quired document meanings one needs to represent them in an appropriate way to have a possibility of recognizing these meanings and selecting them according to the search request. It is the semantical IRL component that serves as such an "appropriate" representation of meanings, both of documents and search requests.

It should be emphasized that the "appropriateness" of this representation is only in how effective it is in a selection process. For instance, if we manage to represent the document meaning in IRL in a way that makes a human being understand it in the proper way, and if, at the same time, the selection criterion fails to account for most of the characteristic features of this representation (for example, due to the absence of corresponding formal components representing the meaning) and therefore fails to find the document required by the user, then we cannot consider the meaning as appropriately represented.

Following Taube, many investigators believe that it is quite sufficient to represent the meaning of source texts by unordered sets of descriptors with meanings coinciding with the notions from the represented text. However, other experts reason that phrases in the form of unordered sets of descriptors do not permit high-quality information retrieval. That is why they propose more elaborate rules to represent meanings based on more advanced semantical components. Regarding these rules, it is clear that the purpose of introducing more elaborate semantical components is not to obtain better representations for the reader's benefit but to formulate new selection rules for better retrieval. In most cases, having proposed certain modifications in the semantical component of IRL, investigators also propose a selection criterion that takes these modifications into account. As mentioned earlier, the simplest method of the meaning representation (unordered set of descriptors) as well as the way to use it for retrieval was based on the ideas of Taube. Let us consider the causes of the developers' dissatisfaction with the representation of documents and search requests in this way.

The fact that an unordered set of descriptors and a natural-language text represented by this set are not equivalent in meaning is obvious. It is also obvious that the unordered set of descriptors is not just a simplified representation of the natural-language text. First of all, it constitutes a certain schematic (artificial) representation of the text. Such a representation is convenient just for formal operations of information retrieval. Indeed, given such a set of descriptors, one can hardly understand the contents of the text represented by this set. In addition, given a set of descriptors, it is possible to compose a large number of natural-language texts that are quite different in meaning. In other words, any unordered set of descriptors is actually a representation of a certain set of different (possible) meanings. Let us consider the following example where a search request from the user interested in the automatic indexing of search requests for automatic document retrieval was given to the experimental adaptive IR system created at Fordham University. In the framework of the descriptor dictionary of

this system, the request contains the following descriptors: "document," "search request," "indexing," "retrieval," and "automation." The latter descriptor represents the terms "algorithmization" and "automatic" contained in one conditional equivalence class. Obviously, all documents, dealing with the automatic indexing of documents for the purposes of retrieval based on search requests will be found. Besides, the system will retrieve all documents dealing with indexing (not only automatic indexing). Thus, if one selects all documents containing a given set of descriptors, these documents may have different meanings and hence we can select a certain subset of different meanings from the set of meanings represented by the given set of descriptors.

However, because we look for the single meaning from the possible set of meanings (namely, the meaning in which the user is interested), the retrieval of any other meanings contained in document texts is considered to be a retrieval error (although this follows from the semantical component of IRL). Furthermore, documents with other meanings (from the set of selected documents) are commonly called noise or noise documents, and system developers try to reduce noise in the output by introducing additional rules in the semantical component of IRL. Indeed, it seems intuitively clear that as more language features inherent to natural languages are accounted for in the indexing of documents and search requests, fewer different (possible) meanings will exist for a given representation. It is clear that the fuller incorporation of the semantical component of the natural language into IRL not only provides for a closer representation of the unique meaning contained in the source document, but it also brings IRL closer to a natural language. However, the distance between the most advanced, modern IRL and natural languages is tremendous, and the tendency to minimize this distance is more theoretical with very few practical results.

Thus one of the main directions in changing the semantical component of IRL can be explained by the aspiration to reduce the noise in the output. However, many investigators still do not think the semantical component should be changed. First, they say, the number of possible meanings represented by an unordered set of descriptors is not so large because systems are usually created for a certain subject area and this restricts the number of possible meanings. Second, the introduction of additional rules for the semantical component of IRL does not eliminate noise. It can only reduce it; that is, the problem of noise is not resolved. Besides, it is not so clear whether the retrieval results are enhanced, although the complexity of retrieval and the increase in cost are evident. Third, the potential of Taube systems is far from being exhausted. The growing interest in the free text search lends great support to this point of view. Another strong argument is the fact that the majority of contemporary IR systems use unordered sets of descriptors, at least for the representation of documents. However, the attempts to use more complex semantical components of IRL should have more than just theoretical interest. These attempts may be considered as one of the directions toward "intellectualizing" information retrieval. This di-