

$$C_4 = C_2 (\beta) + C_3 (1 - \beta)$$

$$\begin{aligned} C_4 \nu &= C_2 (\beta) \nu + C_3 (1 - \beta) \nu \implies \\ \implies C_4 &= C_2 (\beta) + C_3 (1 - \beta) \end{aligned}$$