International Conference on Terminology,
Standardization and Technology Transfer

PROCEEDINGS

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ORGANIZER OF TSTT'91:

China National Technical Committee on Terminology for Standardization (CNTCTS)

SUPPORTERS:

ISO   International Organization for Standardization

ISO / TC 37   ISO / TC 37 "Terminology(principles and co-ordination)"

IITF   International Institute for Terminology Research

GTW   Association for Terminology and Knowledge Transfer

TermNet   International Network for Terminology

SLC   State Language Commission of China

CSICCI   China Standardization and Information–Classifying and Coding Institute

CNCNST   China National Committee for Natural Scientific Terms

ECPH   Encyclopedia of China Publishing House

SP   Science Press, Chinese Academy of Sciences

PHCD   Publishing House of the Chinese Dictionary

SC   Standardization Centre of the Commission of Science, Technology and Industry for National Defence of China

CESI   Chinese Electronics Standardization Institute

MEETC / STIP   Scientech Information Publication

SRI / CSSBC   Standardization Research Institute, China State Ship Building Cooperation

STSII   Shanghai Technical Supervision Information Institute

CP   The Commercial Press

ON   Austrian Standards Institute

OLT / TLS   Department of the Secretary of State of Canada, Official Languages and Translation, Terminology and Linguistic Services

ATS   Academy of Technological Sciences, USSR

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前　言

本论文集是 1991 年 7 月初在北京召开的"术语学、标准化与技术传播"国际学术会（TSTT′91）部分论文的汇编，还有些论文因收到时间较晚来不及收入．有些论文则因内容有重复或其他原因只发表摘要．对由于上述原因未能收入或不能全文发表论文的作者，我们谨向他们致歉．

TSTT′91 是在中国召开的首次术语学方面的国际学术会议．在筹备过程中，国内不少单位给予会议以支持，国际术语情报中心（INFOTERM）主任加林斯基先生还亲临我国指导，国内外众多学者寄来了百余篇论文，使会议得以顺利召开．我们深信，本次会议将对我国术语学和标准化、对我国与世界术语学界的学术交流起促进作用，并成为一个良好的开端．

我们借此机会向本次会议的所有协办和支持单位，向加林斯基先生以及所有向会议提供论文的单位和个人表示深切的感谢．

中国术语标准化技术委员会

PREFACE

Included in the present book is a partial collection of the treatises read at TSTT'91 held in July 1991 in Beijing, China. The editors of the book apologize to the authors of some treatises that have failed to be included because their manuscripts did not come in time and also to other authors works appear only in the form of abstracts for being identical in content with other treatises or other reasons.

TSTT'91 has been the first conference ever convened in China in this particular academic field. A large number of Chinese institutions and organizations gave their kind support to the preparation for it, Mr. Galinski, Director of INFOTERM visited China to give his personal guidance, and scholars, both Chinese and abroad, contributed nearly a hundred treatises. All these joined to make it possible for the conference to be a successful process. We are firmly convinced that achievements of this conference will promote China's terminological researches and standardization as well as her academic exchanges with the world's terminological circles and that it will set an encouraging precedent.

The editors avail themselves to this opportunity to express their thankfulness to all the institutions and organizations who were generous enough to grant their assistance and support, to Mr. Galinski and to the groups, bodies and individuals who contributed treatises.

China National Technical Committee on
Terminology for Standardization (CNTCTS)

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Prof. Chen Yuan

TERMINOLOGY, STANDARDIZATION AND THE
DEVELOPMENT OF SCIENCE AND TECHNOLOGY

As is generally known, **terminology** came into being to meet the need arising with the advance of science and technology. And, terminological standardization contributes in turn to further development of science and technology. Such is the process through which man knows the environment or the macroscopic world and the microscopic world and reforms them, a dialectical process in line with the objective laws.

Despite the facts that 16 or 17 centuries ago in ancient China appeared a classic encyclopedic dictionary "Er Ya" which seemed even an ancient terminological data bank, that the Chinese scientists became interested in terminology and standardization and took preliminary measures for it as early as the 1930's, we must admit that **terminology** in its modern sense and as an independent interdisciplinary science rose as a result of the electrotechnical revolution and that "**Internationale Sprachnormung in der Technik, besonders in der Elektrotechnik. Die nationale Sprachnormung und ihre Verallgemeinerung**" published in 1931 by Austrian engineer Eugen Wuster (1898–1977) is generally regarded as the pioneer work in modern terminology.

A consensus holds that the term **Elektrotechnik**(electrotechnics) first appeared in 1880 among the German–speaking communities, and that the electrotechnical revolution was a great reform in the first quarter of the 20th century after a preliminary stage in the latter half of the previous century. It was marked by the replacement of electric energy for steam and electric motor for steam engine in a change that led to the significant advance in science and technology, especially the epoch–making development of the mechanical engineering and chemical industries, a change that brought about the tremendous growth of the social productive forces and consequently a drastic transformation in human social life as a whole. The first electrotechnical dictionary compiled by the lexicographer A. Schloman in 1907 included no more than 136,000 entries, but in the same dictionary's new edition published 21 years later in 1928 the total increased to 21,000. Such a contrast is sharp enough to show how powerful the impact of what we call electrotechnic revolution was.

Certain western scholars (especially some futurologists) are justifiable when they regard the electrotechnic revolution as the third revolution in human social productive forces, a revolution that, following the agricultural revolution and the mechanical revolution, gave decisive impetus to the growth of social productive forces. Thus we can better understand the famous formula "**Soviet power plus nation–wide electrification equals to communism**" raised in 1920 by Lenin who had a whole vision on the tremendous advance of science and technology during that period. "Soviet power" refers to the relations of production while "nation–wide electrification" refers to the productive forces. This metaphor by Lenin bears

the implication that the change in the production relations would liberate the social produc-
tive forces from all the restrictions and consequently would considerably boost these forces
elevating human society into a higher level, which means a society of greater abundance
Lenin's formula failed to be realized because of the factors involved in social development
were, as they always are, too complicated to be identified with the development in science
and technology. As everyone knows, the progress of history always follows a spiral course.
Nevertheless, when we regard Lenin's formula as a metaphor, we should have a profound
understanding of what the real social signficance of the electrotechnic revolution was and
is.

According to W. Wiener, founder of cybernetics, the industrial revolution, including
the use of the steam engine and the electric motor, was merely a revolution against "the dev-
il's dark mill", of course this is also a metaphor. It is the information revolution which
started in the 1960's that could bring about a surprising epoch—making development of sci-
ence and technology. The disclosure of the mystery of electron led to the birth of informa-
tion science, the application of which in turn gave another immense enlargement to the so-
cial productive forces.

The advance of science and technology means more powerful social productive forces,
and the growth of the latter gives impetus to the advance of science and technology. In such
a progress appear inevitably new concepts, new tools, new techniques and even new things.
in order to specify these new concepts, new tools, new techniques and other new things, we
have to formulate large numbers of corresponding new names, so the new terms emerge.
For formulating new terms, specialists in particular disciplines have to do research work
along the lines laid in taxonomy and nomenclature, in addition linguists and other scientists
also have to offer their cooperation from applied linguistics, social psychology, lexicology
and logic. Such is the way forming the current terminology. Wuster, in an article he wrote
in 1973 when he was 75 for the magazine "**Muttersprache**" gave a similar description of such
a process.

Three score of years have elapsed since Wuster published his pioneering work, during
which, as pointed out earlier, science and technology experienced two revolutions. Profes-
sor G. Rondeau at Laval University, Quebec City, Canada, the world's first college to in-
clude terminology in the curriculum, was right when he affirmed that current terminology
keeps pace with the development of information science.

Information techniques have considerably shortened the distances and also the time
need for communication. In other words, today information techniques accelerate and in-
tensify international exchange and global contacts in science and technology. Therefore,
terminological standardization is now more urgent and more important than it was in any
other historical period. Moreover, it should also be noted that, terminological standardiza-
tion is in essence something that plays unprecedented multi—dimensional roles in the ad-
vance of science and technology. It is more and more clear that standardization is

increasingly important in the fields mentioned here:

— Transmission of knowledge including scientific and technological education and popularization;

—Application of the findings of scientific researches;

— Comprehension and introduction of new concepts and new devices both in science and technology;

—Development of new disciplines;

—Storage, transmission and retrievals of data;

—Compilation and publishing of data and research findings;

—Domestic and / or international academic exchanges, etc.

So far as the Third World or developing countries are concerned terminology and standardization are of particularly greater importance. The reasons referred are:

— Generally speaking, the developing countries were late in launching scientific and technological progress, therefore it is highly possible that they lack comprehensive and systematic scientific data;

— Specifically, some developing countries, despite their glorious ancient civilizations, turned into backward countries due to complicated historical and social factors, particularly as compared with the developed countries in terms of modern science;

— Any effective effort aimed at the growth of the national economy must necessarily rely on the education and research in science and technology and their application.

—There is urgent need in foreign trade and economic exchanges;

— Languages and writing systems used by these developing countries are usually unique in form or usage.

As a developing country in the Third World, China, like other developing countries, is fully aware of the importance of terminology and standardization for the growth of social economy and the advance of science and technology as well as the roles they play in these fields.

Factors which join to make terminological standardization particularly urgent in China today are:

—the need arising from the reform and open—policy as the basic policy of the People's Republic of China since the 1980's;

the unprecedented scale of China's scientific and technological exchanges and economic transactions with other parts of the world;

—a big challenge facing China as a whole to raise the level of science, technology and culture to a new height;

— the particular difficulties posed by the Chinese writing system, non—alphabetic as it is;

— artificial barriers which caused terminological disagreement between mainland Chinese and other fellow—countrymen in Taiwan and Hongkong and the ethnic Chinese

overseas.

As a sociolinguist, I should like to cite some interesting examples to show the importance and urgency of terminology and standardization in China and the problems they are posing, basing on my own observation, experiments and researches in applied linguistics in recent years.

My first example involves a familiar word, which is a term in the science of media, though perhaps not a scientific term in the strict sense. The word is chuban. It appears in the names of two institutions affiliated with China's State Council, the first of which is Xinwen Chuban Shu(Media and Publication Administration), while the latter is Waiwen Chuban Faxing Shiyeju(Foreign Languages Publishing and Distribution Administration). **Chuban** in the former case covers in its meaning publishing, printing and distribution, while in the latter case in means merely the production of books, being a term on the same level with **faxing** which refers to distribution. Moreover, sometimes a Chinese publishing house has such a department as **chubanbu** (which operates as a coordinator between the editorial departments and the printing part) giving **chuban** a still narrower sense.

When we turn to the English translations for the word **chuban** we find worse confusion. The Media and Publication Administration published a periodical entitled **Xinwen Chuban Bao**, the English for which is **Press and Publishing Journal** where **press** refers to news reporting. On the other hand, the well-known Chinese publishing house **Shangwu Yinshu Guan** has been known in English as **The Commercial Press**. In the latter case **press** is, following the example of **Oxford University Press**,equivalent to the Chinese **chubanshe** (publishing house). However, **Press** in the phrase ″**press conference**″ again refers to the news reporters. As to the word **publishers** incorporated in IPA (International Publishers Association) may have its Chinese equivalent **chuban ren** (individual publishers), **chuban she** (publishing house) or **chubanjia** (entrepreneur in the publishing industry). The usual Chinese translations in this case are **chuban shang** (businessman in the publishing industry) and **chuban jia,** in which the Chinese characters **shang** (businessman or merchant) and **jia** (entrepreneur) differ from each in social sense (nuance).

I choose the word **chuban**, a term or quasi-term bearing relatively obvious social nature and point to the polysomy and ambiguity it involves because I want to make it clear that the formulation of terms in the realm of social sciences or terms indicating social phenomena calls for far more complicated efforts than what are needed in formulating terms in science and technology, inasmuch as social sciences the traditional rule of following the commonly-accepted versions plays more important roles.

Now let me cite an extreme example of acronymic terms. By acronym it is meant a term or a word made up from the initial letter of each successive part indicating a thing or a concept. On the mainland the popular term for **laser** in **jiguang**(激光) which has replaced the former transliteration **laisai**(莱塞) or **laisaiguang**(莱塞光). The character **ji**(激) in the combination bears affinity in the meaning to the English **stimulated** and that is one factor

that makes **jiguang** readily accepted by the public. This particular example shows that coining new Chinese terms by "free translation" is the better way for introducing new terms than "transliteration" inasmuch as the former practice is psychologically more acceptable by the Chinese public and better suits Chinese usage.

However, **leida**(雷达), as the transliteration for **radar**, has survived the wordy version **wuxiandian tanceqi**(无线电探测器). I don't think the recently introduced overseas version **leishe**(镭射) or **leishe**(雷射) could ever replace **jiguang**. And incidentally, the overseas Chinese **diannao**(literally electric brain) for **electronic computer** of which the conventional Chinese is **dianzi jisuanji** or **jisuanji**(电子计算机或计算机), though somewhat unscientific, has easily gained wide circulation. I guess both versions would co-exist for a certain period of time or each would become dominant on a particular level. One could, for example, be preferred for popular colloquial usage while the other would remain as the conventional written form.

The case of the acronym **AIDS** represents a quite different story. When the diseases came to be known in China, the public readily accepted the overseas Chinese transliteration for it **aizibing**(or its variant), abandoning the earlier coined term **huodexing mianyili quefa zonghezheng**(获得性免疫力缺乏综合症 = acquired immune deficiency syndrome) which was a long combination as wordy as burdensome. This particular case is eloquent enough to show that transliteration is far from being always unpreferrable as far as terminological standardization is concerned. Despite this fact, however, **duodantou fendao chongfan dagiceng yunzai gongju**(多弹头分导重返大气层运载工具 = multiple independently targeted reentry vehicle stands as the only possible Chinese equivalent for **MIRV**. In contrast, **NATO** got, surprisingly, its shortened modern Chinese name **beiyue**(北约), probably because the concept had become so familiar among the general public that the shortened form was taken for granted.

I cited a series of extreme examples in order to support my own arguments on the following points:

— of what importance is terminological research to advance in science and technology as well as to the modernization of this country;

— of what significance terminological standardization is to the effective execution of China's policy of reform and openness;

— what tremendous difficulties terminological standardization in China presents and what amount of research, comparison and exploration are involved;

— how urgent the mutual support between terminology and sociolinguistics and pragmatic in this country is.

The last but not the least important question is that of the internationalization of terms. Pioneers in terminology saw the importance of it. As a matter of fact the advance of science and technology knows no national borders, and intercontacts and exchanges in the scientific and technological fields intensify the process of the internationalization of terms.