

# Designing a Model for Translation of Technical Terminology

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## **Abstract**

Technical terminology has a significant role in translation of technical or scientific texts. Unfortunately, most of research in this area has not perceived the urgent need for a model to analyze or shown how translate technical or scientific terminology. In this paper, the researcher attempts to designs a workable model for translation of technical or scientific terminology. The major aim of this model is to provide a real equivalence for both one word terms and above words terms. The design of such a model benefits from different theories about equivalence and approaches that are used for finding real equivalence which translation studies especially technical translation are still lacking.

**Keywords:** Model Designing, Translation of Terminologies, Technical terminology, English-Persian Translation

## **1. Introduction**

According to Newmark (1988, p.151) "Technical translation is one part of specialized translation; it is primarily distinguished from other forms of translation by terminology, although terminology usually only makes up about 5-10% of a text". Sofer (1999, p.3) claims that the translation of a text may be called technical when it requires specialized terms in a particular field.

From the definitions given by Newmark and Sofer, it is clear that specialized terminology in a text being translated is the first signal of technical translation. Newmark suggests some useful steps for technical translation. First of all, it is necessary to read it first to understand it and then to assess it, its degree of formality, its intention, the possible cultural and professional differences between the readership and the original one. The

translator also needs to account for everything, every word, every figure, letter and punctuation mark. During the process of translation there may be words and structures containing existential problems. Therefore, Newmark recommends that translators should pay attention to words with prefixes or suffixes. Also, it is essential for translators to take into account semi-empty words; verbs required a recasting of the TL sentence and pun words. Numerous linguistic scholars recognized the importance of seeking a proper equivalence during translation process. Catford defines translation equivalence with his notable statement: "Translation equivalence occurs when an SL (source language) and TL (target language) texts or items are related to (at least some of) the same relevant features of situation substance." (As cited in Broek, 1978).

As defined by Halverson (1997), equivalence is the relationship existing between two entities, and the relationship is described as one of similarity in terms of any of number of potential qualities. House (1997) states the notion of equivalence is the conceptual basis of translation. Catford (1965, p.21) also shares “the central problem of translation practice is that of finding TL equivalents and the central task of translation theory is therefore that of defining the nature and conditions of translation equivalence”. Baker (1992) proposes five levels of equivalence: equivalence at word level, equivalence above word level, grammatical equivalence, textual equivalence, pragmatic equivalence. Firstly, equivalence at word level is taken into consideration. Baker defines the term “word” and notes that word sometimes have different meanings in different languages, and relate meaning of words with morpheme. Baker introduces problems at word level and above word level before suggesting some strategies in dealing with them. Secondly, grammatical equivalence refers to the diversity of grammatical categories across languages. She affirms that grammatical rules across languages may differ, which lead to some problems in finding a direct correspondence in the TL. Thirdly, textual equivalence refers to the equivalence between a SL text and a TL text regarding information and cohesion. Whether the cohesive relations between TL and SL should be maintained depends on three main factors, that is, the target audience, the purpose of the translation and the text type. Finally, pragmatic equivalence refers to implication of the TL text. The duty of a translator is recognizing the implied meaning of SL text, and then reproducing it in a way that readers of the TL can comprehend clearly without any misunderstanding culturally.

## 2. The Model Constructed

The proposed model of translation terminology analysis is illustrated by

Figure1 to be followed by a full description of its components along with two technical terminology, accounting and economy as an example. These examples were translated from English to Persian and vice versa.

### 2.1. One Word Terms

A typical feature of these terms is that they are changeable; that is, they can appear either in the form of a verb or a noun at different positions in the same text or in the same sentence to avoid reiteration. Most of these one-verb terms have their nouns to be used as alternatives. Technical terms appear in the form of a noun are various including nouns derived from verbs mentioned above. These groups of terms are divided into two sub-groups as the followings:

### 2.2. Sub Technical Terms

Many of technical terms are normal words which lose their “normal” meaning and acquire their special meanings in this subject. Unless the users of sub technical terms have made themselves acquainted with the general meaning of the words which popularly exist in General English it is possible that they may be confused in the usages of these words as they take on special meaning in a concrete scientific and technical field. These terms are only clear to them when they have a thorough understanding about that subject. . For instance, the normal meaning of the word ‘accumulation’ is ‘ذخیره’ meanwhile in the usage as an accounting term, its special meaning is ‘اصل و فرع در پایان مدت سرمایه گذاری’. Followings are some more examples of sub technical terms:

Acquisition: روشی در جذب و ادغام شرکتها  
 boot: تفاوت نقدی  
 cum: شامل سود  
 distress: ضبط و حراج کردن اموال برای تأمین بدهی  
 paper: اوراق قرضه کوتاه مدت  
 and the normal meaning of the word ‘title’ is ‘name of a book, work of art’ meanwhile in the usage as an economic term, its special meaning is ‘right to ownership of property with or without possession.’

### 2.3. Neologisms

These words do not normally refer to new

objects or processes and are normally non-cultural, so they are rarely technological. They are translated either by word that already exist in the TL, or by a brief functional or descriptive term. For example: Existing collocations with new senses may be cultural or non-cultural; if the concept exists in the TL, there is usually a recognized translation or through-translation, for example If the concept does not exist or the TL speakers are not yet aware of it, a technical descriptive equivalent has to be given. Newmark (1988, p.143) claims that: "The great majority of neologisms are words derived by analogy from ancient Greek and Latin morphemes usually with suffixes such as -ismo, -ismus, -ija, etc., naturalized in the appropriate language". This word-forming procedure is employed mainly to designate scientific and technological rather than cultural institutional terms. A great number of technical terms investigated are noun with suffixes -er, -or, -ee to indicate people. It is noticeable that several terms in accounting terminology are Neologisms and most of them are derived words. A great number of accounting terms investigated are noun with suffixes er, or, ee, to indicate people, allottee, devicee, drawee, reseller and etc. Acronyms are an increasingly common feature of all non-literary texts and they are words formed from the initial letters of words that create a term or proper name. For example: MA (Maloney Act), IRS (Internal Revenue Service), and UCL (Upper Control Limit).  
 قانون ۱۹۳۸ که اوراق بهادار بازارهای مالونی Act  
 خارج از بورس را نیز مشمول قانون ۱۹۳۴ بورس نمود  
 MA

3. Translation Strategies The next steps in the model are translation strategies that are useable for technical terminology.

### 3.1. Translation by Recognized Translation

This strategy is used in the translation of the terms which are considered as subtechnical terms or old words with new sense. These terms already exist in the TL

language with their basic nuclear meaning. Yet, when used in a professional specific scale they acquire new typical meaning of that field, meanwhile they still keep their basic nuclear meanings. Therefore, it is necessary for the translators to take into account the notion of the field register to find out the closest equivalent in meaning so as to make the term accurate and appropriate in the language of the field. These are examples:

encryption: رمزی کردن

encumbrance: تأمین اعتبار

### 3.2. Translation by Loan Translation

This strategy is becoming more and more popular along with the development of international cooperation and is employed in the translation of terms which are not lexicalized in the TL. The creation of a target culture term to name a new concept from the SL is not always possible and very challenging. Therefore, in order to transfer their meaning, the best way is to borrow. Some are borrowed directly without any change in the form, others are transferred or loan transcription with or without an explanation.

alpha factor: فاکتور الفا

Article: آر تیکل

### 3.3. Shifts or Transpositions

"Shifts" is the term proposed by Catford, whereas "transpositions" by Vinay Darbelnet is the procedure which is applied when the translation involves a change in grammar from SL to TL. There are four types of shifts:

First, the change from singular to plural or in the position of the adjective; second, the change when the SL grammatical structure does not exist in the TL, for example, the gerund or the active or passive participle construction which are normally translated by a clause in TL. Third, the change where the literal translation is grammatically possible but may not accord with natural usage in the TL. Fourth, the replacement of a virtual lexical gap by a grammatical structure. In summary, above are popular procedures used in the

translation of terminology from English into Persian.

Abstract: استخراج کردن تراز آزمایشی ازمانده حسابها

Anticipation: پرداخت پیش از سررسید

#### 4. Above-word-level Terms

Technical or scientific terms as well as accounting or economic terms in particular are normally formed by compounding.

Classifier (noun) + Thing

This group of compounds Noun + Noun consisting of two nouns which the first noun functions as classifier and helps to distinguish the second noun from the other concepts of the same group. For instance:

offering date

management account

labor mix

inventory valuation

fire rental

emergency amortization

evaluation techniques

law suits

Economic examples:

Stock market

Balance sheet

Business cycle

Labor union

Classifier (Adjective) + Thing

The compounds Adjective + noun consists of an Adjective and a Noun of which Adjective functions as Classifier and the head Noun (thing), combining together are the most frequently used in the form of nominal group, for example:

official statement

nominal wage(s)

idle deposit

natural business

long tap

visible supply

Economic examples:

Final goods

General tariff

Horizontal merger

Common stock

The Classifier can be further modified

by another sub classifier which is in the form of a noun, or an adjective, for instance:

inflexible budgetary control

unconditional purchase obligations

complex capital structure

Classifier (present participle) + Thing

In this group of compound V-ing + Noun, V-ing functions as classifier as Adjective. Some examples are as follows:

accruing interest

controlling account

manufacturing account

buying offices

distributing costs

hedging instrument

Economic examples:

Conforming goods

Nonconforming goods

Dunning letters

Dumping price

Classifier (Past Participle) + Thing

In this group of compound, similar to the group of compound in last part, V-ed functions as classifier as Adjective. Here, are some more examples of this type:

vested rights

bouncedcheque

un amortized discount

accelerated clause

certified accountant

leveraged investment

Economic examples:

Identified goods

Implied warranty

Limited warranty

Unlimited liability

Preferred stock

Discounted loan

Thing + Qualifier

Most of the investigated Qualifiers are prepositional phrases, therefore this group of compound combines Noun + preposition + Noun as in the following examples:

arrears of dividend

article of incorporation

cost of capital

article of corporation  
consolidation of shares  
direction of effort

Economic examples:  
Law of supply  
Velocity of money  
Balance of payment  
Balance of trade  
Demand for money

#### **4.1. Translation by Shifts or Transpositions**

This strategy is employed effectively in the translation of most of the investigated compound terms from English into Persian and vice versa. There are two types of transpositions including transposition with the automatic change in word order from SL to TL which is mainly employed in 55% of cases in the translation of the compound terms in the form of simple and unmarked nominal group. For example, protective covenant is translated as شرط حمایت کننده. The second type of transposition is rank-shift which is applied in the translation of the compound terms that normally do not have the Persian equivalent to the lexical units of the English compound terms. In this case these compound terms are equivalent to compound terms with new part of speech in Persian. For example, the Persian equivalent of proprietary account is حسابهای اسمی. These kinds of transpositions are further examined with the illustration of the accounting and economic terms as follows.

#### **4.2. Translation by transposition with the automatic change in word order from SL to TL**

This transposition procedure needs the change in the position of the adjective or modifying element due to the different sequence of experiential structure of nominal group between English and Persian. It is clear that one of the major differences between English and Persian of experiential structure of nominal group is

that in English the Classifier precedes the Thing meanwhile in Persian they follow the Thing. Therefore, the basic rule for the translation of the compound terms is:

English	Persian
Classifier + Thing	Thing + Classifier

Following are compound terms divided into subgroups translated by this procedure.

##### *a. Classifier (adjective) + Thing*

. When translating compound terms of this type from English into Persian there normally seems to be no difficulty in choosing the lexical equivalents as the meaning of the Thing and Classifier are clear. The only thing for the translators to do is to rearrange the lexical items and sequence of English compounds in Persian. Take the compound term qualified acceptance, as an example. Based on the experiential structure of the nominal group proposed by Halliday (1994), acceptance is the Thing which stands in the second position, whereas qualified - specifying the Thing by indicating the quality of the Thing stands in the first position. In Persian, the Thing acceptance is equivalent with برات and qualified- is equivalent with مشروط. As a result of the translation process from English into Persian, the content of the compound term qualified acceptance is realized as برات مشروط.

##### **English**

International law  
common adventure  
personal property  
financial instrument  
insurable interest  
initial data  
large scale

##### *b. Classifier (noun) + Thing*

When encountering the translation of this type of compounds the same process happens, that is the translators have to arrange the equivalent constituents of the compound in the form of nominal group in

English in the correspondent syntactic word order style of the nominal group in Persian; that is the second element which is the Thing of the compound term in English becomes the first – the Thing in Persian and , the first item- the Classifier which indicates a particular subclass of the Thing, meanwhile, becomes the second constituent in Persian compound term. It is a rule of translation that there must be a correspondence of the word class of the first item which indicates a particular subclass of the Thing when being translated from English into Persian is the second item- the Classifier. If the Classifier in English is a noun, the second item in Persian– Classifier is also a noun.

It is noticeable that this translation procedure is not very complicated, as the translators only need to identify the divisions between the elements in the group and rearrange these elements in the corresponding logical order in Persian.

Therefore, the translators can employ this translation procedure to translate the terms of longer nominal group such as

English	Persian
Copy cat funds	صندوق‌های کپی کت
Year end adjustment	
Benefit cost ratio	اصلاحات پایان دوره مالینسبت
منفعت به هزینه	

### English

business transaction  
contract law  
contract term  
business cycle  
export subsidy  
market price  
opportunity cost  
inflation rate

This procedure is fairly easy as the translators only need to identify the divisions between the elements in the group and rearrange the positions of lexical items in Persian. This strategy is applied to nominal groups of different types. The

change of the lexical items in the group is automatic due to the natural difference between the nominal group in English and that in Persian.

### 4.3. Translation by a rank-shift

This procedure involves the replacement of a virtual lexical gap by a grammatical structure. To convey the transferred meaning properly, in some cases, it is essential to change the grammatical structure of certain items in the SL text, for instance, a phrase or a word in SL will correspond to a clause in TL and vice versa. In the investigated accounting terms, there are many terms created in the form of nominal groups which do not have the direct equivalents in Persian but correspond to new compound terms with another part of speech. Therefore, it is necessary to employ the translation procedure rank-shift for the translation of these terms.

These nominal groups are in the various forms which are examined in subgroups as follows:

#### Classifier (V-ed) + Thing

When encountering the translation of this type of compounds, the first attention of the translators is paid to the form of the Classifier which is formed by a derived word from a verb in ed participle when it is followed by a Thing. In fact, the derived words from verb in –ed participle of the compounds which play the role of an adjective to characterize the Thing as steeped in steeped costs is equivalent with ترکیب وصفی in Persian. The translators are then to find the lexical equivalent for the lexical items of the compound. The next step for the translator to do is to put these lexical equivalents in the logical order in Persian. The Classifier ending in – edparticiple which indicates the subclass of the Thing in English now becomes the صفت+اسم in Persian; meanwhile the second constituent – the Thing is put in the first position in Persian and it is translated as هزینه‌های نیمه متغیر. Some more compound

terms of this type are translated as follows:

English	Persian
Accrued depreciation	استهلاک ثبت نشده
Cumulated dividend	سود انباشتی
Contributed capital	سرمایه پرداخت شده
Leveraged investment	سرمایه گذاری اهرمی
Licensed production	تولید تحت الامتیاز
Liquidated damages	خسارات نقدی

*d. Classifier (adjective) + Thing*

When translating these compound terms there normally seem to be no difficulty in choosing the lexical equivalents as the meaning of the constituents are clear. The only thing for the translators to do is to rearrange these lexical equivalents in the logical order in Persian. Take a compound term limited risk as an example. Based on the experiential structure of the nominal group, risk is the Thing which stands as the first element of the compound and limited, meanwhile stands as the second and has the function of indicating some quality of the Thing. In Persian, risk is equivalent to خطر—the Head, and limited is equivalent to محدود. As a result, the compound term limited risk is translated as خطر محدود. Other examples may be translated as follows:

English	Persian
Official document	سند رسمی
Open account	حساب واريز نشده
operational audit	حسابرسی عملیاتی
optional dividend	سود سهام اختیاری

*e. Thing + qualifier (N + Prep + N)*

When translating compound terms of this type from English into Persian the translator's biggest task is to identify the grammatical unit of the Qualifier in compound term in the form of nominal group since the prepositional phrase with the function of the Qualifier in the English compound term is paraphrase or omission. That is the Qualifier of the investigated compound terms is no longer a constituent of a nominal group but paraphrase or omission. There is no direct equivalent for the Qualifier of this kind in Persian but it corresponds with a clause in Persian. Take

the compound term deed of trust as an example. Based on the experiential structure of the nominal group, deed is the Thing which stands as the first element of the compound; of trust, meanwhile, is the Qualifier which stands as the second and has the function of characterizing the Thing. In Persian, deed is equivalent with قرارداد—the Head, and of trust is equivalent with -اوراق قرضه—the Qualifier. As a result, the compound term deed of trust is translated as قرارداد اوراق قرضه.

From the above-mentioned example, it is clear that in the translation of this type into Persian, there is no need to rearrange the word order in the compound term in Persian as it has the same order (Thing + Qualifier). However, it is necessary for the translator to find out the equivalent for the Qualifier in the TL to have the best version of translation.

Followings are some more examples of this type of compound terms

English	Persian
correction of errors	اصلاح اشتباهات
cost of capital	هزینه سرمایه
denial of opinion	
dilution of E P S (earned per share)	تقلیل سود هر سهم درآمد کسب شده هر سهم
direction of effort	جهت کوشش

It is the fact that the most important factor in the translation of these compounds is the change in form of the compound terms from English into Persian so as to get the semantic equivalence and the natural style of the TL. Consequently, the equivalence in meaning must have priority over the stylistic forms.

#### 4.4. Translation by Paraphrase

This translation procedure is applied in the translation of the compound term in the form of nominal group which is semantically complex. In fact it is one kind of dramatic rank shift used in the translation of SL term which has not been technically lexicalized in the TL. When encountering the translation of this type of

compound terms, the analysis of experiential structure of the nominal group and the semantic relationship between the elements are of some uses. Therefore, the translators need to specify the class of Thing first in order to unpack the meaning of the semantically complicated functional components of the compound terms.

English	Persian
deed of trust	قرارداد اوراق قرضه
denial of opinion	عدم اظهارنظر
dilution of E P S	تقلیل سود هر سهم
(earned per share) E P S	درآمد کسب شده هر سهم
direction of effort	جهت کوشش
disposal of goodwill	واگذاری سرقفلی

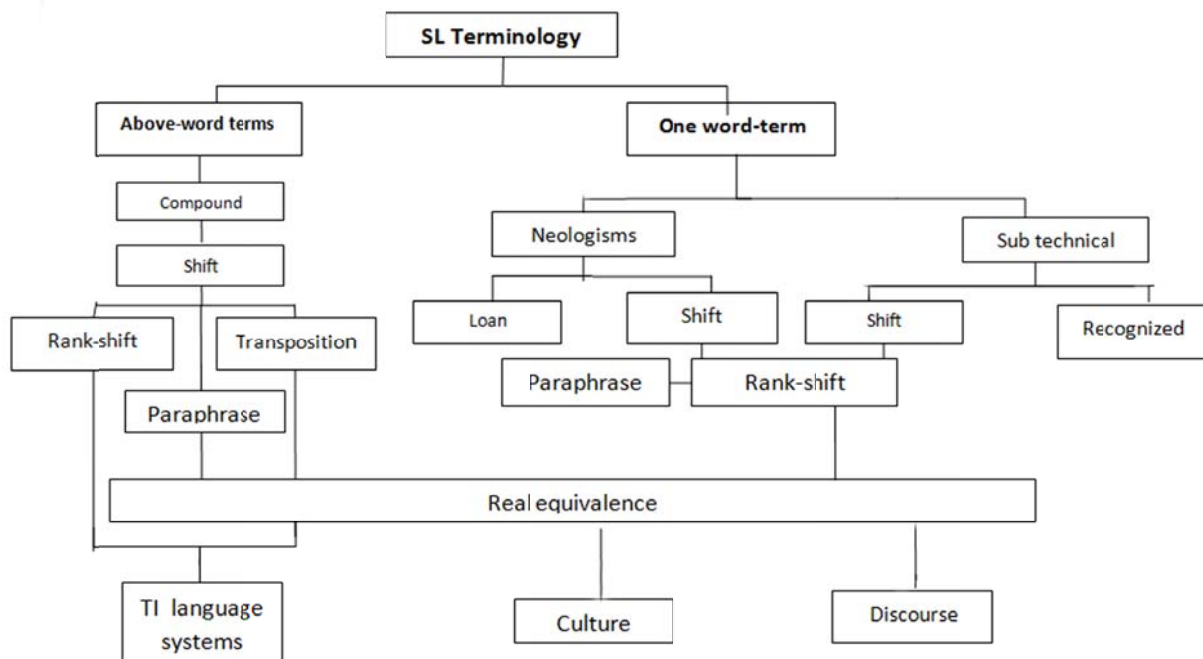
### 5. Real Equivalence

In this part real equivalence means a term with three characteristics as TL language systems, TL culture, TL discourse. This equivalence makes TL terminology correctly and accurately, especially technical terminology. When a term is translated, the construction of a new term in TL language is made by these three

features, because of that we can name it real equivalence. It is clear that real equivalence is a new term in TL language by the same meaning from SL language. Through this model the process of making real equivalence is revealed and the position of real equivalence in both word-level and above-word level is determined. The compound real equivalence features are the same as one word term.

### 6. Conclusion

The noteworthy conclusion of this paper is that translation of technical terminology should be defined as the model for translator of technical texts. This model shows the process of technical terms comprehensively and completely step by step. Thus, it is the aim of making such model accessible to real equivalence in translation of technical terms and give hand for better translation and translating of technical terminology by finding a real equivalence.





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