# Inductors

## 1 Why

We want to talk about learning associations between perceptions in time or space.

## 2 Definition

An *inductor* is a function mapping a dataset of records in a cartesian product of two sets to a function between the two sets. We call the first set the *precepts* and the second set the *postcepts*. We call a function from the precepts to the postcepts a *predictor*. We call the result of a precept under a predictor a *prediction*. An inductor maps datasets to predictors.

### 2.1 Notation

No new notation, just the concepts in old notation. Let $A$ and $B$ be two non-empty sets.

Let $n$ be a natural number and let $r \in (A \times B)^n$. Then $r$ is a dataset and $r_1 \in A \times B$ is a record.

Let $g : A \to B$. Then $g$ is a predictor. For $a \in A$, $g(a)$ is the prediction of $g$ on $a$.

Let $f : (A \times B)^n \to (A \to B)$. Then $f$ is an inductor.