Exercise 8

Problem 1. In this problem, we consider a system of n processes.

An (m, n)-assignment object, where $n \geq m > 1$, has n fields (for instance, an n-element array) and two operations: `assign()` and `read()`. The `assign()` operation takes as arguments m values $v_1, ..., v_m$ and m indices $i_1, ..., i_m$ and atomically assigns value v_j to array element i_j, for $j = 1, ..., m$. Note: the entire sequence of m assignments is atomic. The `read()` operation takes an index argument i and returns the ith array element.

Your task is to prove that atomic $(n, \frac{n(n+1)}{2})$-assignment objects, where $n > 1$, have consensus number at least n.