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On the One-loop Yukawa Coupling Beta Function to Order  $Yg^2$  in a General  $\alpha$  Gauge and Its Gauge Independence

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**Abstract:** We present the calculation of the one-loop Yukawa coupling beta function to order  $Yg^2$  in a general  $\alpha$  gauge, where  $Y$  and  $g$  are Yukawa and gauge couplings. We show explicitly how the gauge parameter  $\alpha$  cancels out from the beta - function and demonstrate how some familiar results are obtained from it.

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