



## Why

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### Definition

Let  $G$  be a directed graph on  $\{1, \dots, n\}$ . A *parametric distribution network family* (or *parameteric conditional distribution network family*) is a family of conditional distribution networks  $\{G, \{g_i^{(\theta)}\}_{i=1}^n\}_{\theta \in \Theta}$ . We call the index set  $\Theta$  the *parameter set*.  $G$  does not depend on the parameters.

In the case that  $\text{pa}_i = \emptyset$  in  $G$ ,  $\{g_i^{(\theta)}\}_{\theta}$  is a parametric distribution family on  $A_i$  and in the case that  $\text{pa}_i \neq \emptyset$ ,  $\{g_i^{(\theta)}\}_{\theta}$  is a parametric conditional distribution family on  $A_i$  from  $\prod_{j \in \text{pa}_i} A_j$  (for both these terms, see Parametric Distribution Families).

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<sup>1</sup>Future editions will include.



