$Z = Y - cY_1$

$\Rightarrow$ $\forall i$ $\quad z_{11} = Y_1 - c_{11} Y_1$

$\eta = \begin{pmatrix} 1 \\ 0 \\ \vdots \\ 0 \end{pmatrix}$

$c = \dfrac{\Sigma e_1}{\sigma^2}$ & $(-)\begin{pmatrix} \\ 1 \end{pmatrix}$

$\Rightarrow$ $c_{11} \neq 1$ & $c_1 = 1$ as $\Sigma_{11} = \sigma^2$!

& $Y - c_1 Y_1 = \begin{pmatrix} 0 \\ Y_2 - c_{12} Y_1 \\ \vdots \\ Y_n - c_{1n} Y_1 \end{pmatrix} \Rightarrow Y_i = c_{1i} Y_1$

$D \rightarrow$ of their form however

maybe all that is needed?? see proof of B-YBH

$\{P_i = p_i\} = \{Y \in S(p_i)\}$

$P = P(Y)$

$S(p_i) = \{Y : F_Z(\eta^T Y_i) = p_i\}$

& $\{P \in D\} = \{Y : P(Y) \in D\}$ makes sense

$= \{Y : P_i(Y) \geq d_i\} = \bigcap \{Y : P_i(Y) \geq d_i\}$