erature, textbooks, and reviews of well-known works. Now let us suppose that User B wants to can several jars of cucumbers, tomatoes, and cabbage at home and his search request is related to this activity. In this case, User B will have little interest in recent theoretical works in this field and will be well satisfied by a popular article containing useful advice on canning procedures. Now suppose that User C has been offered several lines of research for selection (this search request is only one of such lines) and she wants to make a decision as to which one to use in the future. The most appropriate (and sufficient) for her would be, seemingly, a comprehensive review of scientific publications on canning vegetables.

As our example illustrates, in different life situations different mental states (INs) can arise; nevertheless, the thematic component of different mental states may be the same. Various states arising in different users assume distinctive output for different users. As the example makes clear, if a search request includes not only the IN thematic component but also other IN components, and if these complementary components could be taken into account in retrieval, then the user service could be improved. It is no coincidence that we call any other IN components complementary ones. The point is that the IN's thematic component should always be expressed (that is, actually done) and, as we have pointed out, it will be sufficient for retrieval. However, if any other component, but not a thematic component, is expressed, the retrieval becomes impossible. It is for this reason that we refer to any component that differs from the thematic component as *complementary*. This apparently explains why in most systems the users are required to express only the thematic component of IN. Nevertheless, as we have seen already, complementary components can provide a marked positive effect on user service.

To be fair, it should be noted that in a number of cases complementary IN components have essentially been used by those librarians who communicated directly with readers to help those readers carry out a retrieval. These were librarians who showed special care for a reader by personalizing the reader's need, that is, by taking into account some of the reader's wishes and features that were typical of him or her personally (i.e., the reader's situation) rather than simply following a search request (i.e., a thematic IN component). The librarians did this, of course, intuitively, as a result of their accumulated experience rather than from a serious scientific basis. Nevertheless, such personal care resulted in better service for the user. Unfortunately, in automated IR systems this aspect of retrieval does not draw much attention, although if these systems were built with the intent of providing special care to the user—typical of the approach taken by our featured librarians—then better effects could be expected from retrieval automation.

Returning to the previous example, note that the situations considered are related to the different goals facing the users. When we pointed out the usefulness of expressing complementary IN components in a search request, we pro-

It is obvious that an IN is directed to some object or phenomenon of the world surrounding us; this is generally known as a thematic focus. Particular emphasis should be placed on the fact that each information user has a good idea about the thematic focus of his or her mental state, although, as pointed out earlier, in the event of POIN this mental state are not always clearly defined. Because we are interested in satisfying IN by means of an IR system, the IR system should take into consideration the user's thematic focus of IN, which obviously enters the system directly from the user. However, because the user does not precisely sense the thematic boundaries of POIN, the user cannot present to the IR system adequate information about his or her actual mental state; that is, an IR system does not always have comprehensive enough information on POIN to satisfy POIN successfully. Consider next the way (how, in what form) the information on POIN enters the system. To begin with, for this purpose the user expresses his or her POIN. IN *expression* refers to a process that results in a representation of information on IN in some language. Recall that the formulation of information about this need in a natural language is commonly called a search request. Any search request includes a thematic focus of the user's IN. We note that in most cases the user expresses IN in the form of search requests, and the search requests frequently contain only a theme (a thematic focus of originated IN) or, as we will refer to it later, a thematic component of IN. For example, the search requests described in Chapter 2 that illustrated the existence of CIN and POIN contained only a thematic component. But which other components characterize a mental state such as POIN? This question will be considered next.

We will begin by stating that such an unpleasant state as IN comes up in a variety of life situations and these situations can determine different requirements for the information that a user needs. In other words, with the same thematic focus but in different situations, different information output may be more appropriate. Let us illustrate this condition with the following example.

Assume that a documentary IR system has received the following identical search request from Users A, B, and C: "Canning of vegetables." The thematic focus of this search request is clear and in many systems this is sufficient for constructing a query formulation (either automatically or via an intermediary) and subsequently performing a retrieval. As the result of the retrieval, each user who asked the search request gets the same output. Nevertheless, it is well known that in most cases the assessment of this output by users may be different. This fact is explained by the lack of clear thematic boundaries of the corresponding IN as noted earlier and by different knowledge levels inherent to each of the users. However, these are not the only causes of different assessments of information output.

In continuing our example, let us assume that User A is a researcher engaged in problems of long-term storage of vegetables and is interested in new ideas on canning of vegetables. Clearly, User A has little interest in popular lit-