

posed in essence complementing a thematic component through the description of a specific user's goal. However, the notion of "search requests" should perhaps retain a meaning customary for researchers and that is that a search request usually means the result of expressing an IN's thematic component in a natural language. Therefore, that "portion" of IN that is presented in a natural language and that is dedicated to the description of the goal at hand will be called its *task*; that is, a task is the result of expressing an IN's goal component in a natural language.

Thus, we have shown that it is reasonable to present the result of expressing IN in a natural language in the form of at least two independent retrieval directives: a search request and a task. We say "at least" because there are also other IN components, depending on the existing situation, whose consideration may improve retrieval results. These can be time restrictions on information retrieval and reading limitations related to a presentation level (the work is a purely philosophical one, whereas a more applied approach is desired), constraints pertaining to the language in which the document is written, and so on. In these cases we can talk about the time component, the level component, and the language component of IN. Clearly the result of expressing these components in a natural language assumes the availability of other retrieval directives.

12.4

The Effects of IN Components on the IR System

We will define a set of retrieval directives of different types, with at least one of them being a search request, as a retrieval situation. In this chapter we will discuss only the situations formed by a search request and a task, and in this case each new search request and each new task forms a new retrieval situation. Note that the same task can be combined with various search requests, and the same search request can be combined with various tasks. For example, a task of preparing a review can be combined with the following search requests: "Study of IN," "Drugs for a cold," and so forth; likewise the search request "Drugs for a cold" can be combined with the following tasks: "Making up a medicine chest for travel," "Developing recommendations for patients," and so on. Let us explain why the latter two tasks differ in essence from the standpoint of carrying out information retrieval. The first task suggests the retrieval of information on as little as two to three drugs that would be optimal in a certain sense for travelers, say, those that have compact, water-tight, nonbreakable packaging; those that are fast acting; and so forth. The second task, however, suggests finding information on all existing drugs for a cold in order to select the most suitable one for each patient.

Next, we will show some features of how a task affects both the retrieval

process organization and the realization of its individual subprocesses. Let us consider two retrieval situations: one of them is stated by the search request "Waste-water treatment" and the task "Development of new or improved treatment methods," and the second is stated by the same search request and the task "Review preparation." Clearly the first retrieval situation assumes organizing the iterative retrieval process, but the second one can generally be restricted to a single retrospective retrieval. This example illustrates rather clearly how a task affects the organization of a retrieval process. Another illustrative example is given by two retrieval situations: one is formed by the search request "Development of extra-accurate watch mechanisms" and the task "Creation of new mechanisms," whereas the second is formed by the same search request and the task "Examining an idea for novelty." The first retrieval situation, as it is similar to that presented in the previous example, assumes the organization of an iterative retrieval process. For the second situation, however, it is sufficient, for example, to find a document for which the proposed idea has been already presented; that is, after finding such a document the retrieval process may be terminated.

We will next show how a task affects the realization of retrieval subprocesses as well. In this case, as can be seen from the following example, the differences involved in the realization of subprocesses are derived from the differences in the requirements of those or other tasks for retrieval results. Refer again to the retrieval situation that was stated by the search request "Drugs for a cold" and the task "Making up a medicine chest for a travel" and the second retrieval situation, which was formed by the same search request and the task "Developing recommendations for patients." As we mentioned earlier, the task of the first retrieval situation *necessitates* the finding of two to three drugs for a cold that will be optimal, in a certain sense, during travel, whereas the task of the second retrieval situation necessitates the finding of all existing drugs for a cold and perhaps even drugs of more general designation. To meet the requirements of the task "Making up a medicine chest for travel," it is first necessary to identify those indications of drugs for a cold that define usefulness of these drugs during travel, and second it is necessary to construct a query formulation so that it can be determined during the retrieval process whether or not the indications mentioned have the desired values. As the task "Developing recommendations for patients," consideration of its "requirements" leads to solving other problems, namely, constructing a query formulation so that it will be possible to determine during retrieval whether or not an illness such as a cold is found among the indications of the direct or prophylactic effect of the drug under consideration.

The example demonstrates clearly how a task affects the realization of such a subprocess of the retrieval process as a construction of query formulation. It should be noted that we are speaking of a subprocess of constructing a query formulation rather than a subprocess of translating a search request into IRL, because with the new understanding of IN, as well as of its representation in a