



FIGURE 4.6 *An Example of Combinatorial Learning*

An example of subordinate learning is evident in my experience with purchasing my first home computer. At the time, I knew virtually nothing about microcomputers except that I wanted one with which to do word processing. A slick salesman sold me a computer with monitor, word-processing package, and dot matrix printer. I took it all home, hooked it all up, and nothing worked. To make a long story short, the word processor was not configured for the computer (event x); it was adjusted. The printer did not work with the computer (event y); a different printer card solved the problem. The word processor was not compatible with the printer (event z); the designers of the word processor never could figure this one out, so I sold the printer. What did I learn (new idea, A) from these events? Make sure all components of the system work together before leaving the store!

When new concepts or propositions are neither more inclusive of nor subordinate to relevant anchoring ideas in the cognitive structure, they are meaningfully learned in a combinatorial way. In other words, **combinatorial learning** occurs when *the new idea is not relatable in a specific sense to an existing anchor but is generally relevant to a broad background of information*, which may contain a number of similar ideas sharing criterial attributes, as shown in Figure 4.6.

An example of combinatorial learning can be seen in the relationship between the flow of heat and the conducting of electricity through metals. Heat flow and electrical conductivity are not specifically related, in a subordinate or superordinate sense. Yet to understand each, a learner must have some previous knowledge of how metals are structured. Moreover, since the processes are analogous, having already learned about how heat flows through metals can facilitate understanding how electricity is conducted and vice versa (cf. Royer & Cable, 1975; Royer & Perkins, 1977; Driscoll, 1985).

Concepts exist in most subject matter disciplines that are coordinate to one another. And even though many coordinate concepts are also subordinate to some inclusive idea, their relationships to one another must be learned as well as their relationships to the subsuming idea. To take the government example again, democracy, oligarchy, and fascism all bear a coordi-