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INTERNATIONAL EFFORTS TO OVERCOME DIFFICULTIES IN TECHNICAL COMMUNICATION

H. FELBER
International Information Centre for Terminology (Infoterm)

Abstract

The international efforts to overcome difficulties in technical communication are illustrated by three examples (standardization of principles, standardization of terminology, and coordination of terminology activities).

First a description is given of the work done at international level on terminological principles by Technical Committee 37 "Terminology (Principles and Coordination)" of the International Organization for Standardization (ISO). The world-wide use of TC 37's terminological principles will lead to the harmonization of terminology work.

The paper then deals with the standardization of terminology and the international harmonization of concepts and concept systems. Since concepts and concept systems vary from one language to another, they must be laid down internationally in order to achieve unambiguous communication. Uniform concepts also form an important basis for the operation of multilingual data bank networks. Examples are given of national and international efforts to unify technical language.

Finally, there is a description of the efforts to coordinate terminology activities on a world-wide scale. An indication is given of the tasks and activities of the International Information Centre for Terminology (Infoterm), which was set up under UNISIST as a focal point for the coordination of terminological activities. Infoterm's plan to set up a network of terminology centres is also dealt with briefly.

1. INTRODUCTION

The rapidly increasing international cooperation in science, technology and industry requires effective tools to facilitate the exchange of both ideas and goods. This is why in the last few decades attention has been concentrated, particularly at national and international level, on the development of terminologies, i.e. the systems of concepts and nomenclature in specialized fields.

In the course of more than four decades' untiring research on terminology, Prof. Eugen WÜSTER has laid the foundations of a science which is called the General Theory of Terminology /1/ and is already taught in various universities throughout the world.

Whereas linguistics is the theory of language in general, the science of terminology is the theory of technical language. The relationship between the General Theory of Terminology and the specific theories of terminology is approximately the same as that between general linguistics and the linguistics of individual languages.

However important the theoretical bases for the development of tools of communication are, they must at the same time be accompanied with world-wide measures to develop practical terminology work /2/. Terminology work is teamwork, i.e. experts at national and international level compile the terminologies of their specialized fields.

But it is not sufficient for experts to establish terminologies. The terminologies must also be accepted by ordinary speakers of the language, i.e. every possible organizational measure must be taken to propagate them. The result of terminology work is of use to all, especially to experts in the various specialized fields, translators and interpreters, and information specialists. But it is also very important for the classification of scientific concepts and for teaching purposes. The international aspect of terminology work requires special mention. Since concept systems differ from one language to another, national terminology work should be incorporated into international efforts to unify concepts and concept systems.

is much more difficult to bring concepts and concept systems into line with each other at a later stage.

There now follow examples to illustrate some important international measures for the harmonization of terminologies :

(1) international elaboration of terminological principles;
(2) standardization of terminology and international harmonization of concepts and concept systems;
(3) world-wide coordination of terminology activities (Infoterm).

2. INTERNATIONAL ELABORATION OF TERMINOLOGICAL PRINCIPLES

Whereas in the case of biology and chemistry the basic nomenclature were drawn up internationally as long ago as the last century, it was not until 1936 that the impulse provided by Prof. WÜSTER's comprehensive research /3/ resulted in a Technical Committee on Terminology being set up, at the request of the Soviet Union, under the International Federation of the National Standardizing Associations (ISA). After the Second World War the work of the ISA Technical Committee on Terminology was continued by the newly set up Technical Committee 37 "Terminology (Principles and Coordination)" of the International Organization for Standardization. The ISO/TC 37 Secretariat is the responsibility of the Austrian Standards Institute (ON).

The international elaboration of terminological principles is concerned with the harmonization of those terminological principles and methods of terminological lexicography which are valid for all (or very many) specialized fields and languages. Six ISO Recommendations and one ISO Standard /4/ have so far been drawn up, and these are divided into four categories :

Category 1 : The vocabulary of terminology (ISO/R 1087-1969)
Category 2 : The processes in the preparation of specialized vocabularies (ISO/R 919-1969)
Category 3 : Naming principles

These are divided between 2 recommendations :
(3.1) General naming principles
(ISO/R 704-1968)
(3.2) Principles for the international harmonization of concepts and terms
(ISO/R 860-1968)

Category 4 : The layout of classified vocabularies
(4.1) General layout of multilingual vocabularies, vocabulary manuscripts and record slips
(ISO/R 1149-1969)
(4.2) Symbols for languages, countries and authorities (ISO/R 639-1967)
(4.3) Other symbols (ISO/R 1951-1973)

There are also national versions of these ISO documents. The rapid development of terminology requires constant revision of existing documents and makes it necessary to carry out new tasks, in other words, the elaboration of terminological principles continues.

Work is currently being done on a 'Format for the exchange of terminological data' which is of particular interest to terminology banks. For example, after being revised, the following documents will be supplemented as follows :

R 704 by a separate section on concept systems;
R 806 by an annex on an international key to terminology;
R 1149 by a section on computerized methods;
etc.

It will be of the utmost importance to achieve the world-wide use of these terminological principles and methods of terminological lexicography so that the results of terminology work can be exchanged. This will then also lead to a harmonization of terminology work. The use of computers for terminological lexicography will also contribute considerably to the use of standards.

3. STANDARDIZATION OF TERMINOLOGY

1931 saw the publication of Prof. WÜSTER's book 'Die Internationale Sprachnormung in der Technik' /3/, which leading engineers and philologists soon acknowledged as being of fundamental importance. This book did in fact turn to be the starting point for the above-mentioned elaboration of terminological principles. But it was a long way from the tenet of many philologists that 'language cannot be standardized' to the present-day standardization of terminology.

It should be pointed out here that the scientific standardization of language began as long ago as the last century, namely in botany, zoology and chemistry /2/.

Today we know that the standardization of terminology is indispensable and must take precedence over the standardization of objects. It is also becoming increasingly important for information systems.

The standardization of terminology in the strict sense means :

(1) fixing the meanings of terms by definitions;
(2) fixing the position of the concepts in the concept system (on the basis of the logical or ontological relations of concepts);
(3) designating each concept by an unambiguous term (chosen from available synonyms);
(4) creation of a term for a concept when no suitable term can be found for the concept among existing synonyms, synonyms.

It is done in team-work by a committee of experts.

Standardization of terminology is the conscious shaping of language. But the expression 'standardization of terminology' is also used in a general sense when the homonymy and the synonymy are eliminated, i.e. when one term is unambiguously designated to one concept.

The standardization of terminology in the strict sense is carried out at international level by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). At national level terminologies are standardized by the national standardization bodies which belong to the ISO /5/ or by the national members of the IEC /6/.

But the standardization of terminology is so important that it is also being carried out in a general sense by national and international specialist bodies, undertakings, authorities, etc. in their own particular fields.

This shows that the great practical importance of the standardization of terminology is finding increased recognition.

However, in information science a start has been made, without any knowledge of the standardization of terminology, on systematization of terminology by drawing up thesauri. This is much to be regretted, since the standardization of terminology is being carried out by leading experts /7/. It is to be hoped that in this area there will soon be a development towards closer cooperation at both national and international level.

Standardized technical vocabulary is indispensable for international information networks, especially for international data bank networks. This is because searches are only possible in a network of this type if the concepts in various languages correspond exactly. For whereas in literature documentation the keyword is used to trace documents which contain the details requested, in the data bank the detail is only found by means of the keyword corresponding to it.

Consequently great efforts will have to be made at international level to achieve uniform concepts and concept systems (see 3.2.).

1.1. Terminology standards - In view of the above-mentioned facts, the ISO/TC 37 Secretariat has collected and recorded the terminological standards from all over the world */8/.* Now the International

Information Centre for Terminology (Infoterm) in Vienna is engaged in drawing up the 'International Bibliography of Standardized Vocabularies'. The bibliographic details of the terminological standards are recorded in a special format in machine-readable form. This makes it possible for the search for these standards to be content-oriented, i.e. it is possible, for example, to find out directly any available terminological standard in a given language containing classified and defined concepts, together with its equivalents in another language. This bibliography is shortly to be published /9/. There are at present approximately 10.000 national and international standards.

However, national standardization bodies and the ISO have also begun to record standardized technical vocabulary in files [Deutsches Normungsinstitut (DIN), British Standards Institute (BSI) and others] or to store it on magnetic tape [ISO, the French standardization body (AFNOR), the All-Union Research Institute for Technical Information, Classification and Coding (VNIIKI) of the Soviet standardization body (GOSTANDART)).

The IEC has recently published a complete alphabetical index of the technical vocabulary which it has standardized /10/.

These are all important foundations for the above-mentioned international harmonization of concepts and concept systems.

3.2. International harmonization of concepts and concept systems.

It is not enough simply for individual concepts to be laid down internationally. The concept must be viewed in a conceptual interrelationship (concept system).

The relation of concepts can be :

logical (logical subordination : genus-species;
horizontal
logical series : different characteristic

of the same characteristic type)
or
ontological (ontological subordination : whole-and-part,
horizontal ontological series).

Therefore, in order to achieve a harmonization of concepts, the concept systems must be laid down internationally. This is so because the choice of different types of characteristic leads to the formation of different concept systems.

The member countries of the Council for Mutual Economic Assistance (CMEA, countries : Bulgaria, Czechoslovakia, GDR, Hungary, Poland, Rumania and the USSR were very early to recognize the importance of uniform concepts for international language harmonization in science and technology /11/.

The CMEA countries have for some time been working on the development of unified concepts and concept systems. It is a slow and painstaking process, and for this reason it is never too soon to start. Parallel thesauri in the various languages of the CMEA countries are being prepared for various subject fields on the above-mentioned basis.

In the multilingual Soviet Union a start is being made on the coordination of terminology work in the Republics of the Union by the Technical Committee for Scientific and Technical Terminology of the USSR Academy of Sciences in Moscow /12/. This also includes the harmonization of concepts and concept systems. The coordination is being carried out jointly with the Scientific Council for Lexicology and Lexicography and other institutions of the Academy.

In French-speaking countries there are also moves towards the harmonization of technical language. Several terminology congresses on the subject have been held in recent years. Special mention should be made of the activities of the Conseil International de la Langue Française, the Régie de la Langue Française (Canada) and the Association Française de Terminologie (AFTERM), recently founded in Paris.

The Arab countries are also showing interest in devising a uniform technical language.

4. WORLD-WIDE COORDINATION OF TERMINOLOGY ACTIVITIES (Infoterm)

Terminology work is very time-consuming and costly. It also requires the collaboration of leading experts, who have little time to spare. For this reason demands were being made as long ago as the 1950's at national and international level for the creation of an international centre to coordinate terminology work through information on terminology activities and sources.

For it is terminological principles and terminology documentation in fact that form the basis for the work of the terminology committees.

A centre of this type should have an overall view of developments in terminology throughout the world. This task has been fulfilled to a certain extent by the private research centre for terminology which the industrialist Professor WÜSTER set up at his factory in Wieselburg (Austria) and which he directs /13/.

But it was as part of the UNISIST information network founded by UNESCO that an international focal point was finally created for the coordination of terminology activities.

Thus the International Information Centre for Terminology (Infoterm) was set up at the end of 1971 with UNESCO support and affiliated to the Austrian Standards Institute (ON). Professor WÜSTER previously carried out, on behalf of UNESCO, a detailed study on how this centre should be set up /14/.

4.1. Infoterm's tasks - Under a UNESCO contract Infoterm is responsible for coordinating terminology activities throughout the world. In accordance with UNISIST Recommendations 4 and 12, the individual tasks are as follows :

- collection of terminology publications from all over the world, especially terminological standards and principles and technical vocabularies;

- compilation of bibliographies;

- information on terminology libraries and, as far as possible, on their holdings

- wide dissemination of information on existing and projected terminology publications;

- information on terminology courses; advising institutions, particularly in developing countries, which are carrying out terminology projects;

- investigating the possibilities for the interconnection of terminology banks.

4.2. Infoterm Symposium - As a first step towards the world-wide coordination of terminology activities, Infoterm organized in April 1975, with the assistance of UNESCO, a symposium on international cooperation in terminology, which was attended by experts and representatives of specialist institutions interested in terminology from all over the world /15/. The outcome of this symposium was the passing of a recommendation that Infoterm should take appropriate steps to set up a network of institutions concerned with the preparation and/or documentation of terminology.

Infoterm was asked to draw up a study on how such a network could be set up.

4.3. Infoterm's priorities - Since 1975 Infoterm has concentrated its attention especially on the following :

(1) international bibliography of standardized vocabularies (see 2.1.);

(2) World Guide to Terminological Activities;
(3) study for establishing a network of terminology centres;
(4) advisory service for institutions, particularly with regard to establishing the network of terminology centres.

4.4. Infoterm network - Efforts to establish the network of terminology centres, which is to form a UNISIST sub-network, are being concentrated mainly on coordinating terminology work and terminology documentation in the individual countries, in international organizations and in groups of countries (regional sub-networks). The guiding principle is 'cooperation through division of labour and exchange of results'. This requires the use of international standards.

National or regional clearing centres will have a special rôle to play. On the one hand these centres should have an overall view of developments in terminology in their own countries or the relevant group of countries, but on the other they must also be able to provide information about developments abroad. These centres are to be closely linked to Infoterm, which operates as a steering agency.

In many countries and international organizations /16/ the national and international coordination of terminology work is already being discussed and appropriate steps being taken, e.g. cooperation between the French-speaking countries, cooperation between the Scandinavian countries (Denmark, Finland, Norway and Sweden) and coordination in the Soviet Union (see 3.2. and /12/), etc. is currently taking shape.

4.5. Evaluation of Infoterm's activities - In June 1976 an evaluation of Infoterm's activities was carried out in Vienna on behalf of the UNISIST Steering Committee. A small group of experts from all over the world was invited by UNESCO to take part. These experts gave a very favourable assessment of Infoterm's activities and programme. Among other things it was also recommended that Infoterm should be expanded.

The result of this evaluation is contained in a UNESCO document which was sent to institutions concerned /17/.

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