Inductors

1 Why

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

2 Overview

Consider two sets and a finite sequence of elements from their product. An **inductor** is a function between finite sequences in their product and the functions between them.

We call the first set the **precepts**, the second the **postcepts**, and their product the **percepts**. We call the sequence the **records**. An inductor produces a function from precepts to postcepts, which we call a **predictor**.

2.1 Notation

Let $\mathcal{U}$ be precepts and $\mathcal{V}$ be postcepts. Then $\mathcal{U} \times \mathcal{V}$ are the percepts. A record sequence is an element of $(\mathcal{U} \times \mathcal{V})^n$. We often denote an element by $((u^1, v^1), \dots, (u^n, v^n))$.

Consider a second sequence of records. A predictor One inductor We judge an inductor on this sequence We encou We judge inductors by their

The **inductor** associates predictors to records. We want to produce predictors which

We want to produce predictors to produce 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**.