



# Iterated Rectangular Integrals

## 1 Why

Toward a theorem for iterated integrals, we show a result for rectangular functions. TODO

## 2 Result

**Proposition 1.** *Let  $(X, \mathcal{A}, \mu)$  and  $(Y, \mathcal{B}, \nu)$  be  $\sigma$ -finite measurable spaces. Let  $E \in \mathcal{A} \times \mathcal{B}$ . Let  $\mu = \mu_1 \times \mu_2$  be the product measure on the product sigma algebra  $\mathcal{A}_1 \times \mathcal{A}_2$ . Let  $f : X_1 \times X_2 \rightarrow [-\infty, \infty]$  be the indicator of  $E$ . Then:*  
TODO