Measure Derivatives

1 Why

TODO

2 Definition

2.1 Defining Result

Proposition 1. *Let $(X, \mathcal{A})$ be a measurable space. Let μ, ν be sigma-finite measures with $\nu \ll \mu$. Then there exists $g : X \to [0, \infty)$ such that*

$$\nu(A) = \int_A g \, d\mu$$

for all $A \in \mathcal{A}$.

Proof. TODO □

Some call the above the **Radon-Nikodym theorem** .

2.2 Notation

TODO