betically ordered list of descriptors with explanations (descriptors are underlined and supplied with 3-digit numbers) and synonymous words and phrases that are not descriptors (are not underlined and do not have numbers).

Static   135
In combination with the descriptor "stability" it corresponds to the study of the static stability.

Statistical mechanics
See descriptor "thermodynamics"

Statistics
See descriptor "probability"

Stability   136
In aviation technology this descriptor, combined with the descriptors "static," "dynamic," "roll," and "longitudinal," corresponds to the loss of aircraft stability. It also corresponds to the loss of stability due to buckling and to other types of construction instability. When studying stability and controllability, it is used together with the descriptor "derivatives."

Such an approach allowed Mooers not only to form a list of several hundred descriptors, but also to obtain encouraging results in the search performance. His ideas were adopted by IR system developers almost immediately, primarily due to the evident simplicity of the very approach to the choice of IRL lexical units. With all of the technical imperfections of computing hardware of the 1950s, this approach was feasible (it could be implemented on computers); in combination with ideas of Taube, it allowed the construction of sufficiently economical and useful IR systems.

Another one of Mooers' contributions was his innovative terminology, which definitely had a positive influence on the development of information science. He was ingenious in introducing new terms. Besides the term "descriptor," he also introduced the terms "information retrieval," "information retrieval system," "information retrieval language," "descriptor dictionary," "search image," and other terms widely used in the field of information retrieval.

Thus we have considered the origin of the fundamental ideas that encouraged the creation of IRL. Today most of the IRL languages are of the type developed by Mooers and Taube, and such languages are frequently called *descriptor IRLs*. Obviously, all the ideas just considered represent only the first steps toward the creation of descriptor languages. The retrieval quality provided by the first languages was far from satisfactory for their users. Almost immediately the researchers started intensive efforts on improving the descriptor languages and this work included all three components of IRL. Next we briefly characterize several approaches in the descriptor IRL development and in some cases illustrate the development by examples.

5.4
Some Tendencies of IRL Development

The attempts to enhance different IRL components have been aimed at improving retrieval results provided by IR systems. As we mentioned earlier, the information retrieval is the search for something with a meaning to the user and this meaning is encoded in the text of the document. Therefore, developers of IR systems want to represent this meaning in IRL as precisely as possible. In other words, if the meaning is represented incompletely or is misrepresented, the retrieval result may be unsatisfactory. Thus, the main direction in IRL development is the search for ways, methods, and rules favoring a more complete representation of the meanings of documents and search requests. The more advanced IRLs allow us to formulate more refined (and sophisticated) formal rules, taking into consideration the more refined features of the natural language that express the desired meaning. In this case, we can consider IRL as a simplified model of natural language.

In making grammatical and semantical components of IRL more complicated, we are hoping that this IRL will better represent the meaning encoded by natural language. However, the gap between the quality of its expression in the natural language and that in IRL will remain unbridgeable. In other words, as long as IRL is different from the natural language, the quality of the meaning representation in it will be inferior to that of the natural language. When would we be able to say that the development of language (IRL) in the mentioned direction gets to the point where the representation of meaning in this language is close to the representation of meaning in the natural language? Probably when the semantic component of the natural language is understood well enough that we can rigorously formalize all the rules so that they are as effective as the informal rules existing in the natural language. Will these rules ever be formulated? Concerning this subject, there are many more pessimistic forecasts than optimistic ones. Many pessimists are the people who have already tried to work in this direction. Optimists are normally represented by people who have never tried to do anything themselves, but believe that this will be done by someone else. We would like to note that if an IRL featuring not only all of the advantages of natural language but also some additional positive characteristics—such as the full set of formal rules representing the semantic component—is created, humanity will probably find it more convenient to abandon natural languages altogether and will use only IRL.

We start our discussion of IRL development with some ideas concerning the lexical component of the language. Initially the major concern of most IR system developers was the way to form descriptors for IRL. The very term "descriptor" soon acquired its contemporary meaning. In essence, *any word formed for an IRL was called a descriptor*. Moreover, *IRLs using descriptors were referred to as*