirement that after any history each player have finitely many possible actions.