# equations

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### Level 1:

 $negperc_{tij} = \beta_{0ij} + \beta_{1ij}totalyards_{tij} + \varepsilon_{tij}$ 

### Level 2:

$$\beta_{0ij} = \gamma_{00j} + \gamma_{01j} race_{ij} + \gamma_{02j} position_{ij} + u_{0ij}$$

$$\beta_{1ij} = \gamma_{10j}$$

### Level 3:

$$\gamma_{00j} = \delta_{000} + \delta_{001} outcome_j + v_{0j}$$

$$\gamma_{01j} = \delta_{010} + \delta_{011} outcome_j$$

$$\gamma_{02j} = \delta_{020}$$

$$\gamma_{10j} = \delta_{100}$$