Reasoning about a w.h.p. statement with i) an asymptotic bound in the event description and ii) a forall quantifier with respect to α.

In a simple case, a w.h.p. statement only requires an existence proof of an error probability bound (α and other constants exist) for an event description without an asymptotic bound.

Steps for reasoning about a w.h.p. statement with i) an asymptotic bound in the event description and ii) a forall quantifier with respect to α:

1) assume a specific pair (c, n_0) for the event bound

2) show there exist constants for the probability bound:
c maps to $\alpha >= 1$ forall n, such that n_0 can be used for the probability bound

3) if any event bound (c, n_0) is mapped to a probability bound, and c maps to α 1:1 for $\alpha >= 1$, then any $\alpha >= 1$ can be mapped to an event bound.

In the randomized skip list analysis, each w.h.p. bound is a <u>bound on one property with respect to another property</u> of randomized skip list structure. On different machines, executing the same traversal in the same randomized skip list structure may take a different number of machine steps.