

OBSERVATION SEQUENCES

Why

We want language for recording the elements of some set that appear at regular intervals of time.

Definition

Let A be a set. An observation sequence (or time series) in A is a mapping $a: \mathbf{Z} \to A$.

If $A = \mathbb{R}^d$ in which case we call a a vector-valued observation sequence or vector-valued time series.

Examples

Examples include temperature readings, seismograph readings, sunspot numbers, export quantities, and so on.

Time invariance

The most basic assumption we can make is that the observation sequence a exhibits some regularity over time. This assumption is naturally related to the assumption of time-invariance in physical laws.¹

¹Future editions will expand on this discussion.

