

## Signed Set Decomposition Existence

## 1 Why

Does a signed-set decomposition exist for any signed measure?

## 2 Result

The answer is yes.

**Proposition 1.** Let  $(X, \mathcal{A})$  be a measurable space. Let  $\mu$ :  $\mathcal{A} \to [-\infty, \infty]$  be a signed measure. There exists a signed-set decomposition of X under  $\mu$ .

## 2.1 Uniqueness