



### Why

In general, a dataset may be both incomplete and inconsistent.

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Let  $(Z, \mathcal{Z})$  be a measurable space. Let  $\mathcal{M}(Z, \mathcal{Z})$  be the set of measures over  $(Z, \mathcal{Z})$ . A *probabilistic inductor* for a dataset in  $Z^n$  is a function mapping  $Z^n$  to  $\mathcal{M}(Z, \mathcal{Z})$ .

Suppose  $(Z, \mathcal{Z}) = (X \times Y, \mathcal{X} \times \mathcal{Y})$  for measurable spaces  $(X, \mathcal{X})$  and  $(Y, \mathcal{Y})$ . Then a probabilistic inductor yields a probabilistic functional inductor. The conditional measure on  $Y$  given an observation  $x \in X$  is exactly a family of measures indexed by  $X$ .



