Finite Model Theory

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1 Preliminaries

1.1 Structures

Vocabularies are finite sets that consist of **relation symbols** and **constant symbols**. We denote vocabularies by $\tau, \sigma, \ldots$. A *vocabulary is *relational if it does not contain constants.

1.1.1 Graph

Let $\tau = \{E\}$ with a binary relation symbol E. A **graph** (or **undirected graph**) is a τ-structure $\mathcal{G} = (G, E^G)$ satisfying

1. for all $a \in G$: not $E^G aa$
2. for all $a, b \in G$: if $E^G ab$ then $E^G ba$

By GRAPH we denote the class of **finite** graphs. If only (1) is required, we speak of a **digraph**