



Why

We want to visualize function composition.

Definition

Let G be a graph (directed or undirected) on $\{1, \dots, n\}$ and let A_1, \dots, A_n be a sequence of sets. We call the ordered pair (G, A) a *typed graph*. We call A_i the *i th domain*. For $S \subset \{1, \dots, n\}$, we denote the ordered product $\prod_{s \in S} A_s$ by A_S .

If G is directed, we call a source vertex i *exogenous* and otherwise we call a vertex *endogenous*.

Let $\bar{G} = (G, A)$ be a typed graph where G is directed. Let $f_i : A_{\text{pa}_i} \rightarrow A_i$ for $i = 1, \dots, n$ so that f is a sequence of functions. We call the ordered pair (\bar{G}, f) a *function graph*¹ (or *function diagram*).

¹This sheet is not to be confused with the graph of a function (see Functions).

