CS5250 Advanced Operating Systems

Pop Quiz 9

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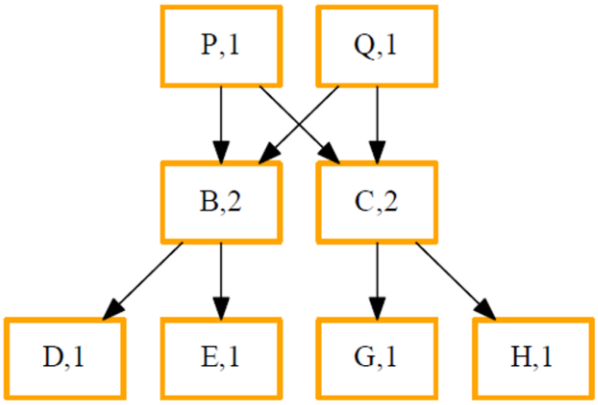
Assuming this initial btrfs tree:



Show the steps involved in the insertion of a new leaf node X that lies between E and G, along with the evolution of the reference counts, using the notations in the lecture slides. Clearly state any assumptions made.

- Inserting X, from the top, should've compared Q with X. if X < Q, we push X to B, otherwise we push X to C. Regardless, it will create (Q', 1) where it replaces (Q, 1) which becomes (Q, 0) and get deleted.
- Assuming pushed to B, (B, 2) will become (B, 1) because (Q, 1) is deleted, and we create (B', 1) where (Q', 1) is pointing there.
- Then because (B', 1) is copying B, it will point to (D, 1) and (E, 1). And because we have X > E, we create a new node on the right part of E, and name it (X, 1). because only (B', 1) is pointing there.