

# Note on a Possible Yukawa Relation for ATLAS Higgs Measurements

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This note suggests a simple empirical relation between the second generation Yukawa couplings:

$$\frac{\delta y_\mu}{y_\mu} \approx \frac{\delta y_c}{y_c}.$$

**How it can be tested:** ATLAS precision studies of  $H \rightarrow \mu^+ \mu^-$  already constrain  $y_\mu$ , while future sensitivity to  $H \rightarrow c \bar{c}$  through charm-tagging will access  $y_c$ . By comparing the relative deviations from the Standard Model expectation, one can test whether both couplings shift in the same direction and with similar magnitude.

**Why it may be important:** If validated, such a correlation would indicate a hidden structural link between leptons and quarks of the second generation, beyond the Standard Model.