

Style in Technical Translation

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Introduction:

In order to produce a text that can be easily read, understood and accepted, the translator must construct his / her text elements in a clear way. The process of translation between two different written languages involves the changing of an original written text (the source text or ST) in the original language (the source language or SL) into a written text (the target text or TT) in a different language (the target language or TL) (Munday, 2001:5). What the recipient of a written text or a translation is to make of a text with long sentences, awkward lexical items and excessive redundancy? What in fact the reader of translation expects to find is an easy, precise and straightforward rendering of the SL content. According to Strunk and White (2007), vigorous writing is concise. A sentence in the SL should not contain unnecessary words; a paragraph should not contain unnecessary sentences.

They argued that, for the same reason that a drawing contains no unnecessary lines and a machine no unnecessary parts. This requires not that the writer makes all sentences short or avoids all detail and treat subjects only in outline, but that every word serves a function (Strunk and White, 2007:10). This paper is an attempt to prove that style plays a central role in the process of rendering a good translation from SL to TL. Byrne (2006:2) claims that "the view that sees style as secondary in scientific translation is completely unfounded and implies that technical as well as scientific translators have different linguistic and writing

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skills than other types of translators”. Preserving SL style is vital in rendering the text into the TL. It is “important to maintain the style of the document. Various genres might be translated for different purposes, which influence the choice of the translation strategy.” (Ciobanu, et. Al., 2015:97). Inappropriate style can carry over a blurred or unclear message about the intention or the intended effect of the original text. For example, for a translator who is translating political speeches, the purpose is to report exactly what is communicated in a given text (Trosborg, 1997:6). Our discussion will be centered on the following research questions:

- How readable, intelligible and accurate are the scientific and technical lexis and syntax to be transmitted by the translator?
- How precise can TL scientific and technical lexis and syntax convey the SL writer’s message, meanings and intentions?

This study will deal with how readability and accuracy, precession and appropriateness in scientific and technical texts contribute to the formation of a good translation that carries over the intended message. How these elements work together to produce a well formed TL text and guarantee that the translation will be accepted by the TL audience. It is worth pointing out that readability in this context refers to the ability of the translator to produce a well-organised, easy read and comprehensible text. According to Sun (2012), the reception of a translated text is related to cross-cultural readability. Translators need to understand the particularities of both the source and the target language in order to transfer the meaning of the text from one language to another.

This study aims at investigating various text style issues and problems in translation. It focuses attention to the possible implications of inappropriate style of the original text for translators. The discussion will be directed to both the style

of the original written text and its translation using Arabic in real examples. In order to investigate and examine stylistic issues in the fields of science and technology, the methodology followed here is to extract real examples in English from specialized source books included in the references below. Special focus is devoted to the field of petroleum industry as to its importance in the region in general and to Libya in particular where English is the language of written technical material. Arabic translations are also carried out by the researcher as a sworn translator with a long time experience in the field of petroleum industries.

1. Previous Studies

As far as scientific and technical translation is concerned, this paper highlights the importance of style and regards it as the way different texts are written, words are chosen and sentences are constructed. While this paper investigates translation issues and difficulties related to style in the fields of oil and chemical industries, other similar studies dealt with scientific and technical translation in various fields.

Benchabane (2015) carried out a study to highlight some aspects of the English–Arabic Medical translation which belong to the most significant area of difficulty especially in terms of style and terminology. The study attempts to draw attention to some Algerian students’ misconceptions related to the translation of English Medical texts into Arabic. She argues that “Style can be considered as one of the most irritating and frustrating misconceptions for scientific translators. Accordingly, the analysis of the data revealed that the majority of the students show tendency to give priority to terminology over style.” (ibid, 85) She concluded that it becomes evident that medical translation is not a simple task that involves the rendering of information in simple words. It rather involves skills, mastery of the two languages (English and Arabic), and broad knowledge of the subject

matter. It also requires imagination and talent in coining words that suit the new items, and then the use of a style that helps the reader not only to get the information, but also to understand the principles, concepts, diseases and symptoms that the author wanted to convey.

Another study carried out by Ahmed Alaoui in 2015 titled "Knowledge Transfer and the Translation of Technical Texts" He states that "The texts referred to as technical deal with the application of the knowledge of exact sciences, such as computer science, chemistry and engineering. The purpose of producing translated technical texts is to enable end users to understand technical information clearly and use it easily" (Alaoui, 2015:3381). He also argues that specialized knowledge should be tested against the readability of the translated text, the appropriateness of its style and the usability of its content by end users to carry out their intended tasks (ibid:3380). The current study is an attempt to demonstrate how readability, appropriateness, accuracy, precision in scientific and technical texts can contribute to the formation of a translation that carries over the acceptable message to intended audience.

2. Readability and accuracy as stylistic requirements

According to Dreyer (1984), "readability has been variously defined as a text's legibility, power to interest, ease of understanding or any combination of these factors" (p: 334). Readability depends on how a text can be easily comprehended, which in turn depends on the accuracy, clarity and acceptability of words and sentences. At the outset, it is worth discussing the factors that may contribute to the build up of an acceptable style of a scientific and technical text or a translation of a certain text. Our discussion will primarily deal with the two

main requirements of lexical and syntactic levels. Then, we will move on to examine the contribution of precision and appropriateness in the build up of style.

2.1. Lexical level

The translator who deals with technical texts would know that the lexical items they contain do not always lend themselves to a straightforward translation. In other words, the lexical items in technical texts do not always have one meaning in the source language and only one equivalent in the target language. The polysemous English term '**pile**' for instance gives rise to several meanings which the translator must be aware of : a. **pack** or **heap** b. **battery** c. **pillar** or **support** ; d. **atomic reactor** . Consequently, the translator must recognise that translation is not a mechanical process.

In order to observe the adequacy of technical style when translating, the translator must consider the lexical items in their special occurrences i.e. in their context. This leads us to say that the observation of style in the target language is crucial in determining the accuracy of translation undertaken. One main feature of English language technical lexis formation is to compound lexical items. Compounds are usually made of two or more nouns plus necessary adjectives or adverbs that make up a concept.

The task of the translator is not to transpose them literally in the target language, but to transfer them according to their contexts' requirements. In order to be able to render the effect of compounds properly, and before undertaking the inter-language analysis, the translator must beforehand analyze them in their source language.

Example 1:

Liquefied petroleum gas

غاز النفط المسال

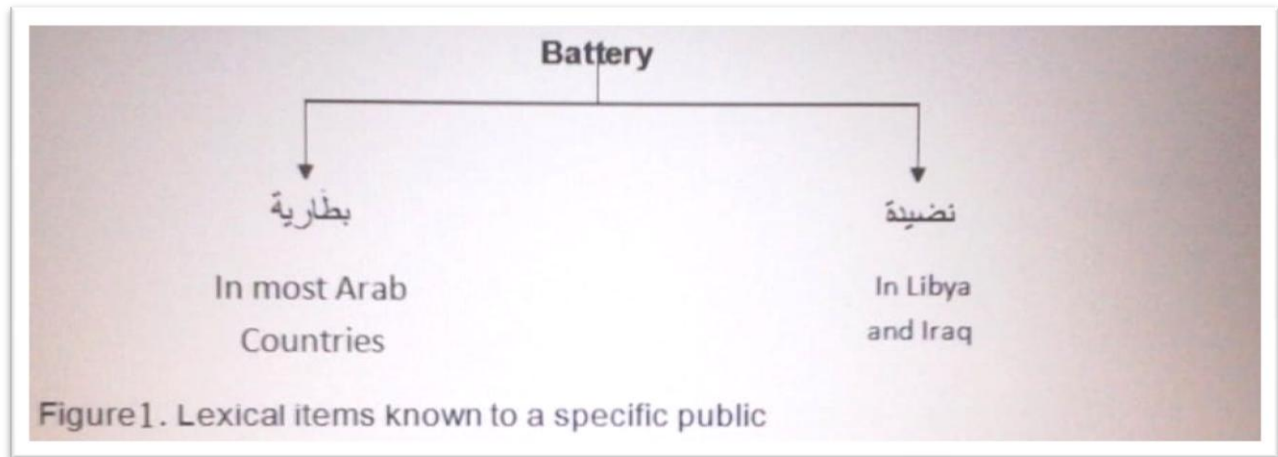
Anti-nock value

درجة منع الخبط

Positive displacement meter

عداد الإزاحة الموجبة

Another problem, which may arise for a translator translating into Arabic and having a diverse Arabic public in mind, is the fact of rendering a lexical item as known to a special kind of public. In other words, the translator is expected to abide by the conventions of what is commonly known in a region to which the text is translated, or else he/she would be translating out of style.

Example 2:

When dealing with lexis, an interesting widespread view advocated by all researchers in the domain of finding terminology is the concept of economy. The economy aspect is seen through its relationship which ties the text and code together. In scientific and technical fields, economy manifests itself through the use of lesser vocabulary i.e., there is a set of words which are constantly used. Added to the use of a definite vocabulary, economy is achieved through the use of acronyms, symbols and abbreviations.

This brings us to say that the translator in order to fulfil his/her task must be aware of the abbreviated language used in the scientific and technical fields he/she works in. For instance, a translator who works in a specific field, which deals with chemicals, should have a sufficient knowledge about, at least, the common abbreviated elements and compounds. More important is the build up of chemical formula in his/her target language.

Example 3:

Hydrogen (H)	هيدروجين (يد)
Sulphur (S)	كبريت (كب)
Hydrogen Sulphide (H ₂ S)	كبريتيد الهيدروجين (يدكب)

Another component by which economy in scientific and technical fields is achieved is economy in form. That is economy by means of non-linguistic criteria such as tables, pie charts, bar graphs and drawings. This leads us to discuss the main components in the communication process namely lexical economy as well as the syntactic and stylistic economy.

Lexical economy is achieved by derivation and compounding. In other words, the concept of economy refers to using equivalent target language words derived from the same root or combined from fewer words. Example 4 below illustrates rendering possible equivalents in Arabic for a chemical substance used in the petroleum industry.

Example 4:

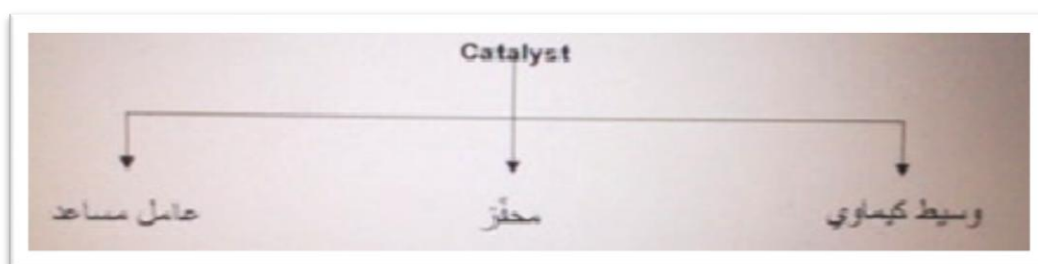


Figure2. Lexical economy through Arabic derivation

To achieve economy, the translator should use the term in the middle column, as it is a single word belongs to the root ‘حَفَزَ’ to catalyze or stimulate. In the following example 5, the compound terms in the middle column are preferred over the more expanded terms in the third column. For the sake of economy some field specialists tend to prefer borrowing a foreign word to using a long compound Arabic term for a noun concept as in the terms ‘Hydrometer’ and ‘Thermometer’ in Example 5 below.

Example 5:

	English Term	Arabic Term (economy)	Arabic Term (extended)
a	Calorific value	القيمة الحرارية	القيمة الحرارية لوحدة الوقود بالسعر
b	Flash point	درجة الوميض	درجة اشتعال البخار
c	Hydrometer	هيدرومتر / مكثاف سوائل	جهاز قياس كثافة السوائل
d	Thermometer	ترمومتر / مقياس حرارة	جهاز قياس درجة الحرارة

Table1. Economy as a stylistic requirement

Another form of economy widespread in the coining of scientific and technical terms is made through Arabicization. In this technique, a foreign term is adapted to the derivation and inflection systems of Arabic to denote highly technical processes and activities. Whenever complexity arises, the Arabicized term is preferred over the original foreign term as in the following petroleum processes in example 6:

Example 6:

Process	Adapted Arabic term	Arabic translation (meaning)
Hydrogenation	هدرجة	معالجة بالهيدروجين
Polymerization	بلمرة	تضاعف الأصل
Alkylation	ألكلة	إضافة شق هيدروكربوني إلى مركب أوليفيني
Delayed coking	التكويك البطيء	التكويك المعوق

Table2. Arabicization of foreign terms

On the whole, lexical items in technical writing cannot always be rendered by just consulting a dictionary for equivalents. A term becomes meaningful only when it is used in a context. Consequently, the translator must identify the context in which the term occurs or be used before actually translating it. Nevertheless, besides deciding on whether the terms are adequate for use in certain contexts, the translator will have to arrange them according to a certain syntactic structure.

2.2. Syntactic level

Nida (1975), argues that "in no two languages one can find exactly identical systems of structural organization based on which symbols can be related to meaning on the one-to-one correspondence basis" (p.24). Once the translator has defined the adequate items to be used in translation, their applicability is only made possible through an adequate syntactic arrangement according to TL System. In other words, having the right terminology, the translator is still in need of finding the convenient TL syntax to match his/her work and makes it intelligible to the target reader. It must be stressed that syntax in scientific and technical English is limited only to certain recurring features. The translator must be very vigilant in dealing with various tenses of English. According to Baker (1992:86), "differences in the grammatical structures of the source and target languages often result in some change in the information content of the message during the process of translation. This change may take the form of adding to the target text information which is not expressed in the source text".

In scientific and technical English, the imperative is mainly used to give instructions as in the assembly and dismantling of devices and machines. The

translator should always assume to observe the same tense that exists in the target language in order to provide the same effect on the recipient as in Example 7 (a). Arabic sometimes uses stronger and more emphatic devices than does the imperative in English writing, however it violates the principle of economy as in Example 7 (b) below.

Example 7:

Before fitting the filter, remove the plastic plug from the air inlet and subsequently remove the screwed cover of the filter. Then firmly screw the filter in the filter housing.

(a) قبل تركيب المرشح أزِع السدادة البلاستيكية من فتحة إدخال الهواء ثم أزِع غطاء المرشح. بعد ذلك ركب المرشح بإحكام في المكان المخصص له.

(b) قبل تركيب المرشح يجب نزع السدادة البلاستيكية من فتحة إدخال الهواء ثم نزع غطاء المرشح. بعد ذلك يجب تركيب المرشح بإحكام في المكان المخصص له.

At the sentence level, a widespread characteristic of technical writing is its compact structures. In other words, a kind of syntactic economy is observed. Economy of syntax can be seen through the following types of structures:

a. A simple infinitive construction and a preposition often replace expressions such as ‘in order to’, ‘for the purpose of’:

Example 8:

ل غرض

من أجل

ل تفعيل ، لتحقيق ، لمعالجة ، لقراءة ... الخ.

The supports are tied together in order to form a strong base.

تشد الدعائم لبعضها لتكوين قاعدة قوية.

b. At word level, an omnipresent feature found in technical English is modals such as ‘should’, ‘will’, ‘would’, ‘can’ and ‘could’. Because of the special use of

‘will’ and ‘should’, the focus will mainly be on these two items. It worth mentioning that ‘will’ is not always used as a marker for the future. The use of ‘will’ in technical English can indicate that an action always happens under normal circumstances and functions as a present tense marker:

Example 9:

A discharged cell will read 1.160, or lower, based on 80 degrees F.

تعطي الخلية المفرغة قراءة 1.160 أو أقل عند درجة 80 فهرنهايت.

Added to that function, ‘will’ in some instances may be used to express ability or capability as in example 10:

Example 10:

This lift can support loads of up to 250 kg.

1. بإمكان هذا المصعد تحمّل ثقلاً يصل إلى 250 كيلوجرام.

2. الحمولة القصوى لهذا المصعد 250 كيلوجرام.

There are three uses made of the modal ‘should’, first, it may be used to indicate a logical expectation, Second, used as a synonym of the imperative tense. Third, is used to express a hypothetical assumption. In these three cases, the translator will have to render ‘should’ in the target language according to its intended use in the source language.

Example 11:

1. The installation of the pipelines should start by the end of the year.

سيبدأ تركيب خطوط الأنابيب مع نهاية العام.

2. The filter should by no means be used for drill purposes.

لا يجوز بأي حال من الأحوال استعمال المرشح لأغراض التدریب.

3. Should the leak persist, the intervention of a specialized team becomes necessary.

في حال استمرار التسرب، يصبح تدخل فريق متخصص ضروريا

Overall, it can be confirmed that syntactic accuracy is essential for the construction of any well-formed translation work especially in fields of specific nature and requirements.

4. Precision

Precision is a measure through which the accuracy with which knowledge and intention are represented in a text. It is a universal requirement of communication. In scientific and technical writing, the translator aims at precision of statements. His/her task is to formulate statements which claim to be valid in the language concerned through avoiding ambiguity when dealing with references to measurements and definitions. Precision in most cases conflicts with the concept of economy observed earlier in that a full definition is likely to be a lengthy one. Precision operates in two ways: precision of lexical items and precision of syntactic relationships between these lexical items.

4.1. Lexical precision

Lexical knowledge is an important language component for any translator. At this level, the translator must be aware of the fact that lexical precision manifests itself in different forms. The writer and accordingly the translator should use formal, scientifically precise language in technical reports. They should avoid imprecise informal language. For example, he/she should use the word 'examine' but not 'look into', 'increased' not 'got bigger', improved not 'got better' and 'conduct or carry out' but not 'do'.

Lexical items may be precise when referring to something as well as designating a unique object. They can be precise in expression forms, as well as

describing items which have polysemic potential. The following example shows how the translator can give referents to similar objects:

Example 12:

Joint (junction by which parts or objects are joined together) وصلة

Coupling (a mechanical device that serves to connect the ends of adjacent objects) قارنة

4.2. Syntactic precision

Syntactic precision is made evident by the use of an increased density and complexity of the information. Precision makes technical and scientific language more formal than general language. There are several methods for increasing precision:

- a. Items referred to are repeated directly or in any different way; repetition of the main concept in different word category:

Example 13:

A thermometer is a measuring instrument used to read temperature of the surrounding atmosphere. Thermometers may be divided into various types according to their means of indicating temperatures.

For the sake of being precise, the translator should not substitute the term ‘thermometer’ by any other pronoun, but should simply transpose it in the target language just the way it is in the source language.

الترمومتر أداة قياس تستخدم لقراءة درجة حرارة الجو المحيط بنا. ويمكن تقسيم الترمومترات إلى أنواع عديدة حسب طريقة قراءتها للحرارة.

- b. Depending on the purpose of the text, syntactic relationships are established by phrases rather than a preposition:

Example 14:

Reforming is used to change the type of hydrocarbon so as to improve the performance of the products (SHELL 1959 p. 160)

تستخدم عملية التهذيب الكيماوي لتغيير نوع الهيدروكربون لغرض تحسين أداء المنتجات.

5. Appropriateness

Translation is the constructive shaping of a multi-medial situation as a whole, since in fact the translator's main responsibility is to provide for situationally appropriate communicative artifacts (Risku, 2002, p.526). Appropriateness refers to the effectiveness of the intention of the source language writer as reflected by the translator when transferring information from source language. It achieves the balance between economy and precision. Appropriateness is a property of text types and their pragmatic ends.

5.1. Lexical appropriateness

Miremadi, (1991) states that, although words are entities that refer to objects or concepts, a word in one language may not be substituted with a word in another language when referring to the same concepts or objects. Lexical appropriateness in scientific and technical texts, especially when dealing with polysemic lexis, is a matter of individual interpretation. In other words, a lexical item may mean different things in related disciplines. Thus, assuming that a word should have one and only one equivalent may give rise to inappropriateness.

Example 15:

Meaning of the word ‘pitch’ in the different fields of science and technology:

Field	Meaning	Arabic translation
Chemistry	dark heavy viscid substances obtained as a residue	قطران
Acoustics	variation in the frequency of vibration	طبقة الصوت
Surveying	degree of deviation from a horizontal plane	انحدار / ميل
Nautical	abrupt up-and-down motion as caused by a ship	ترجّح السفينة
Sports	the action or manner of throwing something	رمية (الكرة/ القرص)
Marketing	sell or offer for sale	عرض للبيع

Table 3. Arabic translation of the word ‘pitch’

In order to ensure appropriateness, the translator should be aware of the different uses of the same item in different disciplines. The appropriateness of designation of target language counterparts is ensured by means of derivation or compounding of Arabic terms.

5.2. Syntactic appropriateness

Sentence cohesion, density and the degree of comprehension are the main manifestations of syntactic appropriateness. The translator has to adjust these elements according to the conventions of text types, thus making appropriate syntactic modifications in the target language so that he/she meets the needs of its recipients. For instance, if the translator is rendering a text in which information is well known to source language reader, but considered new to the target language readers, his/her duty is to make the necessary modifications to produce an explicit version for his/her readers. In other words, new information and its intended receivers may require from the translator to add some explanatory elements to the text in order to provide more clarity.

Syntactic appropriateness decides the balance between logical argument and exemplification, the explicitness of the expression of causality and the use of syntactic means of economy and precision. In order to achieve syntactic appropriateness, the translator has to build a logical development between the information and the layout of his/her exemplification. Added to that, the cause-effect elements in the original must be as explicit as possible in the translation. Given the purpose of the text and its type, the translator has to adjust and decide between the concepts of syntactic and lexical economy and precision.

6. Conclusion:

Style in scientific and technical writing is largely based on structural criteria. In other words, it is the correlation of lexical and syntactic elements which contribute to the build up of good style. The use of inappropriate lexical items that do not conform to the target language usage hinders the rendering of the source text into the target language in a suitable style. Long sentences in technical writing make the text less transparent, thus leading to an awkward style. However, the constant use of short sentences would make the processing of information monotonous and fatiguing. Moreover, short sentences carrying innovative information may be difficult to translate in the same way as the original, since more informative and explanatory elements are required. The translator must recognise that translation is not a mechanical process. In other words, the translator who deals with scientific and technical texts must realise that the lexical items they contain do not always lend themselves to a straightforward translation. That is to say the translator must identify the context in which the term occurs or be used before translating it.

The translator should be aware of the different uses of the same term in different disciplines. He/she is expected to abide by the conventions of what is

commonly used or known, through avoiding obscure and awkward terms and expressions. Syntactic accuracy is essential for the construction of an intelligible text as well as for any well-formed translation accordingly. In order to achieve syntactic appropriateness, the translator has to make a logical balance between the information and the layout of his/her exemplification. Furthermore, he/she has to adjust and decide between the concepts of syntactic and lexical economy and precision according to the purpose of the text and its type.

The task of the translator is not a mere transfer of a given text, but it is related to matters of style. Consequently, the translator should observe stylistic properties of each pair of languages and accordingly ensure that his/her translation carries over the message intended by the writer of the original.

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