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Traduzione e terminologia

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The Interplay between Terminology and Translation: Taking Terminology Translation in the Field of Civil Aviation from English into Chinese as an Example

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Abstract

Since English has firmly and irreversibly established itself as the first language of world communication, it is commonly referred to as a lingua franca and exerts a profound influence on other languages. It is even so for civil aviation (CA) which is a fast-developing and interdisciplinary field. Based on linguistic analyses of terms in the field of CA as well as

analyses concerning linguistic and trans-linguistic factors for the translation of CA terms from English into Chinese, the author concludes that in the field of CA, the influence English exerts on Chinese is extensive and that Chinese has been enriched during its contact with English.

Grazie al suo consolidamento come lingua dominante nella comunicazione internazionale, l'inglese viene spesso definito lingua franca ed esercita una profonda influenza su altre lingue. È quanto accade nella terminologia dell'aviazione civile, un ambito interdisciplinare in rapido sviluppo. Sulla base di un'analisi di termini dell'aviazione civile, che prende in considerazione fattori linguistici e interlinguistici della traduzione dall'inglese in cinese, l'autrice conclude che nel campo dell'aviazione civile l'inglese esercita una profonda influenza sulla terminologia cinese e ha contribuito ad arricchirla.

1. Introduction

According to CABRÉ (2005), terminology and translation studies are two emerging disciplines that differ from each other in focus and aim. However, they also share similarities and are in many aspects complementary. For instance, translation and terminology are both highly context-dependent (FAINI 2018). Terminology resources assist translators in the structuring of specialized knowledge in a certain domain, which is part of translation competence. Translation has also played a significant role in developing terminology as a discipline and as a practice since it has contributed significantly to enrich the lexicons of many languages (PRANDI & ROSSI 2017). This paper analyzes the extent to which English has influenced Chinese by comparing and contrasting Civil Aviation (CA) terms in English with their respective Chinese translations.

2. Previous research

2.1 Studies on the interplay between terminology and translation

Although there is no entry for "terminology translation" in the *Routledge Encyclopedia of Translation Studies* (BAKER 2004), it seems to be widely accepted that there is a close relation between terminology and translation. This is because «firstly, translators are major users of terminology, in the sense of the technical or special terms or expressions used in a given discipline, profession or activity. Secondly, terminology as a method of collecting, grouping together and structuring sets of terms peculiar to given subject areas, was developed

and practiced largely by translators» (ROBERTS 1985: 343). Following ROBERTS, there are a large number of academic works addressing the connection between terminology and translation (HARTMANN & JAMES 1998, CABRÉ 1999, BAKER 2004, FABER 2009, BOWKER 2015, WEI 2018), which focus either on the benefits terminology brings to translation or vice versa.

In the context of the Chinese language, however, most terminology scholars and researchers treat terminology as lexicology. This may be partly attributed to the historical research of neologisms which were introduced in the 19th century and to the work China undertook for the standardization of terms during the first few years of the 20th century (WEN 2011). As a result, translation strategies and methods for terms are highly popular research topics in China (see, e.g. LIU 2000, FAN 2001, JIANG 2005, WANG 2019). Other related studies focus on the terminological competence of translators (WANG 2011, HAO & ZHANG 2015), and on the relation between terminology management and translation management (WANG & WANG 2019).

Every field, be it in social or natural sciences, is loaded with preconceptions, and terminology in the Chinese context is no exception. Much debate among science historians to determine which factors were liable for the absence of China during the invention of modern science, has taken place over the past few decades (ALLETON 2001). Although the Chinese language has not been considered a determining factor according to influential authors such as Joseph NEEDHAM (1970), a widely spread opinion is that the Chinese language and writing system hindered the integration of foreign words into Chinese. For instance, LOW (1995) holds that contact with modern science in China was mediated by the Japanese language. Although such a claim fails to take social and political factors into account, it undoubtedly proves the importance of terms for translation and the development of a society.

2.2 Studies on the translation of Civil Aviation (CA) terminology

The first linguistic contribution to the translation of terms from foreign languages into Chinese was made by GAO & LIU (1958), proposing four formal relations between the source word in a foreign language and the Chinese counterpart, i.e. imitation of sounds, translation based on meaning, transposition of the pattern and hybrids. However, academic work on CA terminology and translation only started in China in 2004, as several journal articles dealt with how translation should tackle CA terms. Related studies later include CA dictionaries (ZHOU 2010), the relationship between CA development and terminology translation (CHEN & ZHOU 2013) and the teaching of CA terminology (ZHU 2016). Additionally, there are CA textbooks and historical aviation works that address CA terminology and related translation issues. Topics concerning the translation of CA terms outside China include language features of CA (MODERN 2013: 227-242), problems caused by language and communication (CUTTING 2011, HOWARD 2008), and standards

promulgated by ICAO (MODERN & HALLECK 2009).

Besides the official efforts made towards the translation of CA terms, several government units and organizations in China have compiled glossaries in the form of pamphlets and distributed them on a small scale - e.g. *Terms in Aeronautical Science and Technology* issued by China National Committee for Terms in Sciences and Technologies - CNCTST in 2004. However, they have not yet gained comprehensive coverage and authoritativeness.

Yet, with air traffic rapidly expanding worldwide, CA has become increasingly relevant to other fields, including chemistry, physics, geography, astronomy, computer science and communications. Terminology in CA is also influenced by the concepts and terms in these fields. As a result, terms in CA display a cross-domain nature, requiring frequent updating and undoubtedly increasing the difficulty of translation and related studies. It is not only difficult for *Terms in Aeronautical Science and Technology* (2004) issued by CNCTST to include all the terminology in CA, but also hard for researchers to find references for terms in CA on a wider Chinese-speaking world (e.g. in Taiwan).

3. English as a lingua franca for Civil Aviation

Civil aviation is one of the two major categories of flying, representing all non-military aviation, both private and commercial. It is a fast-developing field and its language requires extreme precision.

English has been used widely as a lingua franca in CA for several decades (FARRIS 2016: 54). The status of English as a lingua franca has been officialized since the International Civil Aviation Organization (ICAO) published and introduced *The Manual on the Implementation of ICAO Language Proficiency Requirements* (LPRs) for aviation personnel in 2004. As a specialized agency of the United Nations (UN), ICAO was established in 1944 when 52 nations signed the *Convention on International Civil Aviation* (also known as *Chicago Convention*) on Dec. 7th that year. Aiming to ensure the safety of domestic and international air traffic, ICAO has developed a series of international Standards and Recommended Practices (SARPs) for national aviation authorities in member states, to use and share when they are creating compatible rules and regulations of their own. At present, ICAO has 193 member states and China is one of them.

ICAO SARPs recommend that English should be «made available for international radiotelephony communications» (ICAO 2010) and «where the ground and the crew do not share the same native language» (FARRIS 2016: 54). As a result, English has become the main language in CA and exerts a profound influence on other languages. All ICAO member states, including China, have to harmonize their regulations with those of ICAO, which also means that they need to translate and

standardize their terminology based on the English version.

4. The development of CA in China

When considering the timeline of CA development in China, it was not until 1930 that China Airlines was founded, although the Air Affairs Office had been established under the then Ministry of Transport in 1919. In 1931, another representative Chinese airline company, Eurasia Airlines, was established. In November 1949, China established the Civil Aviation Administration under the supervision of the Military Commission. Five years later, the State Council took charge of the Civil Aviation Administration and the Civil Aviation Administration of China (CAAC) is now under the supervision of the Ministry of Transport. Nowadays, the CAAC regulates flight safety as well as the ground safety of CA, and formulates industry development strategy including mid- and long-term plans for CA in China. Following China's Reform and Opening-Up period, more aircraft models and safety standards were introduced, propelling China's CA industry. Today, China is already a CA power as it is the world's second-largest aviation economy and is predicted to become the largest one in 2030 (BOEING 2018).

However, CA is still a very new field in China that only gained popularity and significance after the country aligned with ICAO and subsequently adhered to related regulations in 1983. Since it became a member state of ICAO, China has been trying hard to harmonize its regulations and laws with those of ICAO and prepare its version of these documents. As a result, the first task China had to fulfill to harmonize its regulations and laws with those of ICAO was to translate and standardize the relevant terminology, this is also because «the various uses of civil aviation data such as analyses related to safety, security and the efficiency of civil aviation and its environmental impact as well as forecasting and planning, require a suitable classification and a clear definition of civil aviation activities» (ICAO 2009).

In November 2001, the Group of Discipline Inspection, or Bureau of Supervision Stationed, of CAAC and the Bureau of Aviation Security of CAAC issued the *Civil Aviation Glossary*. Although this document incorporates the translation of several ICAO terms, it is mainly a translation of the Federal Aviation Administration (FAA)'s ORDER 1000.15A *FAA Glossary*¹, which brings together the terminology and definitions most commonly used by the FAA at work.

Another important work concerning CA terms and their translations in China is *Terms in Aeronautical Science and Technology* (2004) published by China National Committee for Terms in Sciences and Technologies (CNCTSC), an organization authorized by the State Council of China to examine and publish scientific and technological terms on behalf of the country. The work started as early as 1993, when the National Natural Science Terminology Committee (former name of CNCTSC) established the Aviation Branch Committee made up of CA practitioners and a

research team from the Department of Personnel, Science, Technology and Education of CAAC. Completing the revision in 1996, experts held discussions concerning aviation terminology by the Aviation Branch Committee of CNCTST. Finally, the work was approved by the CNCTST in 2002 and published in 2004.

5. Features of terms in the field of CA

A very brief overview of the features of terms in the field of CA is provided in this section. English and Chinese examples are given in small capitals and italics respectively, with a symbol ">"/"/"

5.1 CA terms: homonyms and synonyms

Homonymous terms abound in the field of CA, for instance, the term "abandon" has two meanings, 1) to bail out or eject out of an aircraft and let it crash and 2) to talk away or leave an aircraft on the ground in an emergency as when it is on fire (KUMAR, REMER & MARSHALL 2002: 11); the term "aberration" has three meanings: 1) a condition in an optical system in which the images are imperfect or improperly located; 2) geometrical inaccuracies introduced by optical, IR (infrared), or similar electromagnetic systems in which radiation is processed by mirrors and 3) the displacement of the apparent directions of the stars resulting from the motion of the observer (KUMAR, REMER & MARSHALL 2002: 11).

Additionally, synonyms, i.e. the phenomenon of more than one term to designate a single concept, are present in a lot of CA terms in both English and Chinese, which follows CABRIP's statement (1999: 109). 设计者/设计师>designer and destruction test/rapture test>破坏试验 are two examples.

5.2 CA terms: morphosyntactic aspects

Nouns and verbs are predominant in CA terms and most nouns and verbs are polylexical units. In addition, there are a small number of terms made up of a single word, which are either simple terms or complex terms formed by processes such as compounding, affixation, clipping and conversion.

The most frequent affixes for terms in the field of CA are agentive suffixes -er and gerund suffixes -ing. Due to the pragmatic requirements of terminology, i.e. the need for concision of a terminological unit (MILIĆ 2015), there are also a great many clippings, of which the majority are acronyms and initialisms. Acronyms include names of related organizations and authorities, e.g. ICAO (International Civil Aviation Organization), IATA (International Air Transport Association)

and FAA (Federal Aviation Administration). Examples for initialisms include BUEC, i.e. backup emergency communications, and SFCIN, i.e. specific fuel consumption installed.

Polylexical units, or sometimes called multi-word terms (BABI 1990: 36), phrasal lexemes (LIPKA 2002: 79), or terminological phrases (LEDREW 1997: 31), differ from other terms in that they consist of more than one word and may include collocations (e.g. access taxiway>进入滑行道), syntagms (e.g. active runway>现用跑道), clauses (e.g. request further climb>请求进一步上升) as well as full sentences (e.g. liquids may only be carried within separate containers, each of which with a volume no greater than 100ml>液体物品只可装入独立容器内, 每个容器容积不超过100毫升。), especially when it comes to official signals. Due to the language differences, i.e. Chinese is a non-inflectional language while English is an inflectional one, these terms, or polylexical units, share similarity merely through polylexicity, as the constituent words are governed by language-specific morphosyntax.

6. Translating terminology in CA from English into Chinese

6.1 Linguistic factors

6.1.1 The syllable and imitation of sounds

As modern Chinese does not have many consonant clusters, it is rather difficult to translate CA terms via unmodified phonetic borrowing just like what happened in Japan during its first opening to the West. A small number of CA terms that fall into this category of translation, i.e. imitation of sounds or transliteration, can be mainly divided into two categories: new unit of measurement (e.g. hertz>赫兹, Joule>焦耳, gauss>高斯 and volt>伏特) and new material, and discoveries or inventions (e.g. Freon>氟利昂 and skydrol>斯开德劳尔).

6.1.2 Morphology and word-formation

Because the Chinese language is syllabic and without inflections, for nouns that constitute the majority of the new terms in CA, the most productive pattern for translation is compounding them as coordinate (e.g. ablation rate>烧灼速度 and airline network>航线网), and determinative (e.g. ejection seat>弹射座椅 and airport terminal>机场候机室/候机楼). Of these two constructions, determinative is more productive or common, as the determining elements precede

the determined ones.

6.1.3 Written and spoken forms

Contrary to the idea of domination of the written language, when technical procedures and scientific results are being communicated, the spoken language as the carrier of hypotheses and demonstrations is equally important, if not more important, than the written language, let alone that even a silent reading implies phonetization (ALLETON 2001). Additionally, many neologisms that were created based on phonetics were coined by professionals engaging in commercial and technical activities rather than translators or language experts. As a result, their usage is unsystematic.

Secondly, phonetic similarity is not always an advantage for internationalization, especially for those who are not speaking the source language. Since Chinese has four tones, similar pronunciation with only tone differences can be represented by multiple characters with diverse meanings (e.g. mā -妈, i.e. mother, má -麻, i.e. hemp, mǎ -马, i.e. horse and mà -骂, i.e. curse). Even if a speaker is familiar with the source language, a potential risk leading to misinterpretation might occur.

Thirdly, the formal relationship between the word in English and the new word coined in Chinese is sometimes valid only for a short time. For instance, when “ laser ”, which refers to a device that emits light through a process of optical amplification based on the stimulated emission of electromagnetic radiation, was first translated into Chinese, the translation was 鐳射, that is, a transliteration of the pronunciation, instead of the now more commonly used and accepted word 激光. The latter translation is better than the former because 光 is the translation of the word “ light ” (the central “ player ” of laser), while 鐳 is the Chinese translation of the radioactive element “ radium ”, which has nothing to do with laser.

6.2 Trans-linguistic factors

6.2.1 English as the source language and the impact of translation on Chinese vocabulary

As mentioned earlier in this paper, English is the lingua franca as well as a source language for CA, although admittedly outstanding Chinese intellectuals’ translations of English words also played a decisive role in the creation and introduction of new words in Chinese, especially during the 19th century. However, when modern chemistry laid its foundations in the late 18th century, terms that were made up of entirely new words with specific rules were created in both

English and French by following the basic principles of this new science (GUYTON 1787), rather than by borrowing terms from either one of these two languages. Besides, the determining-determined structure of Chinese terms tends to suggest a foreign origin, as found by researchers such as WANG (1980) and MASINI (1993: 121-127) among others. Based on this hypothesis, MASINI concludes that changes in the Chinese language, especially those in a scientific and technical context, result from the input of western concepts.

6.2.2 Social and historical factors

In Chinese, there is a preference for the translation of foreign words, including terms, rather than using phonetic transpositions. Such a method was employed as early as in the Xuanzang period (600-664) and is based on the language differences and the difficulties of Chinese.

Additionally, throughout Chinese translation history, the relationship between Chinese and foreign translators has been another important factor. For instance, English-speaking missionaries, primarily those in the Tongwenguan (a government school teaching Western languages) and the Shanghai Arsenal (ALLETON 2001), played a central role in the latter half of the 19th century. Even in the Tongwenguan institution, the only one financed by Chinese, translation projects were under the control of professors who had other nationalities. As a result, they dominated the translation work and translations became "western enterprises with Chinese assistance" (ALLETON 2001) instead of international collaboration and achievements. From around 1900, the Chinese began to take full responsibility for their terminologies. From then on, terminologies and their translations were more based on the usage of the Chinese language.

7. Some problems in translating CA terms from English into Chinese

In addition to the factors mentioned in the previous sections, attention should be paid to certain issues encountered in the process of translating CA terms from English into Chinese.

Firstly, inconsistency resulting from the use of CA terms in various English-speaking countries (e.g. 复飞>waive off in British English and go round in American English), industries, disciplines (e.g. integrity>完整性 in mathematics and computer science; integrity>完好性/完善性 in aeronautics and navigation), and professionals (e.g. engine>发动机/引擎) will lead to different translations of the same term. For example, the phenomenon of polysemy and multi-translations for the same term are still common, which reflects the dynamic characteristics of term translations. Besides, as language and technology

keep developing, people's understanding of terms will deepen.

Secondly, when the People's Republic of China introduced former Soviet aircrafts and aviation technology in the 1950s, China also adopted Russian translations of many CA terms. For instance, the Chinese term 航向台, that is, the landing system, instrument is translated from Russian rather than from English, i.e. localizer. Therefore, in actual usage, CA terminology in China is also affected by Russian, a factor that should also be taken into account when conducting CA terminology translations and the standardization of Chinese CA terms.

Thirdly, some of the already existing terms were used inconsistently, especially in large Chinese-speaking areas. Until the late 1940s, the same vocabulary was used in China and Taiwan in basic aerodynamics, aeronautical meteorology, and aeromedicine. However, in the 1950s, mainland China gradually adopted some of the translations from Russian. In general, CA terms used in a broader Chinese-speaking area differ in three aspects: 1) terms used in the mainland are mainly based on the words used in Mandarin, whereas different idioms and words are used in Taiwan as there are more southerners; 2) mainland China conducted text reform in the 1950s. As a result, simplified Chinese characters are used, some words have been abandoned, some homonyms were wiped out, and new differences were created; 3) terms used in Hong Kong are greatly influenced by Cantonese. And terms used in Macao are both influenced by Cantonese and Portuguese (SHENG & OU 1992).

Finally, abbreviations in CA are another interesting topic. Sometimes terms and abbreviations can be kept as they are, i.e. by using the so-called zero translation method. The international nature of CA enables both English and Chinese professionals in the industry to understand a large number of English terms. Therefore, zero translation method of CA terms is not a temporary method or expedient measure, nor is it limited to abbreviations and measurement units. It also includes a variety of instrument display options, information on the panels, lights, valves, and warnings.

8. Conclusion

WÜSTER proposed in 1975 that «special attention» should be attached to «the future three aspects of the interface between General Theory of Terminology and Translation Studies», namely, «the didactic, the practical and the theoretical aspects» (BÜHLER 1982: 426). Moreover, a successful and effective terminology translation will lead to positive communication and dissemination of the field and culture in particular.

Widely used as a lingua franca in CA, English has been exerting huge impact on other languages including Chinese. On the one hand, it is easily perceived that the influence of English is enormous, at least as far as the vocabulary of CA is concerned. On the other hand, due to the

language variations between English and Chinese, the effect English has on Chinese syntax may not be directly felt, and is rather limited to the lexical, morphological and phonological levels. At the same time, the Chinese language and its vitality further enriched during the contact with the English language.

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Note

[↑] [1](#) Although FAA ORDER 1000.15A *FAA Glossary* was issued on December 1st, 1975, and cancelled on October 1st, 1990, it is still widely accepted as an influential document in professional circles. Its translation, *Civil Aviation Glossary*, published by CAAC is used by practitioners of the CA profession in China.

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