# Inductors

## 1 Why

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

## 2 Definition

Consider two sets and a relation between them. Consider a finite sequence of elements from their product. An **inductor** is a function from the set of finite sequences of elements from the product of the two sets to to the set of functions from the first set to the second set.

We call the first set the **precepts** and the second set the **postcepts**. We call the finite sequence of elements the **record sequence** and an element of it a **record**. We call a function from the precepts to the postcepts a **predictor**. We call the result of a precept under a predictor a **prediction**.

We interpret the **inductor** as association to observations of the association between the precepts and postcepts a function encoding their relation. There may be no functional relation between these sets.

We interpret the first set as the **precepts** and the second set as the **postcepts**. The relation is the prior knowledge about which precepts may be related to postcepts. We interpret the function as a predictor of the

We have two sets and a relation between them. We have a finite sequence of elements from the product of the two sets. We will encounter a sequence of elements from the first set and want to produce elements of the second set. an element of the first set Using the records we want to associate We want to associate a func

We call the first set the **precepts** and the second the **postcepts**. We cal the relation a **prelation**. We call the sequence of elements the **record sequence**.

We want to construct a : the first is called Let $A$ be a set and $B$ be a set. Let $R$ be a relation on $A$ and $B$ Let $\mathcal{U}$ be a set and $\mathcal{V}$ be a set. We also have a relation $R$ Our first perception is an element of the precepts and our second perception is an element of the postcepts. The prelation dictates which postcepts can follow precepts. We call $\mathcal{U}$ the **precepts** and $\mathcal{V}$ the **postcepts**. A **prelation** is a relation between precepts and postcepts.

The prelation may be complete, in that any two precepts and postcepts may be related. Or the prelation may be functional, in that any given precept is related to a particular postcept. Or a precept may be related to several postcepts.

If the prelation is complete, we say call it **unpresumptive**. If the prelation is functional, we call it **presumptive**.