The Dictionary of the Gas Industry: A cooperative approach to dictionary making

Hans-Jürgen Stellbrink

The International Gas Union (IGU), the worldwide confederation of gas engineering associations, can look back upon a longstanding tradition of terminological work. Its first gas engineering dictionary appeared as long ago as 1937. This was followed by the first edition of the DICTIONARY OF THE GAS INDUSTRY published by Elsevier for seven languages in 1961 and enlarged by a supplement in 1973. Six new languages were added to the Elsevier dictionary in 1978 when Kammer der Technik, the IGU member association in the German Democratic Republic, produced nine single-language booklets.

The second completely revised and enlarged edition of the DICTIONARY OF THE GAS INDUSTRY for four languages containing some 7,300 concepts made its appearance in 1982. Four languages were added in 1985, and a third volume including three more new languages will be published in Prague in 1988.

During the course of this long development, approaches to dictionary making have changed fundamentally and the simple process of merely listing words has been replaced by a more complex approach based on sound theoretical foundations created by Eugen Wüster and others. This paper reviews the methods adopted by the IGU to translate the modern theories of terminological work into consistent strategies for the preparation of the third edition of the Multilingual Dictionary of the Gas Industry scheduled to appear in 1991 and examines the policy proposed by the IGU for cooperation in dictionary making.

1. IGU strategies for terminological work

1.1. Human resources

Sound and reliable work in any field of human activity is hardly ever an inspiration of a lone genius but usually implies a joint effort by a team specializing in the entire spectrum of human knowledge reflected in the product. The IGU has applied this principle to its dictionary preparation procedures and firmly believes that any terminology must reflect both linguistic and subject-area expertise.

The IGU has thus set up a three-tier organizational structure for its terminological activities. The overall responsibility lies with a committee of experts in terminology, translation and engineering from 34 IGU member associations which defines policies, reviews economic and financial issues and specifies strate-

gies and approaches at meetings held at annual or even longer intervals. This committee supervises an international working committee which, through its members, provides the subject-matter and linguistic expertise needed for the definition and designation of concepts. The working committee meets as required for the terminological activity to proceed according to a fixed time schedule and integrates, through corresponding members, all language variants, such as English spoken in Australia, Canada, New Zealand and the United States.

This second tier which, by definition, cannot accommodate all necessary subject-area expertise, ranging from geology to combustion engineering, is embedded in a third tier of national committees set up by IGU member associations to provide the full support of the entire industry. Liaison between the second and the third tiers is provided through the members of the international committee.

This structure may seem costly and somewhat complex, but is, in the opinion of the IGU, the only approach which ensures that the terminologies prepared will be viable and stand up to scrutiny.

1.2. Hardware and software resources

To streamline its terminological work and to reduce the cost of dictionary production, the IGU has decided to computerize its terminological files. After investigating various options, the Union voted for the use of the EURODICAUTOM software package. This decision was mainly taken to help to minimize incompatibility between term banks and computerized dictionaries. The original EURODICAUTOM software was rewritten for an IBM machine and now features a photocomposition interface for data transfer to the IGU's printer. The record format and the various codes are the same as those used by the EEC. All software and code improvements are made available free of charge to other EURODICAUTOM software users and to the EEC, which coordinates all development work by EURODICAUTOM users, thereby creating a growing pool of computer engineering and term bank administration resources.

The national dictionary committees are tied into this network by personal computers and word processors supplying data which can be read by the IGU's mainframe software package.

1.3. Scope and sources of concepts

The IGU has decided that its Dictionary should cover all areas of gas engineering. Ancillary engineering disciplines are only incorporated where techniques particular to the gas industry have been developed, such as the use of electricity for the cathodic protection of pipelines. Commercial concepts are only included if the terminology is not found in a standard dictionary, as for example tariffs charged for the sale of gas.

The Multilingual Dictionary of the Gas Industry is designed to be a tool for translators and readers of foreign gas engineering literature. For this reason, the terminology is not limited to standard terms, but also includes variants and terms only used by specific authors. The IGU feels that the responsibility for the standardization of terminology should be left to the various national standards organizations, while a dictionary should present all terminology used or even misused. On the other hand, the compilers of the Dictionary do not create new terminology or translation equivalents, but accept that for certain concepts in certain languages no terminology may exist. In such cases, no term is offered and reference is made to a definition describing the concept.

The concepts in the Dictionary may originate in any of the countries whose languages are included. Source documents describing the original concept may be national standards or papers written by native-speaker authors. Other sources include gas engineering manuals and journals as well as memoranda, contracts and other documents.

1.4 Relational structure

In the main part of the Dictionary the concepts are arranged in a logical sequence. However, relationships between concepts are normally not shown because such an approach would make the Dictionary too large, too cumbersome and too expensive. A dictionary is not a thesaurus. In a limited number of cases, where confusion may arise, these relationships are represented by an appendix which shows, for instance, the systematic structure developed for the designation of different types of compressors or by a definition which describes how certain concepts are delineated.

1.5. Completeness

When the concepts to be included in the Dictionary have been collated and arranged in a logical sequence, the Dictionary is checked for completeness using a number of standard procedures. They include the following:

- verify whether the negations of concepts are included,
- verify whether nouns associated with verbs and verbs associated with nouns are included,
- verify whether word fields such as the components of a specific piece of equipment are complete,
- verify the consistent representation of certain hierarchical relationships such as a compound word including the term 'gas' (e.g. gas appliance) and the same word without this qualification (e.g. appliance),

– continuously review certain publications for complete coverage by the Dictionary.

1.6. Definitions

Naturally, a definition is available for each concept included in the Dictionary. This definition may either be taken from an authoritative source such as a standard or may be an ad hoc description of the concept supplied by the person proposing it for inclusion in the Dictionary.

However, it would be too costly and the Dictionary would become too large if all definitions were included in the printed version of the Dictionary. The following criteria were therefore developed as to when definitions should be published:

– A definition is included in all cases where no term exists for the designation of a specific concept in one of the languages of the Dictionary.
– Definitions are included in cases where the various terms used in the different languages for the designation of the same concept seem to differ widely and the equivalence of these terms is by no means apparent to a non-export user.
– Definitions are also provided in cases where several very similar concepts exist and they are known to be confused frequently.

Further, the definition section of the Dictionary contains an entry in cases where the compilers believe that certain additional information may be helpful to the user of the Dictionary. Such additional information may, for example, be a mathematical formula or a warning with regard to the frequent misuse of a specific term in a specific language.

Definitions printed in the Dictionary are always back-referenced to their source. They are never translated into other languages, but may be worded quite differently. The reason for this approach is the view that the authors of the Dictionary do not have the task of standardizing terms, but are merely called upon to collect existing usage. Slight differences in definitions may make the user of the Dictionary aware of slightly different interpretations of the same concept in different countries. Finally, definitions are not necessarily provided in all languages of the Dictionary. A warning saying that the Italian word *metano* is frequently misused to designate natural gas whose main component is methane, is, for instance, a case where the entry in the definition section would only be in Italian.

1.7. Drawings and tables

In cases where concepts differ in the various countries, for example, due to differences in national standards or the quality of national products, no translations

are offered by the Dictionary. Instead, the Dictionary includes tables and drawings in which the definitions of the terms in the different languages are compared.

The term *low pressure* is, for instance, not translated into German by *Niederdruck*, because the limit of low pressure and hence the usage of the term *low pressure* differ from country to country due to differences in national legislation. The equivalent terms for *low pressure* in the various languages are therefore presented in tabular form.

The Multilingual Dictionary of the Gas Industry also includes drawings related to the reference numbers of the entries in the main part of the Dictionary. Such drawings help non-specialists to understand the system of concepts in the Dictionary and often explain the concept much better than a definition.

1.8. Transfer from source language to other languages

The process of transferring the terminology collected in various source languages into all other languages of the Dictionary is not started until definitions are available for all concepts and the concepts have been arranged in a logical sequence. This transfer is the responsibility of the various national dictionary committees (third tier) which circulate the definitions of the concepts to their national experts in the various subject areas. It is a policy at this stage not to translate terms or to create terminology, and the source showing the existence of the term in the target language must be available before any term is accepted as a designation of the concept defined. These sources are stored in the term bank used for the IGU's terminological work and can be retrieved at any time.

1.9. Validation

When the concepts have been transferred into the various languages of the Dictionary, the working committee meets and discusses them on an international level. This interlingual comparison shows where certain concepts have been interpreted differently or where new or better definitions are needed. The working committee meetings are a crucial part of the entire terminological work and it is at this stage that the quality of the planned dictionary is determined.

It is the firm belief of the IGU that a highly critical review at an international level is absolutely vital for the production of a high-quality dictionary. Criticisms of earlier editions of the Dictionary are greatly appreciated by the IGU and are also examined and discussed at such meetings. In cases where it is impossible to find an answer for a certain language, the term in that language will be deleted from the Dictionary and will be replaced by "no equivalent in this language".

The IGU holds that the reputation of dictionaries has suffered too much through negligence concerning the quality of entries. Translators are justified

in their view that translations offered by dictionaries (or term banks) should be considered incorrect unless shown to be correct by cross-checking with a monolingual reference. For this reason, the IGU has imposed stringent quality standards on its terminological work.

1.10. Dictionary production

The IGU Dictionary is produced by automatic photocomposition. The terminology stored and updated by using the EURODICAUTOM-based term bank is forwarded to a printer running a compatible software package.

This approach minimizes the cost of dictionary production and, at the same time, the number of typographical errors. It is a method of dictionary production which will become a must for every dictionary author within the foreseeable future. The IGU is willing to provide assistance to other organizations wishing to explore the use of computers for the preparation of their dictionaries.

1.11. Publication

The Multilingual Dictionary of the Gas Industry will probably be published by a West German dictionary and gas engineering publishing house.

The International Gas Union holds that the functions of dictionary compilation and dictionary marketing should be kept separate, since dictionary compilers are normally not experts in selling their products.

However, some dictionary publishing houses still insist on the purchase of a minimum number of copies by the dictionary editor. International associations in particular are frequently placed under an obligation to buy copies for their members.

A minimum purchase obligation would be a violation of the principle that the publication of a dictionary is a commercial operation for which the publisher must accept the commercial risks. If the author is burdened with the distribution of a minimum number of copies equivalent to the break-even point of dictionary production, the main reason for retaining a dictionary publisher is no longer valid. A contract which takes care of all financial risks of the publishing house and grants all opportunities to the publisher is anything but an equitable arrangement.

2. Cooperation

2.1. Software

Terminological cooperation will in future only be feasible at reasonable cost if and when the software used for terminological work is compatible. The IGU strongly believes that in view of the high cost of transferring terminology from one data bank to an incompatible second data bank, often making such transfers impossible, the development of new software should be halted and organizations considering computerization of their terminologies or their dictionary production work should tie into the existing data bank system.

The IGU will therefore handle the terminologies of other organizations which have not yet computerized their terminological work, at no cost or at a nominal charge.

2.2. Cooperation in the gas industry

The IGU is creating a terminological network for the gas industry. The terminological activities of all national member associations of the International Gas Union will be tied into the term bank that has been developed, but the IGU's policy extends beyond the scope of the Multilingual Dictionary of the Gas Industry.

An effort is, for instance, made to integrate national and international standards work. In fact, it seems wasteful if terminology standards defining the same or similar concepts are prepared at considerable expense simultaneously, for instance, in the German Democratic Republic, Austria, Switzerland and West Germany and at the same time on the Common Market level in the form of European standards as well as on an international level in the form of ISO standards. These activities do not merely represent a duplication of effort which costs considerable sums of money, but also tend to increase confusion about the meaning of terms.

2.3. Cooperation in the energy industry

Cooperation between organizations involved in terminological work in the energy industry has so far been practically non-existent. The Multilingual Dictionary of the Gas Industry includes, for instance, coal terminology, oil terminology and electric power terminology which has been collected by the IGU dictionary committee. On the other hand, the dictionary of the World Energy Conference has been prepared by a working party which has not really collaborated with the various industries that represent the different sectors of the energy market. Simi-

lar considerations apply to the dictionary publications of the oil industry and, for example, work on the terminology of renewable energy sources.

The example of the energy industry is certainly not unique, and similar problems exist in a variety of other industries. It is high time that this lack of coordination was brought to an end.

2.4. Cooperation with term banks

Large term banks, such as the EURODICAUTOM term bank, the TEAM term bank or the Canadian term banks, collect terminology from a wide variety of sources to serve their users, who are often translators in major international organizations. Naturally, the terminologists working on these term banks cannot be subject-area specialists in all disciplines. As a result, the specialized terminology collected by major term banks is often unreliable in high-technology engineering disciplines.

For this reason, the IGU has agreed upon model arrangements with the EEC term bank. The gas engineering terminology prepared by the IGU will be compared with the current stock of data and any conflicts will be discussed by a working party of EEC terminologists and IGU terminologists. It is hoped that this approach will make it possible to check the entire gas terminology in the EURODICAUTOM data bank.

The IGU is willing to cooperate in the same manner with all term bank operators, because it considers that it is its responsibility to watch over the quality of the terminology used in its field of activity.

2.5. Cooperation with publishers

General engineering dictionaries represent a selective collection of terminology from a wide variety of engineering fields. Designations and definitions they offer for the same concept vary widely as different sources have been tapped. More cooperation between dictionary publishers and dictionary authors would not only minimize these discrepancies, but would also considerably reduce the expenses of terminological work. Duplication should be prevented by a coordination of programmes of work. EURALEX would be an ideal platform for such a joint effort.

Welding and material properties are just two very typical examples. Among other things, pipelines carrying gas are welded, and naturally, the Multilingual Dictionary of the Gas Industry contains pipeline welding terminology. On the other hand, the International Institute of Welding operates very active terminological working parties and it would appear to be a waste of effort if the pipeline welding terminology prepared by the International Institute of Welding were not used in the Multilingual Dictionary of the Gas Industry.

Similarly, the properties of steel are of importance in practically all engineering industries. Yield strength is therefore a subject of discussion in about 20 different terminological working groups operated by the authors of the Oxford Dictionary, Webster's, McGraw-Hill's Dictionary of Scientific and Technical Terms and a wide variety of other terminological working parties.

The IGU is willing to coordinate its terminological activities with others. It offers all dictionary makers access to its terminology free of any charge and will not insist on royalities for its copyrights if parts of the terminology prepared by the IGU are reprinted in more general dictionaries.

Terminology is a field where considerably improved coordination is indispensable. Hardly any profession seems to be able to afford as much duplication as the dictionary-making profession. This duplication wastes financial and human resources which are, in fact, in short supply.

It is therefore the responsibility of all terminologists and dictionary-makers to seek cooperation with others rather than to withdraw into splendid isolation. EURALEX has an important role to play in this area.

Reference

DICTIONARY OF THE GAS INDUSTRY, 2nd edition, volume 1. International Gas Union, Essen: Vulkan (1982)

DICTIONARY OF THE GAS INDUSTRY, 2nd edition, volume 2. International Gas Union, Essen: Vulkan (1985)