

The current Terminological Infrastructures in China

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Abstract. The development of economy in China strikes the attention of the whole world, under this globalization background, in China, where does the terminological work fit? This paper tries to search for an answer from the angle of terminological infrastructures. It mainly introduces the existing institutes dealing with Chinese terminology standardization work. By means of consulting some relevant documents, the current state of those relatively important termbases at national and at ministerial level has been raised to the surface. Although the Chinese terminology theories have not developed maturely, some efforts made by Chinese terminology researchers should not be ignored; two prominent modern Chinese terminology theoretical pioneers are pushed forward to the front of the stage. The current principles advocated by China National Committee for Terms in Sciences and Technologies (CNCTST) for standardizing Chinese terms have been briefly discussed: not only their successes are mentioned, but also their problems and inadequacies are criticized, which are succeeded by some positive suggestions. At the end of this paper, the author sums up the above and points out the fact: there exist some terminology infrastructures in China as a whole; however, some realistic shortcomings still exist.

1. Introduction

Although the development of economy in China attracts the world-wide attention since the late years of 20th century, and even though in the year of 1909, the first authorized agency for compiling Chinese terms in the scientific and technological fields had been founded by Chinese government, the development in the terminology area did not develop in a more idealistic manner in comparison with its peers in the western world, not only in the basic terminology theoretical research field, but also in the modern methodology research aspect.

As a terminologist, I have carefully observed this reality: i.e. since the 1990s, in Europe and in Canada, the discussions concerning terminology theories and its realistic practice have become more and more evidently heated, not only in German-speaking countries, but also in French-speaking regions, as well as in Spanish-speaking countries and others, this fact brought an inevitable and a slightly large reform in the terminology work globally.

I have delightedly noticed this fact that the EU (European Union) enlargement eastwards had brought many optimistic and active cooperation opportunities for all countries in Europe in the terminology field, and many large projects in this field either at national or at European level had been positively supported financially.

In China, we should not deny the truth, i.e. with the economic globalization and the rapid development of the economy, the standardized Chinese terminologies are playing a more and more important part in developing high and new technology, they function positively in improving the efficient communication among industrial competitions, esp. they are playing an effective role in eliminating the trade and technical barriers and misunderstandings. However, a weak point in our country still exists, i.e. for a long time, the basic terminological standardization researches both at the theoretical level and in the methodological research respect lag behind our foreign colleagues even after China entered into WTO (World Trade Organization).

The situation in China in recent years is still not very optimistic as far as the financial support from the government for the terminology standardization researches and practices is concerned; esp. the grants, which are pumped into the China National Committee for Terms in Sciences and Technologies, are relatively limited.

If we rethink profoundly and try to sort out all reasons, we can sum up a lot.

However, in this paper, I just like to inform every colleague of some brilliant facts already existed in China, and I would like to deliver my positive suggestions afterwards as well.

At first, let me introduce some realities existing in China.

2. The main Institutions and Termbases in China

Since the founding of the People's Republic of China in 1949, Chinese government started to realize the indispensable and vitally significant role of sciences and technologies in the process of developing a new-born country healthily, therefore the basic and supportive functions of standardizing Chinese terms in sciences and technologies have been stressed.

2.1) the main Institutions

Until today, these institutions as follows referring to terminology standardization issues exist at national level in China, which are engaged in their respective duties:

- (1) The National Standardization Technical Committee: It was set up in the 1980s; its secretariat is located in the Chinese Standardization Research Institute. This committee is composed of representatives mainly from the Chinese Standardization Research Institute, as well as from the China National Committee for Terms in Science and Technologies, moreover, it also absorbs some representatives from the language information management department of the State Language Commission, and some people from universities in Beijing or institutes of the Chinese Academy of Science are also included. This committee holds its yearly conference annually, and all the representatives discuss together with the

related issues about the formulations on Chinese Terminology Standards.

- (2) The China National Institute of Standardization (CNIS): it was set up in 1963 under the name of “the Institute of Standardization of the State Science and Technology Commission”; it is directly subordinate to Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). As a national social service institution, it dedicates to standardization researches; it mainly addresses the global, strategic and comprehensive standardization issues in national economy and social development of China; meanwhile, it is committed to participate in international standardization activities by taking the leadership of the international organizations, and presiding over the development of dozens of ISO standards.

It is mainly responsible for:

Collecting and analyzing domestic and international standardization information, and exploiting the resource of standardization information; establishing the nation-wide service network of standardization information as well as providing consultation service; managing national standards database; disseminating and implementing national standards as well as conducting relevant training; Furthermore, conducting the research of advanced theory, system and methods of quality management and supervision. Besides, it provides the service of collecting, summarizing, analyzing, and offering consultation for product information, supplies consulting and training service for quality certification. It also undertakes the secretariat work of important national standardization technical committees and subcommittees; it is authorized by the State Council to manage the national code for organizations and Institutions; as well as pushes forward the application of code information; and provides product certifications. Its relevant work concerning terminology issues is to stipulate the national standards for Chinese terms, and the secretariat of ISO TC 37 (a committee of International Organization for Standardization, which prepares standards and other documents concerning methodology and principles for terminology and language resource) is located here.

- (3) China National Committee for Terms in Sciences and Technologies (CNCTST): It was established in 1985 upon the approval of the State Council of the People's Republic of China. It is the organization authorized by the State Council to examine, approve, and promulgate Chinese terms on behalf of the Chinese government. The scientific and technological terms examined and approved by CNCTST are authoritative and have a binding force in China. They should be observed and used by all organizations including scientific research and educational institutions, production and management units, news and publishing circles, etc. Since 2005, it has already been empowered to start to examine, approve and promulgate Chinese terms in social sciences and humanities.

It also develops the exchanges, coordination and unification in Chinese terms used in the mainland and Taiwan of China and in other Chinese-speaking regions (esp. in scientific and technological fields); it is also responsible for organizing domestic and international academic communication in the field of scientific and technological terms.

In 1990, several ministries and commissions of Chinese government released a notification jointly, it requested: The news agencies around China should propagate the importance of the unification of Chinese terms through news media, and take the lead to use the promulgated Chinese terms; every publishing house and press unit should use the promulgated terms in their publications, especially in the reference books; any kind of teaching materials to be edited and published in the future should adopt the promulgated Chinese terms.

2.2) The main Termbases in China:

In China, the work of creating Termbase had started since the 1980s and developed in 1990s. The initiation was inspired by Mr. Prof. Helmut Felber, who was the ex-director of Infoterm--the International Information Centre for Terminology, and by experts from the Canadian national terminological database when they paid China several visits during the 1980s. Since 1989, some ministries or institutions in China began to establish terminological databases according to their own needs. The Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) of China issued a series of national standards for guiding the terminology standardization work and for the terminological database building, e.g. GB/T 10112-1988, GB/T 13725, GB/T 13725-1994, GB/T 15625-1995, GB/T 16786-1997, GB/T 10112 1999, GB/T 15237.1-2000, GB/T 16785-2012, etc.). Until 2015, there existed the following famous terminological databases at national or at ministerial level:

(1) The terminological database in China National Committee for Terms in Sciences and Technologies (CNCTST):

It was established in 1995, it contains 350,000 standardized Chinese terms with their English equivalents, and most of them have precise definitions. Its structure is on the basis of the related conceptual systems and considers the knowledge systems in the respective disciplines. It plays a very positive role in unifying and normalizing the Chinese Terms in mainland of China, and it helps to prevent chaotic usages from epidemic as well. This database includes some Chinese contrastive terminology versions in simple and traditional Chinese for the sake of harmonizing the differences between mainland and Taiwan of China.

(2) Mechanical engineering terminological database:

This database was created by the Ministry of Machine Building in 1991, which has already collected 44,000 terminology records, and was divided into “mechanical engineering”, “electrical engineering” and “instrument and apparatus” totally 3 parts. The whole structure is mainly based on discipline classification system. Every record contains the definition, hypernym (superordinate terms), hyponym (subordinate terms), synonym, subject domain, and it is attached with the equivalents in English, Russian, German, Japanese, French, indicating their resources as well. Its compilation work conforms to the National Standards of China. After the evaluation taken by experts from United Nations Industrial Development Organization (UNIDO) in 1995, it was certificated to have reached the international advanced level in 1996.

(3)The Chinese Encyclopedia terminological database:

It was established in 1993 by Encyclopedia of China Publishing House, which owns 800 000 encyclopedia entries and various kinds of Chinese terms. This database provides retrieval services across media publishing systems at national level; therefore it brings fruitful benefits for publishing areas in China.

It is the first grand, comprehensive and multi-functional terminological database in China which is oriented to the “concepts”. Among all its sub-databases there is a termbase specially which includes encyclopedia terms and national standardized terms. In this termbase, every term contains 11 items: i.e. term code, Chinese terms, Chinese PinYin (it is the official phonetic system for transcribing the Mandarin pronunciations of Chinese characters into Latin alphabet), English equivalents, definition, subject domain, national discipline classification code, resource, and grade (or rate).

This terminological database adopts Sybase10 and Infobase of China. In the process of its development, it always obeyed the Chinese national standards and the ISO international standards. According to the evaluation report made by experts from the General Administration of Quality Press and Publication in 1997, it was announced to have reached the international and national advanced level.

(4)The Chinese-English and English-Chinese technological and scientific terminological database:

It was built by China Science and Technology Information Research Institute under the command of the Ministry of Science and Technology in 1992. Until 1999, it has contained 500,000 Chinese technological and scientific terms. It plans to enlarge to 1,000,000 Chinese terms with their English, Japanese, Russian and French equivalents. They also plan to build up a corpus and develop this terminological database into machine-readable and multi-language terminology Knowledge Database.

Since its establishment, it has played a very important function in dealing with issues in machine translation, in natural language retrieval, as well as in the management of expert system, in the compilation of multi-language dictionaries, it even benefits the compilation and revision of various subject thesauruses, and is very helpful for the research of artificial intelligence.

(5)The Terminological Database for the applied Linguistics:

In 1991, under the support through the Funds for social science and humanities, the State Language Commission set up a terminological database for the applied linguistics. It is actually a computerized information collection of terminologies in the applied linguistics field. Its purpose is to collect the applied linguistics terms as comprehensive as possible; and its resources are from authorized books, periodicals, as well as from academic articles etc. in the applied linguistics field. It contains 20,000 terminological records, and every record is made of 6 items: classification number, English denomination, Chinese designation, Chinese Pinyin, as well as the structure expression of Chinese designation and its resources. As far as the practical benefits are concerned, this terminological database provides a very convenient conditions for doing researches on the structures of Chinese terms

(terminologies) through the structural query.

Besides this terminological database there exists another termbase for computational linguistics.

3. Two Chinese Terminology Pioneer researchers in modern

China:

Since 1978, Chinese government implemented the “reform and opening-up” policy, some Chinese scholars had opportunities to work as visiting researchers and did some terminological researches abroad. Thereafter, the latest theoretical thoughts or methodological considerations about modern Terminology which had been popularized in the western world or in the former Soviet Union were available to some Chinese Terminology researchers. Through their valuable and elaborate efforts, Chinese Terminology as an “independent (or autonomous) discipline” has started to take shape. Among these scholars, it is my great pride to introduce the following two respectable professors, who should be hailed as the Chinese Terminology pioneer researchers in modern China.

3.1) Prof. ZhiWei Feng: Born in 1939, he was a member of the advisory board of “Trans-European Language Resources Infrastructure” (TELRI), and was a member of the International Advisory Committee of the Language Resources and Evaluation Committee (LREC). Meanwhile, he was also invited as a member of the editorial board of the IJCC Chinese and Computing International Journal; a member of the editorial board of British continuum publishing company series “Corpus and Discourse Research” before he retired.

Prof. Feng is praised as “the first terminologist” in China due to his special contributions to Chinese terminological theories. Among all his theories, the “‘FEL’Formula –An Economical Law for the Formation of Terms”, “potential ambiguity theory”, “English-Chinese Computational Linguistics Terminology” etc. are full of innovative ideas in the mainland of China. His “Modern Terminology Introduction” becomes a milestone in the history of Chinese terminology theories. At the start of 21st century, Austrian Commission for UNESCO (Austria Committee of the Education, Scientific and Cultural Organization of United Nations) along with Vienna City and INFOTERM (the term information center) endowed Professor Feng with Wüster special prize award, in recognition of his outstanding contributions in the theories and methods in Chinese terminology research.

3.2) Prof. ShuPu Zheng: Born in 1940, He had been a famous scholar in the Russian-Chinese Dictionary compilation field before he devoted himself to Russian-Chinese Terminology researches. He was a leading lexicographer when compiling the “great Russian Chinese Dictionary” in 1985, and engaged on “the great Russian Chinese Dictionary” (Revised Edition) in 2001, as well as codified “the Soviet Encyclopaedia” in 1986, and “Russian Chinese Dictionary” in 1998. His team won the Chinese dictionary award the first prize in 1995 and in 1999 separately.

He originally studied lexicography and lexical semantics theories in Russian, and published

many papers. He had been elected as the director of “Chinese Lexicographical Society” for many years already. Almost near his retirement, He started to commit himself to the work of introducing those Russian-related terminology theories, and since 2004 or so, he had already published several books on the basis of translation or of personal summaries about Russian Terminology theories, e.g. “Terminology”, “the Academic Collection of Terminology”, and he had also published numerous academic essays. Before he retired, he was in charge of the project "Russian Terminology Theory and Practice" supported by the Ministry of Education of China financially.

4. The principles and methods for standardizing and approving Chinese Terms implemented by China National Committee for Terms in Sciences and Technologies (CNCTST): successes, problems and their solutions.

The methods and principles for standardizing and examining Chinese terminologies in every sub-committee of CNCTST are based on the ISO/ 704 and other related ISO terminological standards (e.g. ISO 10241-1992, ISO 1087-1:2000, ISO 704:2009, etc.) with some necessary modifications according to Chinese language’s characteristics, e.g. term formation is carried out by coining new Chinese terms based on the thorough understanding of their corresponding concepts, “nationality” as an essential element is vividly embodied through the whole process of Chinese terminological standardization. Some terminological principles implemented by the former Soviet Union are also referenced. That is, CNCTST fulfils its terminological standardization work mainly on the basis of Chinese National Terminology Standards (Terminology work-- Principles and Methods GB/T 10112 1999, GB/T 15237.1-2000, GB/T 16785-2012, etc) but with some distinctive complements and amendments showing some practical experiences achieved by the working teams made up of domain specialists, linguists and terminologists. The work for unifying Chinese terminologies starts from building up a whole conceptual system on account of the knowledge system of a sub-domain. CNCTST has its detailed manuals for guiding how to model such sort of conceptual system and for guiding how to select term candidates properly for designating corresponding concepts, as well as how to develop precise definitions etc. The basic principles are the same as those written in related ISO terminological standards. For instance, the conceptual relations are mainly: hierarchical relations (generic relations, and partitive relations) as well as non-hierarchical relations (e.g. association relations—sequential relations, causal relations, temporal relations etc.). The hierarchical relation occupies the most part of conceptual systems in already promulgated and standardized Chinese terminologies. When assigning designations to concepts, terminologists in CNCTST try to pursue one-to-one unambiguous correspondence. Synonyms, homonyms, homophones and homographs, as well as polysemies are avoided whenever possible. As far as developing definitions is concerned, we mostly make use of intentional definitions, and try to avoid wrong definitions (e.g.

circle definitions, unnecessary negative definitions), and try our best not to make definitions too narrowed or too broader etc.

A sub-committee of CNCTST should assemble the 1st-class specialists in this sub-domain to draw out a general conceptual system for collecting Chinese term candidates and then examining them, for the sake of detailed and concrete discussions, specialists are divided into various groups in accordance with respective parts for forming a future terminological glossary, precise definitions are required in line with their homologous designations (Chinese terms).

Generally speaking, we implement our work mainly complying with the traditional Terminology Theory.

However, Chinese terminologies promulgated and approved by CNCTST have covered more than 100 subject fields, i.e. the Chinese terminology standardization work not only covers pure nature sciences, e.g. Mathematics, Astronomy, Physics, Chemistry, Agronomy, Biology and Medical Sciences etc. but also covers some applied sciences and interdisciplinary sciences, as well as includes social sciences & humanities. During the process of our concrete terminological standardization work, more and more contradictory phenomena against the exclusive “prescription” methods advocated by the current principles have emerged. The realistic situation has shown the truth that our old principles and methods for standardizing Chinese terms have their limits; they need to be revised and enriched.

In reality, “concepts” have their dynamic nature; they in fact develop with the time, just as Mrs.Prof. Rita Termerman wrote in the Introduction of her book: “Towards New Ways of Terminology Description”：“...the understanding of the world is affected and as a consequence the world is moving, i.e .changing...”. As a result, the “concepts”, which are the abstraction or the generalization from experience or the result of the transformation of existing ideas, are changing as well, even if some of them change slowly. Briefly to say, the reality has its conflict with the traditional Terminology’s “prescription” principles and methods, e.g. “the univocity principle”and the principle of “concepts are clear-cut” can not be realized idealistically in practice, esp. in social science and humanities fields. In some application-oriented sciences as well as in some interdisciplinary sciences (or in newly-emerged disciplines), the sole “prescription-oriented” terminology standardization principles appear to be incompatible with their concrete practices.

In China, the traditional terminology standardization methods are faced with challenges as well: Due to the truth that they are too rigid, and synchronic, it seems to be unrealistic to put them into effect. Meanwhile, not only in social sciences and humanities, but also in some applied sciences, as far as their research objects are concerned, they are different from those in natural sciences, the former has their own respective concepts, categories and values. The concepts in social sciences and humanities can not escape from the influence of human beings’ various subjective factors or non-physical factors; therefore, it is difficult to maintain their precise and accurate status. For instance, in social sciences and humanities, scholars prefer to use ordinary(general) language, and trend to adopt some phrases to express their emotions, thoughts, experiences, or perceptions; As a result, the terms in the above fields cherish their special characteristics with ambiguities, vagueness, it is normal

that implicit metaphors are unavoidable at times. Because of these above-mentioned facts, some Chinese scholars and terminologists also put forward their opinions to advise us to enrich the current “principles and methods” with some descriptive elements. It is admitted that to standardize Chinese terms in non-pure natural sciences is not easy but complicated, all distinctive elements and the special regularities in these fields should be considered and respected. For example, some names of theories, of methods, of academic schools, even of important historical events or agencies etc. should be collected in order to maintain the completeness and scientificity of a knowledge system in some subject fields. In the light of the fact that “Synonym phenomena” exist inescapably in the non-natural sciences, descriptive terminology methods should be taken into account.

The relatively stable and already standardized terms should be revised regularly. In fact when assigning suitable but a bit temporary designations to those uncertain or unstable concepts, the descriptive methods are more superior to the prescriptive ones; for, the former are based on the dynamic state of concepts, and do not eliminate the reality. With regard to those neologisms (neoterms) which are newly-emerged but have not become mature yet, as well as in respect of those terms which are temporarily or permanently difficult to be standardized, the terminology standardization agencies should be advised to provide the descriptive data for various users, so as to satisfy the practical needs of the society. And actually, it is a very wise idea to record those neologisms appeared in the newly-emerged disciplines by means of the descriptive terminology methods at first, since it is a wonderful preparation for further standardizing these terms when the knowledge systems or concept systems in these disciplines become stable sometime in the future.

5. Summary and conclusion

According to some ideas about “terminology infrastructure”, e.g. as Mr. Prof. Budin and Wright mentioned in 1997, it was described as “all arrangements and configurations of people working together, of institutions dedicated to or responsible for terminology-related activities, producing and using different kinds of information resources, references materials, archives, databases, etc.” or as Mr. Dr. Galinski wrote in 1998 which recommended to present a horizontal terminology infrastructure as being composed of 5 main structural aspects (less or more or combined), i.e.: “(1)terminology(planning) policy; (2)(systematic) terminology creation; (3)information or documentation in the field of terminology; (4)terminology associations (primary for individuals);(5) purpose-oriented co-operation groupings in private industry or between private industry and public institutions (for this sake of creating and/or sharing terminological data)”, even according to some other similar opinions which advise to add more elements into these above ideas, i.e. a terminology business plan, human networks for terminology, and a national terminological database should be included among all above-mentioned elements, we can draw a conclusion here: there exist some terminology infrastructures in China, and some of them are at the national level; However, the international and national concrete cooperation is still inadequate or on the way. Inside China there still presents a wasteful duplication of efforts among various terminology institutes, i.e. the idea concerning “building a national, horizontal and efficiently cooperative terminology

infrastructure” has not been realized yet.

In addition, some problems also exist in the terminology management aspects apparently. Currently, researches in China in relation to terminology topics mainly are focused on purely theoretical issues, the research achievements relevant to terminology managements and concerning the practical terminological tools esp. with the aim of benefiting language services, are still deficient. Some official surveys made in 2014 had shown that most language service enterprises in China have not yet established their effective terminology management mechanisms, only 6% of them have deployed specialized terminology management tools, and merely 2% have their specialized terminology management expert teams, there were still 27% claiming that they had not proceeded any effective terminology managements at all.

Since the importance of terminological activities are still generally unrecognized in China, many efforts in applying for satisfactory financial supports from Chinese government or through private channels still need to be further made continuously. Besides, in order to carry out efficient and finance-saved terminology work among already existed terminology infrastructures in China, more in-depth and transparent cooperation must be undertaken. We still call for further researches on some concrete terminology practical issues so as to keep pace with this developing world. When facing with these seemed never-ended challenges, our attitude is always optimistic: we are full of courage and confidence.

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