Info

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Monotonic subsets in a measure space

- Let

$$A_1 \subseteq A_2 \subseteq \cdots \subseteq A_j \subseteq A_{j+1} \subseteq \dots$$

  is an **increasing** sequence of measurable sets.
  - Then

$$\begin{aligned} \mu\left(\bigcup_{j\geq 1} A_j\right) &= \mu\left(\bigcup_{j\geq 1}(A_j \setminus (A_1 \cup \cdots \cup A_{j-1}))\right) \\ &= \sum_{j\geq 1} \mu(A_j \setminus (A_1 \cup \cdots \cup A_{j-1})) \\ &\triangleq \lim_{n\to\infty} \sum_{1\leq j\leq N} \mu(A_j \setminus (A_1 \cup \cdots \cup A_{j-1})) \\ &= \lim_{n\to\infty} \mu\left(\bigsqcup_{1\leq j\leq n} A_j \setminus (A_1 \cup \cdots \cup A_{j-1})\right) \\ &= \lim_{n\to\infty} \mu(A_n) \end{aligned}$$

Current note has 0 direct children and 0 total descendants.

- structures based on sets
  - Measure spaces
    - $[0, \infty]$-measure spaces
      - Monotonic subsets in a measure space

And it has 4 siblings.

- structures based on sets
  - Measure spaces
    - $[0, \infty]$-measure spaces
      - Measurable action of a topological group on a positive measure space
      - Integral inequalities
      - Integration of measurable functions with respect to a $[0, \infty]$-measure
      - Monotonic subsets in a measure space