Definition 0.0.1 (Ito's integral for general integrands)**.** For any process $\gamma \in L_T^2(W)$, the random variable $I_T(\gamma)$ is called Ito's integral of γ with respect to W over $[0,T]$. We write (notation only, not a formal definition):

$$I_T(\gamma) = \int_0^T \gamma_s \, dW_s$$

$$I_t(\gamma) = I_T(\gamma_{\mathbf{1}_{[0,t]}}) = \int_0^t \gamma_s \, dW_s$$