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 asymptotic 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 α forall n, such that n_0 can be used for the probability bound

3) if any event bound (c, n_0) can be mapped to a probability bound, such that c maps to α 1:1 for α >= 1, then any α >= 1 can be mapped to an event bound.