

Quiz 4.1: atomic snapshots

1. Prove that **one-shot** atomic snapshot satisfies self-inclusion and containment:
 - ✓ **Self-inclusion**: for all i : v_i is in S_i
 - ✓ **Containment**: for all i and j : S_i is subset of S_j or S_j is subset of S_i
2. Show that the atomic snapshot is subject to the **ABA problem** (affecting correctness) in case the written values are **not unique**

Quiz 4.2: immediate snapshot

1. Would the (one-shot) IS algorithm be correct if we replace $A_r.update_i(v_i)$ with $U_r[i].write(v_i)$ and $A_r.snapshot()$ with $scan(U_r[1], \dots, U_r[N])$?
2. Would it be possible to use only one array of N registers?
3. Complete the proofs of Lemma 2 and Corollaries 1 and 2