Notes

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1 Measure Theory

§1.1 Measure Spaces

Definition 1.1.1. An *algebra* Σ_0 on a set S is a collection of subsets of S such that

- $S \in \Sigma_0$.
- if $F \in \Sigma_0$, then $F^C := S \setminus F \in \Sigma_0$.
- Σ_0 is closed under finite unions.

Notice that this implies that Σ_0 must also be closed under finite intersections.

Definition 1.1.2. A *σ-algebra* Σ is an algebra closed under countably many unions (and thus intersections). Then, the pair (S, Σ) is a *measurable space*.