Claim: $\{P_i \le q_{v+s}\} \cap A_{v,s} = \{P_i \le q_{v+s}\} \cap C^{(i)}_{v,s}$

Proof: $\omega \in LHS \Rightarrow \omega \in \{P_i \le q_{v+s}\}$

and $\omega \in A_{v,s}$ so v null, s false rejected

and $P_i \le q_{v+s} = \frac{R}{m} q \Rightarrow H_i$ is rejected.

so ~~$P_i(\omega)$ rejected~~

so P_i rejected, $v-1$ other $P_j(\omega)$ are too

$+ s$ $P_h(\omega)$ $h \in V^c\}$

not nee

i.e. $\omega \in C^{(i)}_{v,s}$! $\rightarrow \omega \in RHS$

$\omega \in RHS \Rightarrow$

~~this is~~ all you need + def^n of $C^{(i)}_{v,s}$

Basically $A_{v,s} = \{\omega :$ v $P_j(\omega)$, $j \in I_0$ rejected, s $P_h(\omega)$ $h \in I_0^c$ rejected$\}$

and $\{P_i \le q_{v+s}\} = \{$ H_i is rejected$\}$ $\rightarrow$ by the Lemma.

proved see ... (later & sketch)

so $\{P_i \le q_{v+s}\} \cap A_{v,s}$ ~~$\subseteq RHS$~~

$= \{\omega$ s.t. $P_i(\omega)$ rejected, $v-1$ P_j, $j \in I_0$, s P_h $h \in I^c$ rejected$\}$

and and $\{P_i \le q_{v+s}\} \cap C^{(i)}_{v,s}$ equals this too!!

as this equals $\{\omega : P_i$ not rejected$\}^c$.