

DISTRIBUTION GRAPH SELECTORS

Why

We want to select a distribution graph to summarize some data.

Definition

Let (G,A) be a typed graph on $\{1,\ldots,n\}$. Let $S\subset\{1,\ldots,n\}$. Let x^1,\ldots,x^n be a dataset in $A_S=\prod_{j\in S}A_j$ (see Function Graphs).

A distribution graph selector for typed graph (G, A), dataset of size n, and indices $S \subset \{1, \ldots, n\}$ is a function from datasets of size n in A_S to distribution graphs on (G, A).

In the case that $S \neq \{1, ..., n\}$ we call S the observable (or data) indices and $T = \{1, ..., n\} - S$ the hidden (or latent, nonobservable) indices. It is common for many authorities to use the notational convention Z for A_T and X for A_S .

Let $p: \prod_i A_i \to [0,1]$ denote the full joint distribution of a distribution graph. In this case, we call $p_S: A_S \to [0,1]$ the observable distribution (or evidence distribution).

