While plays and theories are passive, schemata are active, so that schemata are like procedures, such as computer programs. They actively evaluate incoming information for the quality of fit, and they may involve a network of subprocedures. For example, the egg-beating schema undoubtedly has a subschema for how hard and how long to beat for given purposes. Schemata such as these that direct one's actions in a given situation have come to be called scripts. Finally, schemata are like parsers, in that they break down and organize incoming information to fit appropriate schema structures.

Because schemata are active in influencing how people interpret events and solve problems, they have also been conceived as mental models. Mental models are schemata that not only represent one's knowledge about specific subject matter, but also include perceptions of task demands and task performances. Thus, mental models are schemata that guide and govern performance as one undertakes some task or attempts to solve some problem.

Norman (1983) made the following observations about mental models (p. 8):

1. Mental models are incomplete.
2. People's ability to control their models is limited.
3. Mental models are unstable.
4. Mental models do not have firm boundaries.
5. Mental models are unscientific.
6. Mental models are parsimonious.

What this means is that people bring to tasks imprecise, partial, and idiosyncratic understandings that evolve with experience. Additionally, these understandings are utilitarian for the most part, rather than necessarily accurate.

As an illustration of a mental model in action, consider this brief description provided by Norman (1983). He observed people using handheld versions of several types of calculators and questioned them about their methods and understanding of the calculator.

> One of the subjects I studied (on a four-function calculator) was quite cautious. Her mental model seemed to contain information about her own limitations and the classes of errors that she could make. She commented, "I always take extra steps. I never take short cuts." She was always careful to clear the calculator before starting the problem, hitting the clear button several times. She wrote down partial results even when they could have been stored in the machine memory. (Norman, 1983, p. 8)

In trying to describe subjects' mental models of calculators, Norman speculated that most develop a rule to hit the clear button excessively because the action is functional across all kinds of calculators. The rule enables generalization to occur and thus makes the mental model work in a variety of situa-