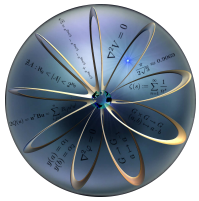

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The proof of theorem is wrong

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Let's create a very simple measurable space: $X = \{a, b\}$, $\mathcal{A} = \{\emptyset, \{a\}, \{b\}, X\}$.

Let's take the π-system $P = \{\{a\}\}$ containing only one subset of X.

Let's create two measures $\mu = \delta_a + \delta_b$ and $\nu = \delta_a + 2\delta_b$. Then obviously μ and ν agree on P and are finite, but they obviously are not equal on $\mathcal{A}$.

The proof, however, claims that it is sufficient if μ and ν are finite. I believe that $\mu(X) = \nu(X)$ is a necessary condition.