Translating technical terms into Arabic: Microsoft Terminology Collection (English-Arabic) as an example

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Abstract: The main aim of this paper is to explore the techniques used in translating English technical terms into Arabic in the Microsoft Terminology Collection (MTC) (English-Arabic) as an example of comprehensive multilingual resources of technical terminology on the Web. MTC is a well-known online IT-glossary available on the Microsoft Language Portal in over ninety languages. It provides users with the opportunity to perform quick searches between different languages and to download files that integrate with Microsoft products and computer-assisted translation (CAT) tools. Some examples of MTC terms in Arabic are examined by the researcher to identify the kinds of translation strategies that MTC follows in order to translate technical terms into Arabic as well as the appropriateness of these strategies to their translation situations through comparison of different translations for the same SL term. The analysis of selected examples from MTC shows that in the Arabic translations of technical terms, MTC uses translation, Arabicisation, and Arabic-expanding techniques inconsistently, either in providing more than one translation for a standard technical term within the same translation situation or in using different translation strategies for similar technical terms in similar translation situations. Results show that it is more appropriate to use translation and/or Arabic-expanding techniques (mainly derivation and compounding) with technical terms derived from common linguistic roots in the source language (SL) to preserve the integrity and authenticity of Arabic as a target language (TL) at a time of a marked increase in the number of SL technical terms, while methods of Arabicisation should only be used with SL proper nouns or any word derived from them to solve problems of non-equivalence at word level between Arabic and English.

Keywords: technical translation, Arabicisation, Arabic-expanding techniques, Microsoft Terminology Collection (MTC)

1. Introduction

An examination of the literature on technical translation reveals two major fallacies about this form of translation. One fallacy about technical translation has to do with the definition of the term itself. Defined by Wright & Wright (1993), "[t]echnical translation encompasses the translation of special language texts, i.e., texts written using Languages for Special Purposes (LSP).

As such, technical translation (and "technical terminology" as well) includes not only the translation of texts in engineering or medicine, but also such disciplines as economics, psychology and law" (p. 1). Similar to Wright & Wright's definition of technical translation, Ghazala (1995) defines technical translation as, "[t]he translation of scientific and technical terms of all kinds: medical, physical, chemical, mathematical, mechanical, technological, biological, agricultural, computer and other terms of the various branches of science" (p. 156). According to Byrne (2006), such definitions make no distinction between specialised and technical translation because "[i]n reality, 'technical' means precisely that, something to do with technology and technological texts (…) Simply because a field or subject area has unique or specialised terminology does not make it technical" (p. 3). In this sense, Schubert (2010) points out that "[i]n this term, the word 'technical' refers to the content of the documents, not to the tools used" (p. 350). The problem lies, as Schubert maintains, in the semantic ambiguity of the English adjective *technical*, "[t]he term can relate to content either from technology and engineering or from any specialized domain" (p. 350). Thus, in the broader sense, technical translation is synonymous to specialised translation. In the narrower sense, "technical translation is one part of specialised translation" (Newmark, 1988, p. 151).

Another fallacy about technical translation has to do with the discussion of scientific and technical translation as one and the same thing. Despite the obvious connection between the two, Newmark (1988) notes, "[i]n science, the language is concept-centred; in technology, it is object-centred" (p. 155). Likewise, Byrne (2006) argues that, "[s]cientific translation relates to pure science in all of its theoretical, esoteric and cerebral glory while technical translation relates to how scientific knowledge is actually put to practical use" (p. 8). It is true that scientific and technical translation differ in terms of subject matter, language and purpose, as Newmark and Byrne maintain, yet, it seems that both types are very much alike in terms of the techniques of translation involved. That is perhaps why Olohan (2015) uses the expression *scientific and technical*, not as a reference to the same type of translation, but as an indication that "they share some features, challenges or approaches" (p. 7) and that any discussion of technical translation can equally hold for scientific translation.

In this article, the term "technical translation" refers to the translation of materials dealing with technological subject areas and using the specialised terminology of scientific and technological information. The main aim of the article is to explore the techniques used in translating English computer terms into Arabic in the Microsoft Terminology Collection (MTC) (English-Arabic). MTC is a well-known online IT-glossary that is available on the Microsoft Language Portal in over ninety languages. Technical terms in MTC include all categories of terminology used in the field of computer and technology: Internet (*web*, *e-mail*, *attachment*, *cookie*, etc.), hardware (*screen*, *mouse*, *printer*, *floppy disk*, etc.), software (*freeware*, *antivirus*, *install*, *data*, etc.), measurement units (*bit*, *byte*, *megabyte*, *gigabyte*, etc.) and tech acronyms (*ADSL*, *BIOS*, *CPU*, *USB*, etc.). The main problem in the translation of technical terminology into Arabic in MTC as an example of comprehensive multilingual resources of technical terminology lies in using translation, Arabicisation, and Arabic-expanding techniques inconsistently either within the same translation situation (in providing more than one translation for a standard technical term) or between similar translation situations (in using

different translation strategies for similar technical terms). Due to the fact that MTC is a free product by the world's leading producer of computer software that can integrate with Microsoft products and computer-assisted translation (CAT) tools, it is likely to be used by a large number of users to develop localized versions of applications that integrate with Microsoft products. Therefore, MTC (English-Arabic), used across Microsoft products and in MTC-based free online translation services (e.g. Bing Translator) will inevitably influence the translation of texts and webpages as well as the translation environment in Windows operating systems and applications designed to the Arabic-speaking market.

For the purpose of the current study, technical terms from MTC will be classified into three categories: translated technical terms (TTTs), expanded technical terms (EXTTs) and Arabicised technical terms (ATTs). The first category, i.e. TTTs, involves nominal and verbal TL technical terms. The second category, i.e. EXTTs, comprises mechanisms of word formation. The two main word-formation processes to be examined are derivation and compounding. According to Dirven and Verspoor (2004), "[t]he two main word-formation processes are compounding and derivation. Compounding is a case of conceptual blending (…) At the linguistic level, two free morphemes are combined to form a compound (…) In contrast to a compound, a derivation consists of a free morpheme and a bound morpheme" (p. 71). Dirven and Verspoor maintain that "[o]ther word formation processes are less productive, i.e. they apply to smaller sets of words" (p. 71). More restricted processes of word formation to be examined in this study include blending in which "parts of two familiar words are yoked together (usually the first part of one word and the second part of the other) to produce a word which combines the meanings and sound of the old ones" (Stockwell & Minkova, 2001, p. 6) and acronyms and initialisms in which "a typical acronym takes the first sound from each of several words and makes a new word from those initial sounds. If the resulting word is pronounced like any other word it is a true acronym (…) If the letters which make up the acronym are individually pronounced … such acronyms are called *initialisms*" (Stockwell & Minkova, 2001, pp. 7-8). The last category, i.e. ATTs, involves phonological and morphological changes that occur to SL terms. All TTTs and EXTTs are semantic loans that existed in the TL before they acquired their technical meanings from the SL, and all ATTs are lexical loans adopted from the SL and incorporated into Arabic without translation.

2. Theoretical background

For decades, a number of studies in the field of technical translation tried to explore methods of translating technical and scientific terminology into Arabic. In many of these studies, however, there is an overlap between concepts of translation, Arabization, Arabicisation, and Arabic-expanding techniques (linguistically known as word-formation processes). For example, Benabdi (1980) defines *Arabicisation* as "the deliberate effort to spread the use of classical Arabic" (p. iii). Numan (1981) views *Arabicisation* as "a means of liberation and modernization to achieve the goal of national, cultural, and political independence at Arab level" (p. 14). Likewise, Al-Sayadi (1982) refers to two different meanings of *Arabicisation*, one in the east Arab countries that "refers to lexical expansion which involves the

rendering or coinage of new words", and another in the north African Arab countries which refers to the use of Arabic instead of the foreign language in all the domains of life (as cited in Hartford & Obeng, 2002, p. 153). However, Baker (1987) notes that:

> Arabization involves the rendering of foreign terms into Arabic in its original linguistic form, after introducing minor phonetic and/or morphological changes where necessary. This method has received much opposition from language purists, who fear that the assimilation of foreign terms may change the identity of Arabic and, if applied to excess, would even result in some form of a hybrid language. (p. 187)

Therefore, Al-Abed Al-Haq (1998) argues that *Arabicisation* and *Arabization* denote different meanings because the former "is derived morphologically from Arabic, that is, the language, and therefore denotes more adequately the idea of Arabic language planning", whereas the latter "indicates a reference to Arabs, i.e., the people and culture" (p. 55).

Ghazala (1995) uses the term "Arabization" or "Arabicization" as a synonym for technical translation, "Arabization (or Arabicization, by analogy to Anglicization, Germanization, etc.) is the translation of technical terms into Arabic" (p. 156) and introduces the following as methods of Arabicisation: transcription, naturalisation, translation, and coinage (revival, derivation and neologisms). However, this classification ignores the fact that Arabicisation and translation are two different processes. Whereas translation works on "substituting words from one language to another" (ترجم الكلام: نقله من لغة إلى أخرى) (*al-Muʿjam al-Wasīṭ*, 2004, p. 83), *taʿrīb* (Arabicisation) works on "adapting foreign words to the phonetic or structural pattern of Arabic" (التعريب: صبغ الكلمة بصبغة عربية عند نقلها بلفظها الأجنبي إلى اللغة العربية) (*al-Muʿjam al-Wasīṭ*, 2004, p. 591). Overlapping methods of Arabicisation and translation also contradict Newmark's classification (1988), in which transference and naturalisation (i.e. methods of Arabicisation) are included as "other translation procedures" (p. 81) and revival and derivation are methods of creating neologisms (p. 150). Moreover, there is an overlap in the examples of technical terms that Ghazala gives for revival, derivation and neologisms. For example, the word *car*, translated as (سيّارة), is given as an example of revivals (old words with new senses) even though the same word can also be given as an example of an EXTT which involves derivation from the Arabic root *sayr* (سير) with the morphological pattern of the Arabic *ism al-ʾālah* (noun of instrument) (*faʿālah* فعّالة) just like *bicycle* (درّاجة) or *washing-machine* (غسّالة). Similarly, the word *computer* (حاسب آلي/حاسوب) is given as an example of neologisms, although it is also an example of an EXTT derived from the Arabic root *ḥasaba* (حسب).

Therefore, a distinction is made in this article between methods of translation, Arabicisation and Arabic expansion so that translators can choose among them in their translations of technical terms. Whereas the main concern of translation, as a process, is decoding the SL text and finding equivalents in the TL, the main concern of Arabicisation (transliteration or naturalisation) and Arabic-expanding techniques (such as derivation, compounding, blending, etc.) is to solve problems of non-equivalence at word level between Arabic as a TL and other source languages. For the purpose of this study, the term *Arabicisation* is used as Al-Qinai (2000) defines it "Arabicization is a process whereby foreign words are incorporated into the language with phonological

or morphological modifications so as to be congruent with Arabic phonological and morphological paradigms" (p. 1). This is an accurate definition of Arabicisation for several reasons. First, it serves to set the concept of Arabicisation apart from similar concepts such as Arabization, translation, and Arabic-expanding techniques. Second, it indicates that Arabicised terms involve *al-dakhīl* (the transliterated) and *al-moʻrrab* (the naturalised). Finally, this definition agrees with the classical concept of *taʻrīb* (Arabicisation) as given in Sibawayh's *al-Kitāb*: اعلم أنهم (أي العرب) مما يغيرون (من الحروف الأعجمية ما ليس من حروفهم البتة، فربما ألحقوه ببناء كلامهم وربما لم يلحقوه (ص 304) translated by Stetkevych (1970) as "[t]he Arabs change those foreign words that are absolutely incongruous with their own, sometimes assimilating them into the structure of their words, and sometimes not" (p. 59).

In their study on Arabicisation and Arabic-expanding techniques, Al-Asal and Smadi (2012) recommend Arabization or "using Arabic in our education as a medium of instruction and a tool of expression" (p. 32). Yet, the real problem in English-Arabic technical translation lies not in the choice between Arabic and the foreign language but in the choice between the Arabicised word and the Arabic word. According to Chejne (1969), there are three different attitudes towards Arabicisation: "One school is generally opposed to Arabization on the grounds that it will lead to an overflow of foreign words that ultimately do violence to the language", another school "favors the indiscriminate use of foreign words in the original form" and finally, a third school "insists that foreign words can be accepted only as a last resort after every effort has been made to find their equivalents in Arabic" (p. 179). The same controversy is highlighted by Versteegh (2014):

> In the classical period, this procedure of Arabicisation (*taʻrīb*) was very successful, the number of unadapted words remaining minimal. In the modern world, the academies adopted a restrictive policy, allowing loans only in scientific terminology. . . The real controversy arose around the question as to whether or not foreign words could be used as productive roots for new derivations. In classical Arabic, once a foreign word had been admitted and adapted, it behaved like any other Arabic word, but in the modern world the academies tried to restrict new derivations to scientific terminology. (p. 229)

At a time of a marked increase in the number of SL technical terms, the use of foreign words as productive roots for new derivations to scientific terminology in Arabic becomes even more controversial. Also, the question whether the users' opinion, regarding certain translations they find appropriate for the daily use, should be considered in technical translation is based on the distinction between technical slang and formal terminology. For example, some technical terms, though not accepted as Standard Arabic, are currently used in their Arabicised forms among specialists and non-specialists alike: e.g. *hard* (هارد), *case* (كيسة), *headphones* (هيدفون), *format* (يفرمت), *delete* (يدلّت), *save* (يسيّف), and "*to Facebook* (يفسبك)" (Abu Hatab & Lahlali, 2014, p. 90). In this regard, Bernstein (1995) argues:

> Those in specialized fields have a need to communicate with one another in precise terms and with an economy of expression. A single word will often convey to a colleague what would require a sentence, a paragraph, or perhaps an even longer description to convey to a layman (…) A final caution may be of value in a discussion of *inside talk*. In writing intended for general reading,

the use, whether by a specialist or by a layman, of jargon terms that are not commonly understood smacks of pedantry. If the writer believes that it is imperative to use such a term, he should at least explain it when it is introduced. It must never be forgotten that the function of writing is communication. (p. 237)

Bernstein's warning draws attention to the necessity of using the SL technical term within its proper sphere. If this is the case for the SL technical term, then the TL technical term should also be used within its proper sphere depending on its level of formality.

3. Research questions and method

Through the discussion of methods of technical translation in MTC, this article attempts to answer the following questions: What kinds of translation strategies does MTC follow in order to translate technical terms into Arabic? How can SL and TL technical terms be classified in terms of phonological, morphological and semantic changes? When should translation, Arabicisation, or Arabic-expanding techniques be used in English-Arabic technical translation? To answer these questions, the selected data is analysed comparing translations of the SL terms in MTC with translations of the same terms in *Muʻjam Muṣṭalaḥāt al- Ḥasibāt* (*Dictionary of Computer Terms*) (2012) by the Academy of the Arabic Language in Cairo (مَجمعُ اللغةِ العربيةِ بالقاهرة), to explore the appropriateness of the methods of translation, Arabicisation, or Arabic-expanding techniques that were used in MTC to provide equivalents for the technical terms. First, examples of the SL technical terms representing different types of computer terminology (Internet, hardware, software, measurement units and tech acronyms) are selected from MTC. Second, the technical terms are classified into three groups (translated technical terms, expanded technical terms, and Arabicised technical terms) according to the changes that occur to the given TL equivalents at different levels of language (phonological, morphological, lexical, semantic, etc.). Third, the SL terms are looked up in *Merriam-Webster's Online Dictionary* to check out their meanings in General English (GE) and/or English for Specific Purposes (ESP), word class, popularity of the term and date of the first use. Fourth, the given TL equivalents are looked up in *al-Muʻjam al-Wasīṭ* (*al-Wasīṭ Arabic-Arabic Dictionary*) (2004) to check their meanings and whether Arabicised terms have found their way into Modern Standard Arabic (MSA). Finally, some observations are given by the researcher about the types of TL technical terms, and the possible translation method(s) for each type.

4. Data collection

MTC is a set of standard technology terms in many languages available at the Microsoft Language Portal. The Search Terminology box in (https://www. microsoft.com/Language/en-US/Search.aspx) allows users to perform quick searches in different languages. MTC (English-Arabic) can be saved in TBX file format **(**Microsoft Term Collection.tbx) from (https://www.microsoft.com/ Language/en-S/Terminology.aspx). A Microsoft terminology file contains the following data: concept ID, definition, source term, source language identifier, target term, and target language identifier. It can integrate with Microsoft

products and computer-assisted translation (CAT) tools. According to Olohan (2015), "[t]he TBX (TermBase eXchange) file format is an international standard for terminology data, and all terminology-management software should allow you to import and export data in that format" (p. 43). The significance of terminology-management software for translators, Olohan (2015) maintains, lies in that:

> Terminology-management software (…) is very likely to be integrated with translation-memory software. This means you can then benefit from an automatic search for your recorded terms as you encounter them in your ST during the translation process; the software will automatically display the search results, so that you do not have to decide whether to search. If you have recorded a TL term in your termbase already, this automatic retrieval makes it easy for you to copy or insert it into your translation, if you wish. If nothing is found, the software also allows you to add a new term entry quickly as you translate. This will then provide a TL term suggestion for you the next time you encounter the SL term. (p. 43)

5. Data analysis and results

The collected data has been classified into three categories: translated technical terms, expanded technical terms, and Arabicised technical terms. These types are classified according to the linguistic changes that occur to the technical term during the process of translation.

5.1. Translated technical terms (TTTs)

TTTs are TL technical terms which are based on full equivalence between the SL and the TL. Equivalence in this category is qualitative, i.e. the SL and TL words refer to the same thing, and quantitative, i.e. there is a single TL expression for a single SL expression. Table 1 below lists some examples of TTTs in MTC.

Fundamentally, TTTs can be classified as nominal or verbal. The SL terms in this category include terms derived from common linguistic roots such as *address* (عنوان), *access* (وصول), *chat* (دردشة), *chip* (شريحة) etc. They denote any or all of a class of entities and they can be preceded by an article or other limiting modifiers (e.g. *an address*, *my disk*, etc.). They are not capitalised in the SL text unless they begin a sentence or are part of a title. In MTC, technical verbs such *click* (نقر), *copy* (نسخ), *save* (حفظ), *download* (تنزيل) etc. are translated into Arabic as *maṣdar* (verbal noun), along with their translations as verbs, to refer to the action or activity implied in the verb when used in isolation.

A common feature of TTTs is that they are all semantic loans in the sense that an old TL term is assigned a new technical meaning. For example, the word *address* (عنوان) was used in the TL to refer to (ما يُستدل به على غيره) "the words and numbers that are used to describe something" (*al-Muʻjam al-Wasīṭ*, 2004, p. 633) before it acquired its technical meaning from the SL as "the letters, numbers, and symbols that are used to direct an e-mail message or to show the location of a site on the Internet" (*Merriam-Webster's Online Dictionary*, 2016). Equally, the word *chat* was used in the TL to mean (الدردشة: اختلاط الكلام وكثرته (لفظ مُوَلَّد)) "to babble" (*al-Muʻjam al-Wasīṭ*, 2004, p. 279), then it acquired its technical meaning from the SL "to talk over the Internet by sending messages back and forth in a chat room" (*Merriam-*

Webster's Online Dictionary, 2016). Yet, this does not necessarily mean that all SL technical terms existed, like the TL terms, before they acquired their technical meanings. For example, the words *download* and *upload*, according to *Merriam-Webster's Online Dictionary*, were first used in 1977 as purely technical terms in the field of computer technology. The word *Word*, translated in MTC as a common noun (كلمة) rather than a proper noun (برنامج معالجة النصوص), is an example of mistranslation. The word *disc* is translated as (قرص) (*Mu'jam Muṣṭalaḥāt al-Ḥasibāt*, 2012, p. 6) to avoid confusion with

Table 1. Translated technical terms (TTTs) in MTC

SL Technical Terms	MTC Arabic
access	وصول
address	عنوان
algorithm	خوارزمية/لوغاريتم
automation	تلقائية/ آلية
chat	دردشة / يدردش
chip	شريحة
click	نقر/ ينقر
coding	ترميز
configuration	تكوين
connection	اتصال
copy	نسخ / ينسخ
data	بيانات
devices	أجهزة
digital	رقمي
disc	قرص
download	تنزيل / ينزل
file	ملف
filter	تصفية / يصفي
input	إدخال
information	معلومات
insert	إدراج / يدرج
installation	تثبيت
link	وصلة
log	سجل / يسجل
mathematical	رياضي
options	خيارات
output	إخراج
save	حفظ / يحفظ
screen	شاشة
storage	تخزين
tools	أدوات
upload	تحميل / يحمِّل
Word	كلمة

القرص الذي تسجل فيه أصوات الغناء أو) cylinder, although the TL word also means الموسيقا أو غيرهما) (*al-Muʻjam al-Wasīṭ*, 2004, p. 17). Likewise, the word *automatic* is translated in MTC as (تلقائي/آلي) whereas *Muʻjam Muṣṭalaḥāt al-Ḥasibāt* (pp. 39-40) uses the Arabicised form (أوتوماتي) and the translated form (تلقائي/آلي) concurrently for no good reason. It is more appropriate to use (حسابي) as a translation for *mathematical* rather than (رياضي), which is also the adjective for *sport* (رياضة) in Arabic. The word *logarithm* in MTC is given in both forms, the translated and the Arabicised. Yet, the translated form (خوارزمية) is more accurate since the SL word itself is a mangled transliteration of *al-Khawārizmī*, the surname of the Muslim mathematician.

5.2. Expanded technical terms (EXTTs)
EXTTs are TL technical terms produced from TL roots by means of word-formation processes such as derivation, compounding, blending, etc. Just like TTTs, EXTTs are semantic loans where the TL word already exists before it acquires its technical meaning from the SL. The main difference between TTTs and EXTTs is that TTTs involve semantic transfer only whereas EXTTs involve, along with semantic transfer, morphological processes that occur to the Arabic root to become a technical term. Table 2 lists some examples of EXTTs in MTC.

Table 2. Expanded technical terms (EXTTs) in MTC

SL Technical Terms	MTC Arabic Translation
accelerator	مُسَرِّع
accessory	مُلْحَق
accumulator	مُرَكِّم
adapter	مُحَوِّل
antivirus	مكافحة الفيروسات
attachment	مُرفَق
Biotechnology	التقنية البيولوجية
blog	مُدَوَّنَة
browser	مُتَصفِّح/مُستعرِض
CD	قرص مضغوط
cookie	ملف تعريف الارتباط
CRT display screen	شاشة كاثودية
CPU	وحدة المعالجة المركزية
decryption	فك التشفير
desktop	سطح المكتب
disk drive	مُحرِّك الأقراص
digital video disk DVD	قرص الفيديو الرقمي
document	مُستَنَد
driver	برنامج تشغيل الجهاز
electromagnetic	كهرومغناطيسي
e-mail	بريد إلكتروني
emoticon	رموز المشاعر
ENTER key	مفتاح الإدخال

File Transfer Protocol	بروتوكول نقل الملفات
finger	أداة البحث عن المعلومات
firewall	جدار حماية
forum	منتدى
header	رأس الصفحة
homepage	الصفحة الرئيسية
inbox	علبة الوارد
Internet service provider ISP	مُوفِّر خدمة الإنترنت
key	مفتاح
laptop	كمبيوتر محمول
local server	مُلقِّم محلي
mainframe	حاسب مركزي
mobile	جَوَّال/محمول
monitor	جهاز العرض
monochrome	أحادي اللون
Paint	الرسَّام
password	كلمة المرور
PDA	مساعد رقمي شخصي
plotter	رَاسِمَة
portable devices	أجهزة محمولة
printer	طابِعة
processor	مُعَالِج
sandbox	وضع الحماية
scanner	ماسح ضوئي
site	مَوقِع
smiley	رموز المشاعر
spam	بريد عشوائي
USB flash drive	مُحرِّك أقراص محمول
user name	اسم المُستَخدِم
window	نافذة

5.2.1. Derivation

Derivation is one of the most important mechanisms of EXTTs in MTC. It is "the most natural way of enriching the language without altering its identity" (Baker, 1987, p. 186). All examples of derived EXTTs in MTC belong to what is known in Arabic as *al-ishtiqāq al-ṣaghīr* (simple derivation), where "[t]he stem is modified by prefixation, suffixation, infixation, or more than one of these processes according to well-structured models '*'awzān*/formulas'" (Stetkevych, 1970, p. 7). Moreover, most derived EXTTs are nouns derived from SL concrete single nouns. As noted by Stetkevych (1970), "[c]onsidering the Arabic system of word derivation as a whole, it becomes clear that the possibilities of noun derivation are much more numerous and diversified than those of verbal derivation" (p. 10). In Table 2, examples of derived EXTTs in MTC include the main types of *al-mushtaqqāt* (derivatives) in Arabic: *ism al-fā'il* (active participle) such as (حاسب) for *computer*, and (مُعَالِج) for *processor*, *ism al-maf'ūl* (passive participle) such as (مَحمول) for *mobile* and (مُستَنَد) for

document, *ism al-ẓarf* (noun of place or time) such as (مَوقِع) for *site* and (مُنتدى) for *forum*, *ism al-ʾālah* (noun of instrument) such as (مِفْتاح) for *key*, *mubālaghah* (noun of exaggeration) such as (الرَسَّام) for *Paint* and (جَوَّال) for *mobile*.

The word *Paint*, for instance, is capitalised as an SL proper noun that refers to a Microsoft product. However, in MTC, *Paint* is translated as an EXTT rather than being Arabicised, which draws attention to the possibility of translating names of accessories or essential applications that are included within all versions of Microsoft Windows when used in isolation (e.g. *Word* برنامج معالجة, *Movie Maker* برنامج تحرير الأفلام, *Notepad* برنامج المفكرة, *Excel* برنامج الجداول الحسابية, *PowerPoint* برنامج العروض التقديمية, النصوص etc.), unless they are referred to in the SL in comparison with similar applications by other companies (e.g. *Movie Maker* vs *iMovie*, or *Paint* vs *Photoshop*). The same strategy can be used, for instance, with a word like *iPad* to differentiate between the common use of the word as a small flat computer (حاسوب لوحي) and the trademark (آي باد), a tablet made by Apple. Translating *window* as (نافذة) is acceptable as long as it is used in the SL as a common noun to refer to "any of various rectangular boxes appearing on a computer screen that displays files or program output" (*Merriam-Webster's Online Dictionary*, 2016), whereas translating the proper noun *Windows* as (النوافذ) is evidence of an inconsistent translation policy. Inconsistency here involves using different translation strategies for similar technical terms in similar translation situations rather than using different techniques in the translation of the same term, though uniformity in technical translation (i.e. using particular TL terms for standard SL technical terms) would undoubtedly give the TL term the same meaning, depth and applications of the SL term and encourage standardisation and unification of technical terminology in the TL culture.

5.2.2. Compounding

Table 2 also shows that many EXTTs are translated from SL compounds. Compounding, known in Arabic as *al-tarkīb*, is a highly productive process as "[t]here is a limit to the number of morphemes that can be added through derivation, while in theory no such restriction exists for compounds" (Husni & Newman, 2015, p. 41). Some compound EXTTs in MTC show quantitative non-equivalence where there is more than one TL lexical item given for a single SL common noun: *cookie* (ملف تعريف الارتباط), *driver* (برنامج تشغيل), *spam* (بريد), *scanner* (ماسح ضوئي), *finger* (أداة البحث عن المعلومات), (الجهاز العشوائي), etc. The compound EXTT in this type usually consists of a head noun followed by a modifier (an adjective, noun or noun phrase). Other compound EXTTs are based on quantitative equivalence between the SL and the TL. The SL compound in this type functions, syntactically and semantically, as one word regardless of its spelling (split, single-word or hyphenated), and the TL compound consists of a genitive construction where a head noun is used in a state of *iḍāfah* without the Arabic *al-* determiner prefix and followed by a noun or a noun phrase as in *desktop* (سطح المكتب), *disk drive* (مُحَرِّك الأقراص), *password* (كلمة المرور), *firewall* (جدار حماية), *Enter key* (مفتاح الإدخال), *user name* (اسم المستخدم), etc. Though not common in traditional Arabic, compounding is extensively used in MSA especially for technical terms, "[w]ith the necessity for rapid translation of technical and computational terms from Western languages into Arabic, these kinds of lexical compounds have

become more prevalent over the past two or three decades" (Ryding, 2005, p. 50).

5.2.3. Acronyms and initialisms

There are also SL technical compounds that are abbreviated as initialisms (i.e. formed from initial letters of words in a compound noun) such as *CPU* (وحدة المعالجة المركزية), *DVD* (قرص الفيديو الرقمي), *FTP* (بروتوكول نقل الملفات), *ISP* (مُوَفِّر خدمة الإنترنت) and *USB* (الناقل التسلسلي العالمي) or as acronyms (initialisms pronounceable as a word) such as *BIOS* (نظام الإدخال/الإخراج الأساسي), *LAN* (شبكة اتصال محلية), *RAM* (ذاكرة وصول عشوائي), *WAN* (شبكة اتصال واسعة), etc. In MTC, initialisms are given no translation but their compound nouns are given. This strategy suggests the inappropriateness of translating initialisms into TL equivalents which do not have the same referents of the SL term (e.g. *ALU* و.ح.م) (*Muʿjam Muṣṭalaḥāt al-Ḥasibāt*, 2012, p. 21) or Arabicising them without a TL explanation of the meaning of the term (e.g. *BSC* بي.إس.سي) (*Muʿjam Muṣṭalaḥāt al-Ḥasibāt*, 2012, p. 78). In this sense, Al-Qinai (2006) argues,

> The somewhat high rate of illiteracy in the Arabic-speaking world may hamper the formation of native acronyms in view of the tendency among native speakers to make themselves comprehensible by avoiding opaque abbreviations. Since most advanced technology in the Arab world is imported from the west, the names and abbreviations are assigned by the countries of origin. (p. 49)

Like initialisms, acronyms in MTC are translated rather than Arabicised (e.g. *RAM* ذاكرة وصول عشوائي). However, in *Muʿjam Muṣṭalaḥāt al-Ḥasibāt*, acronyms are Arabicised with an explanation of the meaning of the term (رام = ذاكرة التوصل العشوائي *RAM*) (2012, p. 437). Sometimes inaccurate transliteration of SL acronyms like *BASIC* (بيزيك) and *BIOS* (بايوز) (*Muʿjam Muṣṭalaḥāt al-Ḥasibāt*, 2012, p. 53) results in phonemic substitution of the sound /s/ in these words with /z/ in the TL words. Since there are no equivalent TL acronyms for SL technical acronyms, the only choices left for the translator are either to render the SL acronym as an EXTT or as an ATT followed by its TL explanation. According to Newmark (1988), "[a]cronyms are frequently created within special topics and designate products, appliances and processes, depending on their degree of importance; in translation, there is either a standard equivalent term or, if it does not yet exist, a descriptive term. Acronyms for institutions and names of companies are usually transferred" (p. 148). Therefore, SL acronyms that are used as proper names and those that have already found their way into the TL (usually written in lower case) are treated as ATTs "requiring analysis only for a less educated TL readership" (Newmark, 1988, p. 148).

5.2.4. Blending

Some EXTTs are translated from SL blends such as *Biotechnology* (التقنية البيولوجية), *electromagnetic* (كهرومغناطيسي) and *e-mail* (بريد إليكتروني) (often written *email* without a hyphen), *emoticon* (رموز المشاعر), etc. Most of these examples are rendered as TL compounds with the exception of *electromagnetic* (كهرومغناطيسي), which suggests that a TL blend is possible, not mandatory, if the clipped part in the SL blend is recoverable (e.g. *electro-* from *electricity*). For example, SL blends like *antivirus* and *monochrome*

cannot be translated as TL blends because the prefixes in both words, *anti-* and *mono-*, are not recoverable. Yet, is it not possible to translate *Biotechnology* as (بيوتقنية) and *e-mail* as (إلكتروبريد) since the clipped part in the SL blend is recoverable? Though possible, translating *Biotechnology* as a TL compound (التقنية/التقانة/التكنولوجيا الحيوية) is more popular than the TL blend (بيوتقنية). Also, translating *e-mail* as a TL blend (إلكتروبريد) may result in semantic change if the Arabic prefix (إلكترو) is interpreted *electrical* (as in *electromagnetic*) rather than *electronic*. Another problem in TL blends lies in word order.

According to Al-Qinai (2006), "Arabic's aversion of blending can best be illustrated by the common English blend 'smog' which is rendered by four words in Arabic ضباب مخلوط بدخان [literally: fog mixed with smoke] despite the presence of a newly coined but less popular blend ضبخان" (p. 50). However, in translating smog as (ضبخان), SL word order is reversed in the translation (*smoky fog* becomes (ضباب دخاني) before *al-naḥt* (i.e. the blending process) to avoid semantic change and to conform to Arabic where the head (a noun) is followed by its modifier (an adjective or a noun) and not vice versa. It becomes clear now that the use of compounding is preferred to blending in translating SL blends because it maintains the words, and its meaning is clearer. Even in translating the prefix *e-* in *e-mail* as (إليكتروني), there is an overlap between two different meanings of the adjectives *electronic*, "operating through the use of many small electrical parts such as microchips and transistors" and "operating by means of a computer: involving a computer or a computer system" (*Merriam-Webster's Online Dictionary*, 2016). Therefore, translating *e-mail*, "a system for sending messages from one computer to another" (*Merriam-Webster's Online Dictionary*, 2016), as (بريد حاسوبي) is more accurate than translating it as (بريد إليكتروني), unless the intended meaning is any means or system for transmitting messages electronically (e.g. text messaging). Besides, translating the hyponym *smiley* as (رموز المشاعر) just like its hypernym *emoticon*, rather than (رمز الابتسامة), is an example of generalisation, which should be avoided in technical translation, because the TL word has a wider meaning than the SL word. The word *icon* itself in MTC is sometimes translated as a TTT (رمز) and sometimes as an ATT (أيقونة).

5.3. Arabicised technical terms (ATTs)
ATTs are TL technical terms borrowed from the SL and written in the characters of the Arabic alphabet to overcome non-equivalence between Arabic and the SL. Almost all ATTs are open-class words and among the open classes, nouns are the most frequently borrowed class because most of borrowed words are the names of objects and materials that are not known in the borrowing language (Bynon, 1977, p. 231). ATTs can be classified according to the phonological and morphological changes that occur to the SL technical term. Phonologically, the transference of the technical term may or may not involve phonemic substitution, omission or addition. Morphologically, there are three types of ATTs: non-inflectional/non-derivational, inflectional/non-derivational, and inflectional/derivational. Table 3 lists some examples of ATTs in MTC.

Table 3. Arabicised technical terms (ATTs) in MTC

SL Technical Terms	MTC Arabic
archive	أرشيف
battery	بطارية
byte	بايت
cable	كبل
camera	كاميرا
catalog	كتالوج
computer	كمبيوتر
electronic	إلكتروني
flash	فلاش
gigabyte	غيغابايت
Internet	الإنترنت
intranet	إنترانت
Macintosh	ماكنتوش
magnetic	مُمَغنَط
megabyte	ميغابايت
microphone	ميكروفون
modem	مودم
mouse	ماوس
Pascal	باسكال
programmer	مُبَرمِج
protocol	بروتوكول
strategy	استراتيجية
video	فيديو
virus	فيروس
Web	ويب

5.3.1. Phonological changes

As is shown in Table 3, some ATTs in MTC, such as *byte* (بايت), *cable* (كبل),
camera (كاميرا), *catalog* (كتالوج), *computer* (كمبيوتر), *flash* (فلاش), *Mackintosh*
(ماكنتوش), *microphone* (ميكروفون), *modem* (مودم), *mouse* (ماوس), *Pascal*
(باسكال), *protocol* (بروتوكول), *web* (ويب), represent complete phonemic
transference. Table 3 also reveals that some ATTs involve phonemic
substitution, i.e. replacing SL phonemes that do not exist in the TL with other
TL phonemes produced in the same place of articulation. The words *gigabyte*
(غيغابايت) and *megabyte* (ميغابايت) are examples of ATTs which involve
phonemic substitution. In classical Arabic, the letter *jīm* (ج) is pronounced as
the voiced alveo-palatal affricate /dʒ/. Thus, the voiced velar stop /g/ in
gigabyte and *megabyte* is replaced with a voiced velar fricative /ɣ/ (*ghayn* غ)
so that the ATTs are not pronounced as /dʒɪdʒ≅baɪt/ and /medʒ≅baɪt/ instead
of /gɪg≅baɪt/ and /meg≅baɪt/. This same phonological substitution does exist in
Arabicised words like *Greeks* (إغريق) and *Gangrene* (غرغرينا). However, in
Egyptian Arabic, the letter *jīm* (ج) is pronounced as the voiced velar stop /g/.

Using /g/ only with ATTs will match the pronunciation of the SL term and facilitate back-translation.

Phonemic substitution in MTC also occurs in words like *archive*, *video* and *virus* in which the voiced labiodental fricative /v/ in the SL words is replaced with a voiceless labiodental fricative /f/ in the transliterated TL words due to the fact that Standard Arabic does not have a letter representing the sound /v/. If the Arabicised letter (ڤ) is not possible in word processing for technical restrictions, the letter *fā'* (ف) is often used instead. A third example of phonemic substitution is the replacement of the non-pharyngealised voiceless alveolar stop /t/ (*tā'* ت) with a pharyngealised voiceless alveolar stop /tˁ/ (*ṭā'* ط) in *magnet* (مَغْنَاطِيس). An example of phonemic omission is the omission of the final /k/ in adjectives like *electronic* (إلكتروني) and *strategic* (استراتيجي), where *yā' al-nisbah* (suffix of attribution) is added to the ATT. An example of phonemic addition is the addition of the sound /g/ to the translation of the word *program* (بَرْنَامَج). The word *barnamaj* (بَرْنامَج) itself is borrowed from the Persian word *parnamah* (بَرْنَامَه), which means (الورقة الجامعة للحساب، والخطة المرسومة لعمل ما) (*al-Muʻjam al-Wasīṭ*, 2004, p. 52). Another example of phonemic addition is the addition of the sound /s/ in *magnet* (مَغْنَاطِيس).

5.3.2. Morphological changes

5.3.2.1. Non-inflectional/non-derivational ATTs
As is shown in Table 3, ATTs borrowed from SL proper names are solid stems in the sense that they cannot be analysed according to the TL derivational system of root-pattern or the TL inflectional system of gender, number, case and definiteness. These ATTs include names of programming languages (*Java*, *Pascal*, *Perl*, *Visual Basic*, etc.), websites (*Amazon*, *YouTube*, *Google*, *Facebook*, *Yahoo*, etc.), operating systems (*Windows*, *Mac*, *Linux*, etc.), hardware brands (*Asus*, *Dell*, *Toshiba*, *Lenovo*, etc.), software brands (*Adobe*, *McAfee*, *Microsoft Office*, *Photoshop*, *Firefox*, etc.), standard measurement units, commonly abbreviated (*megabyte*, *megapixel*, *gigabyte*, *Hertz*, *terabyte*, etc.). The translation of such proper names, however, should be based on Newmark's (1988) recommendation that "[w]here an SL technical term has no known TL equivalent, a descriptive term should be used" (p. 154). Accordingly, some descriptive terms should precede such terms as in (حزمة البرامج المكتبية مايكروسوفت) *Microsoft Office*, (حاسوب ماكنتوش) *Macintosh* (أوفيس), and *Pascal* (لغة برمجة باسكال) at least in the first time the technical term is used in the TL text.

Moreover, proper nouns in Arabic are known by convention and through the fact that they have the grammatical property of being definite even though they do not carry the Arabic *al-* determiner prefix. Typically, English proper names are not preceded by an article (*the* or *a/an*) or other determiners. Therefore, expressions such as *Microsofts*, *the Microsoft* and *another Microsoft* are not Standard English. The word *Internet* (الإنترنت), capitalised, is used in MTC as a proper noun to refer to "the worldwide connection of computers on which we can find the World Wide Web" (Paxson, 2004, p. 3), whereas the word *internet* as a common noun refers to "any collection of networked computers" (Paxson, 2004, p. 3). MTC preferred the ATT (إنترنت) to the TTT (الشبكة الدولية للمعلومات) so as not to be confused with *WWW* as one of Internet services if the prefix *inter-* is interpreted as *international* (network)

rather than *between* (network). The Arabic *al-* determiner prefix in this case is *lām zāʾidah ghayr lāzimah* (an unnecessary *al-* determiner prefix). Though an SL proper noun, the word *Internet* is used as an adjective in *Muʿjam Muṣṭalaḥāt al-Ḥasibāt* in the translation of *netiquette* as (أخلاقيات إنترنتية) and *netizen* as (مواطن إنترنتي) (*Muʿjam Muṣṭalaḥāt al-Ḥasibāt*, 2012, p. 377). Similarly, the capitalised word *Web* (ويب) is a proper noun that refers to World Wide Web as "a part of the Internet accessed through a graphical user interface and containing documents often connected by hyperlinks" (*Merriam-Webster's Online Dictionary*, 2016).

It should be noted that some technical verbs like *to google* or *to xerox*, which are converted from the proper nouns *Google* and *Xerox* respectively, are sometimes translated into the TL with no reference to the SL proper noun. In this sense, the verb *google* (translated as يبحث على شبكة الإنترنت) refers to using any web search engine, and the verb *xerox* (translated as يطبع) refers to using any printer. However, if the converted verb is capitalised in the SL text, then the SL proper noun should be Arabicised in the TL text. In this sense the capitalised verb *Google* (يبحث بواسطة محرك البحث جوجل) means using the Google search engine to obtain information on the Web, and the verb *Xerox* (يطبع بواسطة طابعة زيروكس) means using a Xerox machine to print.

5.3.2.2. Inflectional/non-derivational ATTs

The second type of ATTs "includes borrowed words which cannot be integrated completely because of their incompatibility with the structure of the Arabic language" (Mahadin, 1996, p. 327). These are borrowed SL terms derived from common linguistic roots that assimilate, with varying degrees, to the TL inflectional system of gender (masculine and feminine), number (singular, dual and plural), case (nominative, genitive and accusative) and definiteness (the definite *al-* prefix and the indefinite suffixes of *al-tanwīn*/nunation). Examples of this type include technical terms such as *cable* (كبل), *computer* (كمبيوتر), *flash* (فلاش), *microphone* (ميكروفون), *modem* (مودم), *mouse* (ماوس), *virus* (فيروس), etc. Yet, for many of these partially-naturalised ATTs, there are acceptable Arabic equivalents that can be used instead to preserve the integrity and authenticity of the language. Unlike *strategy*, which is Arabicised as (استراتيجية), the word *technology*, for example, is translated in MTC as (تقنية) rather than Arabicised (تكنولوجيا), which draws attention to the possibility of using TTTs even for naturalised ATTs. For the word *cable* it is possible to use the Arabic word (سلك), defined in Arabic as (خيط من المعدن دقيق أو غليظ كسلك الكهرباء ونحوه) "[a] thin or thick rope of metal that carries electricity" (*al-Muʿjam al-Wasīṭ*, 2004, p. 445). The word *computer*, as stated earlier, can be translated as *ḥasūb* (حاسوب) which is *ism al-ʾālah* (noun of instrument) derived from the Arabic root *ḥasaba* (حسب), a TL equivalent for the English verb *compute* "to find out (something) by using mathematical processes" (*Merriam-Webster's Online Dictionary*, 2016). So, if the derived TL *ḥasūb* (حاسوب) is a misnomer because a computer does more than mathematics, so is the SL term itself. In this context, the Arabic translation (حاسب آلي), derived from *ism al-fāʿil* (active participle), is inaccurate because a computer cannot work without being told what to do. Both (حاسب) and (حاسوب), however, are used interchangeably in *Muʿjam Muṣṭalaḥāt al-Ḥasibāt* (2012, p. 18). A word like *microphone*, for example, has its Arabic EXTT (مجهار) (*al-Muʿjam al-Wasīṭ*, 2004, p. 143). The problem with the Arabic

equivalent is that it lacks popularity although it shows precision (of meaning), brevity (of wording) and integrity (in morphology).

The word *mouse,* used in English due to the resemblance between the device and the animal, is transliterated in MTC rather than translated into the Arabic (*faʾrah* فأرة), although a number of languages, including Arabic, have substituted for the SL word *mouse,* their own native words (e.g. German *maus,* French *souris,* etc.). To avoid semantic ambiguity in the TL, the word is usually followed by a descriptive term (فأرة الكمبيوتر). The Arabic word (فأرة) has been extended semantically to encompass the meaning of the SL word *plane* (محدثة)) (*al-Muʿjam al-Wasīṭ,* 2004, p. 670) ((أداة للنجار يقشر بها الخشب although the English word has a less popular Arabic equivalent (مِسْحَج). The existence of TTT and EXTT versions of *plane* indicates the possibility of having an EXTT version for *mouse* along with its TTT (فأرة الحاسوب أو المُؤَشِّرة). MTC itself includes the term *pointing device* (جهاز تأشير), which is defined as "[a]n input device used to control an on-screen cursor for such actions as 'pressing' on-screen buttons in dialog boxes, choosing menu items, and selecting ranges of cells in spreadsheets or groups of words in a document" (*MTC,* 2016). In *Muʿjam Muṣṭalaḥāt al-Ḥasibāt,* both *mouse* and *cursor* are given the same translation (مُؤَشِّر) (p. 104), which makes no difference between the pointing device (المُؤَشِّرة/جهاز تأشير) and the resulting mark on the screen (إشارة).

The ATTs of words like *computer* (كمبيوتر), *microphone* (ميكروفون), *modem* (مودم), *mouse* (ماوس), though more popular in spoken Arabic than their TTTs, are problematic in written Arabic in situations of *al-taṣrīf* (morphological affixation) because "[t]he difference between the word formation processes in Arabic and the donor languages (mostly Indo-European) is great, which is supposed to make the process of adaptation face many structural difficulties, especially in morphology borrowed words must be used like any other words in the recipient language, i.e. Arabic" (Mahadin, 1996, p. 330). In other words, partially-naturalised ATTs are not productive for other derivations, "[t]hese accept only the addition of inflectional morphemes, usually the regular plural marker" (Mahadin, 1996, p. 336). The same strategy is used in words such as *computer*s (كمبيوترات) and *batteries* (بطاريات), *cables* (كابلات), *microphones* (ميكروفونات) which are transliterated into the TL and remodelled to conform to Arabic word patterns of forming the sound feminine plural (جمع المؤنَّث السالم) *Jamʿ al-muʾannath al-sālim* in which the plural noun ends with the suffix *-āt* (ات). Some ATTs that show a high level of inflectionability, though still not derivational, have been approved as Arabic words by the Academy of the Arabic Language in Cairo: such as *battery* (بطارية) (*al-Muʿjam al-Wasīṭ,* 2004, p. 61) which accepts inflectional markers of *al-jamʿ* (plural) (بطاريات), *al-tathniyah* (dual) (بطاريتين), *al-taʾnīth* (femininity) (بطارية), *al-tanwīn* (nunation) (بطاريةٌ), *al-milkīyah* (possession) (بطاريته), etc. and *electron* (الإلكترون) (*al-Muʿjam al-Wasīṭ,* 2004, p. 24) which accepts less inflections.

5.3.2.3. Inflectional/derivational ATTs
The third type of ATTs "includes words which can assimilate completely and become productive for other derivations" (Mahadin, 1996, p. 327). ATTs of this type are inflectional as well as analysable into *judhūr* (roots of three or four consonants) and *ʿawzān* (patterns of vowels and consonants). For example, the verb *yubarmij* (*to program* يبَرْمِج) is productive for other

derivations such as *ism al-fā'il* (active participle) (مُبَرْمِج) and *ism al-maf'ūl* (passive participle) (مُبَرْمَج), and *maṣdar* (verbal noun) (بَرْمَجَة). Similarly, the verb *yumaghniṭ* (*to magnetise* يَمَغّنط), abstracted from the noun *magnet* (مَغْنَاطِيس), is productive for *magnetising* (مُمَغنِط), *magnetised* (مُمَغْنَط), and *magnetism* (مَغْنَاطِيسِية). A third example is the verb *yu'arshif* (*to archive* يُؤَرْشِف) which is also productive for other derivations *archived* (مُؤَرْشَف), *archiving* (أَرْشَفَة), etc. In translation, it would be rather difficult to replace a fully-naturalised ATT with a TTT or an EXTT unless an extensive effort is done by the technical translator to avoid any loss of meaning that accompanies the transference of the technical term.

6. Conclusions

Based on the analysis of some examples of technical terms in the Microsoft Terminology Collection (MTC) (English-Arabic), the following statements could be given as "guidelines", rather than "rules", for English-Arabic technical translators:

1. In their English-Arabic translations, comprehensive multilingual resources of technical terminology, such as Microsoft Terminology Collection (MTC) and the like, as well as English-Arabic dictionaries of computer terms, should follow a clearly-stated translation policy whether in using a standard TL translation for the standard SL term in the same translation situation or in using the same translation strategy for similar SL terms, instead of using methods of translation, Arabicisation, and Arabic-expanding techniques inconsistently (i.e. using more than one strategy for a standard SL term in the same translation situation or using different translation strategies for similar technical terms).

2. Uniformity in technical translation (i.e. using particular TL terms for standard SL technical terms) would give the TL term the same meaning, depth and applications of the SL term and encourage standardisation and unification of technical terminology in the TL culture.

3. Due to the ability of the Arabic language to cope with the dramatic increase in English technical terms by means of derivation, compounding and semantic extension, it is more appropriate to use translation (mainly semantic extension) and Arabic-expanding techniques (mainly derivation and compounding) rather than Arabicisation (i.e. lexical-semantic transference) to provide TL equivalents for SL technical terms derived from common linguistic roots as long as the term denotes either the whole class or any random member of the class.

4. Arabicisation (i.e. transliteration) should only be used with SL technical terms used as proper nouns such as names of programming languages, websites, operating systems, hardware brands, software brands, and standard measurement units (with an identifying TL descriptive term and without the Arabic *al-* determiner prefix).

5. It is possible to translate SL proper names of accessories or essential applications that are included within all versions of Microsoft Windows and brand names of electronic devices both as EXTTs and

ATTs to differentiate between the common use of the word and the trademark.

6. Using informal ATTs is not acceptable in the translation of technical documents that are very formal or scientific. The fact that some TL technical terms are common in their informal Arabicised forms among specialists and non-specialists who find these forms appropriate for the daily use, draws attention to the necessity of using the TL technical term within its proper sphere depending on its level of formality.

7. Since there are no equivalent TL acronyms for SL technical acronyms, the only choices left for the translator are either to render the SL acronym as an EXTT or as an ATT depending on the length or complexity of the SL technical term as well as its popularity in the TL culture. Translating SL technical initialisms into TL equivalents which do not have the same referents of the SL term or Arabicising them should be avoided in technical translation. A translation of the original compound noun should be given instead.

8. The use of compounding is preferred to blending in translating SL technical blends because it maintains the full words, and thus results in clearer meanings.

9. As a result of phonological differences between the SL and the TL, translating SL technical terms as ATTs sometimes involves phonological changes such as phonemic substitution, omission and addition.

10. ATTs borrowed from SL proper names cannot be analysed according to the TL derivational system of root-pattern or the TL inflectional system of gender, number, case and definiteness.

11. Borrowed SL technical terms derived from common linguistic roots can assimilate, with varying degrees, to the TL inflectional and derivational systems.

12. For many inflectional/non-derivational ATTs in MTC, there are acceptable Arabic equivalents that can be used instead in formal technical translation situations.

13. Any attempt to replace an ATT (partially or fully naturalised) with a TTT or an EXTT in existing technical translations should be the result of an extensive effort made by the English-Arabic technical translator to avoid any loss of meaning that accompanies the transference of the technical term.

14. The Arabic-speaking world is the main audience for English-Arabic technical translation, and in this sense, technical translators, experts, academics and educational institutions in the field of information technology (IT) should be encouraged to use TTTs or EXTTs for new technical terms derived from common linguistic roots to preserve the integrity and authenticity of the Arabic language. Whether new technical terms should be rendered as TTTs or EXTTs depends on aspects of precision, brevity and integrity.

References

Abu Hatab, W., & Lahlali, M. (2014). *Advanced English-Arabic translation: A practical guide*. Edinburgh: Edinburgh University Press.

Al-Abed Al-Haq, F. (1998). Toward a theoretical framework for the study of planning Arabicization. In A. Shunnaq, C. Dollerup & M. Saraireh (Eds.), *Issues in translation* (pp. 53-68). Irbid National University & Jordanian Translators' Association.

Al-Asal, M. S., & Smadi, O. M. (2012). Arabicization and Arabic expanding techniques used in science lectures in two Arab universities. *Asian Perspectives in the Arts and Humanities*, 2(1), 15-38.

Al-Qinai, J. (2000). Morphophonemics of loanwords in Arabic. *Studies in the Linguistic Sciences*, 30(2), 1-25.

Al-Qinai, J. (2006). Code-switching and style shift in translation. In C. M. Figueroa & T. M. Gárate (Eds.), *Studies in contrastive linguistics: Proceedings of the 4th international contrastive linguistics conference, Santiago de Compostela, September 2005* (pp. 45-58). Santiago de Compostela: University of Santiago de Compostela.

al-Muʻjam al-Wasīṭ. (2004). Cairo: The Academy of the Arabic Language.

Baker, M. (1987). Review of methods used for coining new terms in Arabic. *META*, 32(2), 186-188.

Benabdi, L. (1980). *Arabicization in Algeria: Processes and problems* (PhD thesis). Indiana University, Bloomington.

Bernstein, T. (1995). *The careful writer*. New York: Simon and Schuster.

Bynon, T. (1977). *Historical linguistics*. Cambridge: Cambridge University Press.

Byrne, J. (2006). *Technical translation: Usability strategies for translating technical documentation*. Dordrecht: Springer.

Chejne, A. (1969). *The Arabic language: Its role in history*. Minneapolis: University of Minnesota Press.

Dirven, R., & Verspoor, M. (2004). *Cognitive exploration of language and linguistics*. Amsterdam/Philadelphia: John Benjamins.

Ghazala, H. (1995). *Translation as problems and solutions: A course-book for university students and trainee translators*. Valetta, Malta: Elga.

Hartford, B., & Obeng, S. G. (2002). *Political independence with linguistic servitude: The politics about languages in the developing world*. New York: Nova Science.

Husni, R., & Newman, D. L. (2015). *Arabic-English-Arabic-English translation: Issues and strategies*. New York: Routledge.

Mahadin, R. S. (1996). Patterns of reinterpretation of word formation of Arabized words. *Language Research*, 32(2), 327-349.

Merriam-Webster's Online Dictionary. (2016). Retrieved from http://www.merriam-webster.com/dictionary

Microsoft Language Portal. (2016). Retrieved Jan. 20, 2016, from https://www.microsoft.com/Language/en-US/Default.aspx

Muʻjam Muṣṭalahāt al-Hasibāt. (2012). Cairo: The Academy of the Arabic Language.

Newmark, P. (1988). *Approaches to translation*. Hertfordshire: Prentice Hall.

Numan, A. (1981). *Arabicization: Theory and practice in Arabic*. Algeria: The National Company for Publication and Distribution.

Olohan, M. (2015). *Scientific and technical translation*. New York: Routledge.

Paxson, P. (2004). *Media literacy: Thinking critically about the Internet*. Maine: Walch.

Ryding, K. C. (2005). *A reference grammar of Modern Standard Arabic*. Cambridge: Cambridge University Press.

Schubert, K. (2010). *Technical translation*. Amsterdam/Philadelphia: John Benjamins.

Stetkevych, J. (1970). *The modern Arabic literary language*. Chicago: The University of Chicago Press.

Stockwell, R., & Minkova, D. (2001). *English words: History and structure*. Cambridge: Cambridge University Press.

Versteegh, K. (2014). *The Arabic language*. Edinburgh: Edinburgh University Press.

Wright, S. E., &Wright, L. D. (1993). *Scientific and technical translation*. Amsterdam/Philadelphia: John Benjamins.