3) Lemma 2

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- An entry (e, f, Δ) gets deleted if $f \leq 1$ when reaching a bucket boundary
- We know that $b_{current}$ keeps track of the number of new buckets that were started
- f is incremented everytime when e is processed after creation of (e, f, Δ)
- Also, f can only be decremented by 1 if a bucket ends
- Suppose that (e, f, Δ) gets deleted:
  $\Rightarrow$ Since f might have been f_e at some point of the past, at least $f_e - 1$ decrements by 1 must have happened to ensure $f \leq 1$
- The number of decrements is at most $b_{current} - 1$
  $\Rightarrow b_{current} \geq f_e$ ✓