

A complex or a finite and signed measure is a on a measurable space (X, \mathcal{A}) is a function, ν , from \mathcal{A} to \mathbb{R} or \mathbb{C} such that

1) $\nu(\emptyset) = 0$

2) $\nu(\cup_{k \in \mathbb{N}} E_k) = \sum_{k \in \mathbb{N}} \nu(E_k)$, $E_k \in \mathcal{A}$, disjoint.

Because the union in (2) is independent of the labeling of the $\{E_k\}$, the sum in (2) is rearrangement-invariant, which implies that it converges iff it does so absolutely, and does to the same number.