## 3.2 Version Graphs

Boolean functions can be ordered by *generality*. A Boolean function, $f_1$, is *more general* than a function, $f_2$, (and $f_2$ is *more specific* than $f_1$), if $f_1$ has value 1 for all of the arguments for which $f_2$ has value 1, and $f_1 \neq f_2$. For example, $x_3$ is more general than $x_2x_3$ but is not more general than $x_3 + x_2$.

We can form a graph with the hypotheses, $\{h_i\}$, in the version space as nodes. A node in the graph, $h_i$, has an arc directed to node, $h_j$, if and only if $h_j$ is more general than $h_i$. We call such a graph a *version graph*. In Fig. 3.2, we show an example of a version graph over a 3-dimensional input space for hypotheses restricted to terms (with none of them yet ruled out).

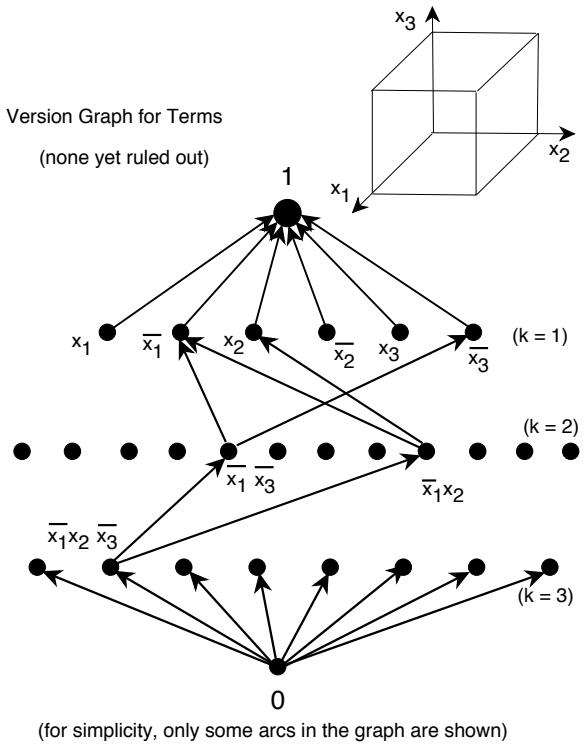


Figure 3.2: A Version Graph for Terms

That function, denoted here by "1," which has value 1 for all inputs, corresponds to the node at the top of the graph. (It is more general than any other term.) Similarly, the function "0" is at the bottom of the graph. Just below "1" is a row of nodes corresponding to all terms having just one literal, and just below them is a row of nodes corresponding to terms having two literals, and