UNIVERSITY KASDIMERBAHOUARGLA

Faculty of Letters and Languages

Department of Letters and English Language

Domain: Letters and Foreign Languages

Field: Translation and Translation Studies

Title :

Procedures Used in Translating Medical Terms from English into Arabic

Case Study: the World Health Organization's Report on the Use of Drugs

Dissertation Submitted in Partial Fulfillment of the Requirements for the

Obtention of Master Degree in Translation Studies

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Academic Year: 2020 / 2021

جامعة قاصدي مرباح ورقلة

كلية الآداب واللغات

قسم الآداب واللغة الانجليزية

ميدان: الآداب واللغات الأجنبية

إختصاص: الترجمة وعلم الترجمة

بعنوان

الإجراءات المستخدمة في ترجمة المصطلحات الطبية من الإنجليزية إلى العربية

مذكرة مقدمة لإستكمال متطلبات نيل شهادة الماستر في اختصاص الترجمة وعلم الترجمة

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السنة الجامعية: 2021/2020

Dedication

I owe a great deal to my parents, who have always encouraged me with their prayers and practical assistance, which has pushed me to overcome the challenges along the way. I would not have gone down this road without their encouragement.

I would like to express my sincere gratitude to my amazing family, special thanks goes to Imane for always keeping in touch with me.

To my little family, the source of my happiness

Dedication

I am dedicating this thesis to my beloved maternal grandfather Ahmed who has meant and continue to mean so much to me. Although he is no longer of this world, his memories continue to regulate my life.

I dedicate also this work to my parents, my wife, my sisters and brothers, and my uncles Ahmed and Abdelkader.

Special dedication sincerely goes to my angels; Ritel Hibet Errahmane, Tesnim and Mohammed Ayhem.

Acknowledgement

This thesis could not have been completed without the guidance and help of many people who supported and encouraged us during the writing process.

We would like to thank our supervisor Mr. Hemza ZEGHAR, for his utmost patience.

Furthermore, we would like to thank members of the research committee for their time and effort reading this dissertation.

Abstract

The Arabic language had endured despite encountering numerous difficulties due to the contact with other languages and cultures. By translating all of their well-known works, the Arabs became enthusiastic learners of other civilizations' science and literature because of the compilation of Arabic and Islam. Furthermore, the Arab Academies attempted to establish phonological, morphological, and semantic norms for translating new terms, despite language and terminology translation difficulties.

Because of the uniqueness of the medical language, audience, and terminology, translating medical terms is regarded the most difficult form of translation. The medical translator must overcome his ignorance of medicine and its diction. The medical translator also considers the cultural and linguistic distinctions between the source and target languages, as well as the differences between medicine and vernacular languages, and the structure and formation of medical terms. As demonstrated by some speech sounds that are present in English but not in Arabic, and vice versa, both English and Arabic have distinct phonological systems. Even though English and Arabic are fundamentally different languages with alternate meanings, they support a set of sounds. As a result, these similarities may assist Arabic translators render English words more properly.

The study extracts and focuses on several procedures used in translating medical terms, particularly pharmacy-related terminology. Sixteen (16) terms are extracted from the WHO report of Drugs in Arabic version issued in 1985, in order to determine and identify the genuine challenges involved in translating medical terminology, as well as how translators could approach them. The data analysis revealed that the translation of medical terminology created significant difficulties and challenges for translators. Furthermore, the study showed the extensive use of transliteration, in which the Arabic and English languages have different systems for coining words, with Arabic employing its own phonological and morphological method of rendering and generating speech sounds in order to pronounce the targeted English term.

Keywords: translation procedures, medical terms, World Health Organization, drugs, Arabic, English.

الملخص

لقد عانت اللغة العربية على الرغم من مواجهتها للعديد من الصعوبات بسبب التواصل مع اللغات والثقافات الأخرى. من خلال ترجمة جميع أعمالهم المعروفة ، أصبح العرب متعلمين متحمسين لعلوم وآداب الحضارات الأخرى. علاوة على ذلك ، حاولت الأكاديميات العربية إنشاء معايير صوتية وصرفية ودلالية لترجمة المصطلحات الجديدة ، على الرغم من صعوبات ترجمة اللغة والمصطلحات.

بسبب تفرد اللغة الطبية والجمهور والمصطلحات الطبية، تعتبر ترجمة المصطلحات الطبية أصعب أشكال الترجمة. حيث ان على المترجم المختص في الترجمة الطبية الالمام باللغة الطبية واسلوبها. كما يأخذ المترجم الطبي في عين الاعتبار الفروق الثقافية واللغوية بين اللغة المصدر واللغة الهدف ، وكذلك الاختلافات بين الطب واللغات المحلية ، وتركيب وتشكيل المصطلحات الطبية. كما يتضح من بعض أصوات الكلام الموجودة باللغة الإنجليزية ولكن ليس باللغة العربية ، والعكس صحيح ، انه لكل من الإنجليزية والعربية أنظمة صوتية مميزة. على الرغم من أن اللغتين الإنجليزية والعربية هما لغتان مختلفتان جوهريًا، إلا أنهما يدعمان مجموعة من الأصوات. نتيجة لذلك ، قد تساعد أوجه التشابه هذه المترجمين العرب في تقديم الكلمات الإنجليزية بشكل أكثر ملائمة.

تستخلص الدراسة وتركز على العديد من الإجراءات المستخدمة في ترجمة المصطلحات الطبية ، وخاصة المصطلحات المتعلقة بالصيدلة. تم استخراج ستة عشر (16) مصطلحًا من تقرير منظمة الصحة العالمية عن الأدوية باللغة العربية الصادر عام 1985 ، من أجل تحديد التحديات الحقيقية التي تنطوي عليها ترجمة المصطلحات الطبية ، وكذلك كيفية تعامل المترجمين معها. أظهر تحليل البيانات أن ترجمة المصطلحات الطبية خلقت صعوبات وتحديات كبيرة للمترجمين ، علاوة على ذلك ، أظهرت الدراسة الاستخدام المكثف للنقحرة ، حيث يوجد باللغتين العربية والإنجليزية أنظمة صوتية مختلفة لصياغة الكلمات ، مع استخدام اللغة العربية نظامها الصرفي وإضفاء صيغتها الخاصة على المصطلح الانجليزي الأصل لتقديمه بشكل ملائم .

الكلمات المفتاحية: إجراءات الترجمة، المصطلحات الطبية، المنظمة العالمية للصحة، الأدوية، انجليزية، عربية.

Table of Contents

Dedication i

Dedication ii

Acknowledgement i

Abstract v

iv ..... الملخص

Table of Contents vii

List of figures ix

List of Abbreviations x

Transliteration System xi

Introduction 1

Chapter One 5

1. Arabic as a Semitic language 6

1.1 The Old/ Classical Arabic 8

1.2 The modern standard Arabic 9

2. The ArabTranslation Movement 9

2.1 Medieval translation movement 10

2.2 Modern Translation Movement 11

3. Methods for Coining New Terms in Arabic 12

3.1 Derivation 12

3.1.1 Simple derivation 13

3.2 Arabization 13

3.3 Discovery (Al-istinbāṭ) 14

3.4 Circumlocution/Calque 15

4. Problems and Difficulties Confronted in Scientific and Technical Translation 15

4.1 Language Related Problems 15

4.1.1 Polysemy 16

4.1.2 Homonymy 16

4.1.3 Little Knowledge of Semantic Change 16

4.1.3.1 Generalization 16

4.1.3.2 Specification 17

4.1.3.3 Melioration 17

4.1.3.4 Pejoration 17

4.2 Terminology Related Problems 17

5. The Issue of Standardization of scientific and technical Terms between Arab Countries 18

Conclusion 20

Chapter Two 21

Introduction 22

1. Medical Terminology 22

2. Features of Medical Term 23

2.1 The Structure of Medical Term 24

2.1.1 The Word Root (stem) 24

2.1.2 Prefixes 25

2.1.3 Suffixes 25

2.1.4 Combining Vowel.....26

2.1.5 Combining Form 27

2.2 Main Types of Word- Formation in Medical Terms 27

2.2.1 Abbreviations 27

2.2.1.1 Acronyms 27

2.2.1.2 Initialisms 28

2.2.2 Loan Words 28

2.2.3 Collocations 29

2.2.4 Compounds 29

3. Constraints confronted in Translating Medical Terms from English into Arabic 29

3.1 Equivalence 29

3.1.1 Grammatical Equivalence 30

3.1.2 Cultural Equivalence 31

3.2 Non equivalence 31

3.3 Neologism 33

4. Strategies to Solve the Problem of Equivalence 34

4.1 Addition of Information.....34

4.2 Deletion (Omission) of Information 35

4.3 Structural Adjustment 35

5. The Procedures Used in Translating Scientific Terms 36

5.1 SemanticTranslation 36

5.1.1Transliteration/Borrowing Translation 36

5.1.2 Calque/Loan Words Translation 36

5.1.3 Gloss Translation 37

5.2 Communicative Translation 38

6. Standardization of Arabic Medical Terms 38

Conclusion 39

Chapter Three 41

1.Overview of Drugs 42

Introduction 44

2. Analysis of the Study 44

2.1 Transliteration 44

2.2 Calque 48

3. Finding and Discussion of the Study 60

Conclusion 63

References 64

الملخص العام 65

List of figures

Figure 1: The traditional classification of the Semitic languages

Figure 2: The frequency of use of Newmark's procedures

List of Abbreviations

Abbreviation	Expression
SL	Source Language
SLT	Source Language Text
ST	Source Text
TL	Target Language
MSA	Modern Standard Arabic
CA	Classical Arabic
UMD	Unified Medical Dictionary
WHO	World Health Organization
ALA	Arabic Language Academy
FDA	Food and Drug Administration

Transliteration System

Throughout this study, the following Arabic transliteration system has already been used consistently.

1. Consonants

Arabic Letters	Transliteration	Arabic Letters	Transliteration
ء	’	ض	d
ب	b	ط	t
ت	T	ظ	z
ث	th	ع	C
ج	J	غ	gh
ح	H	ف	F
خ	kh	ق	q
د	D	ك	k
ذ	dh	ل	l
ر	R	م	m
ز	Z	ن	n
س	S	ه	h
ش	Sh	و	w
ص	S	ي	y

2. Vowels

Arabic Letters Transliteration

Arabic Letters	Transliteration
fathah(ً)	a
kasrah(ٍ)	i
Dammah (ٌ)	u
ا alif	ā
long yaaي	ī
long waaو	ū
diphthongأي	ay
Diphthongاو	aw

Introduction

Literature Review

There is no recognized discipline called medical linguistics, but perhaps there ought to be one. The language of medicine offers intriguing challenges both to medical historians and to linguists (Wulff 2004: 187).

Medical English or English for Medical Purposes (EMP) as a university course and an academic field of research can only be traced back to very recent times (Grego 2014: 18).

This study has shed light on the translation of medical terms as a problem that causes real translation challenges. The study focuses on the translation of medical terms in general. Therefore, the researcher suggests some recommendations for future research on medical translation. Challenges of translation. A deeper study is needed to investigate these problems in particular.(ARGEG 2015:221)

Language academies in the Arab world have attempted to standardize terminology by setting strict rules for the creation of new terms and publishing glossaries of recommended specialized vocabulary. The term and rules put forward by the academies have not always been adopted or adhered to and often have the final decision as to which terms are accepted and assimilated into the language in generally made by translators, writers and, eventually, Arab readers (Baker 2016:186).

Medical terminology is the professional language of those who are directly or indirectly engaged in the art of healing. You will need to know medical terms in order to read a medical record, to complete forms, to decipher a physician's handwriting, and to communicate with others in the hospital in a professional manner .At first, the medical terms may seem strange and bewildering to you and appear to be extremely difficult to learn. Fortunately, there is a logical method found in medical terminology. Many of the words used in medicine are made up of parts which are also used in other words. Once you know the meanings of the basic parts of the words, you can put them together to understand the meanings of many medical terms. These basic parts of medical terms are called stems, prefixes, and suffixes. During this course, you will learn to identify and define a stem, a prefix, and a suffix. You will also learn how they are used in combination to describe a

medical term.(U.S. Army Medical Department Center and School Fort Sam Houston, Texas.2005:03)

Aim of the Study

The goal of this study is to show how different procedures are employed while translating medical terms from English into Arabic. To pull attention to the differences in methods used by Arab translators in translating such terms, and to determine whether these methods are the source of the Arab world's inconsistency. To investigate the possibility of establishing a set of procedures for translating medical terms.

Research Questions

It is required to answer the following questions in order to investigate the translation challenges encountered by the Arab Academies to standardize procedures used while translating English medical terms into Arabic:

Main question

- What are the translation procedures used in translation medical terms from English into Arabic?

Sub-questions

- Why do some English medical terms have different Arabic translations?
- What are the problems that arise from the differences between English and Arabic?

Hypothesis

In order to identify the challenges raised by this study, it is hypothesized that:

- Calque and literal translation are the most used procedures in rendering medical terms from English into Arabic.
- Inconsistency between Arab countries is the reason an English medical term is translated by more than one Arabic translation.
- Differences between English and Arabic might create morphological and phonological problems.

Methodology and Data

Data in the study are medical terms collected from the translated Arabic version of the WHO's Report on the use of the Drugs.

Structure of the Study

The present study divided into three main chapters, two theoretical chapters and a practical one. The Chapter one discusses the evolution of the Arabic language throughout history, as well as the impact of Islam, which pioneered translation movements and Arabic language standardizations in response to threats of coining new terminology. The Chapter two discusses medical translation problems and strategies for finding the most accurate equivalence in Arabic, as well as Arabic language standardizations to mitigate the spread of medical terms inconsistency among Arab countries. The Chapter three examines the procedures used to translate the names of English drugs into Arabic utilizing sixteen terms extracted from the WHO report on the use of drugs.

Chapter One

Introduction

Arabic is a prominent language in the globe, known as "لغة الضاد". It is the world's sixth most commonly spoken language and second in terms of speaker population, with over **300** million Arabic speakers, about 195 million of whom are first language speakers and 55 million of whom are second language speakers . Many points concerning the nature of the Arabic language must be considered before beginning the study of its feature elements. The Arabic language is divided into three varieties: classical Arabic, modern standard Arabic (MSA), and colloquial Arabic. Classical Arabic is the language of the Quran, Islamic religious education, as well as notable writers and poets. MSA (الفصحى) is an Arabic dialect that is taught in schools and used in most radio and television broadcasts, official speeches, and the majority of written content in the Arab world, including novels. Colloquial Arabic (العامية) is a dialect of Arabic used in everyday oral conversation.MSA Arabic has 28 consonants, which vary between stops, fricatives, nasals, and liquids. Furthermore, the Arabic consonant system is divided into two different groups known as pharyngeal and emphatic phonemes. These two groups do not exist in English, although they do exist in other Semitic languages such as Hebrew. In terms of consonant systems, there are obvious disparities between Arabic and English consonantal distributions.

1. Arabic as a Semitic language

The term "Semitic used" firstly by the scholar August Ludwig Schlözer in 1781depending on the Bible. Discoveries of Assyrian materiel and availability of epigraphic material of Old Aramaic and South Arabian, lead to the tree "Proto-Semitic" of all Semitic languages analogically to the proto-Indian-European.

Scholars disagree on how to categorize Semitic languages, focusing on either a historical-genetic perspective to explain the relation between these languages or a typological-geographical one based on the similar features they share.

From 3000 BC, when the Proto-Semitic languages split into East (Akkadian) and West Semitic, there were two more splits: the first in 2000 BC, when the West Semitic languages split into North-west and South-west Semitic languages, and the second in 1000 BC, when the

North-west split into Canaanite and Aramaic and the South-west split into Ethiopian, South Arabian, and Arabic (see figure1).

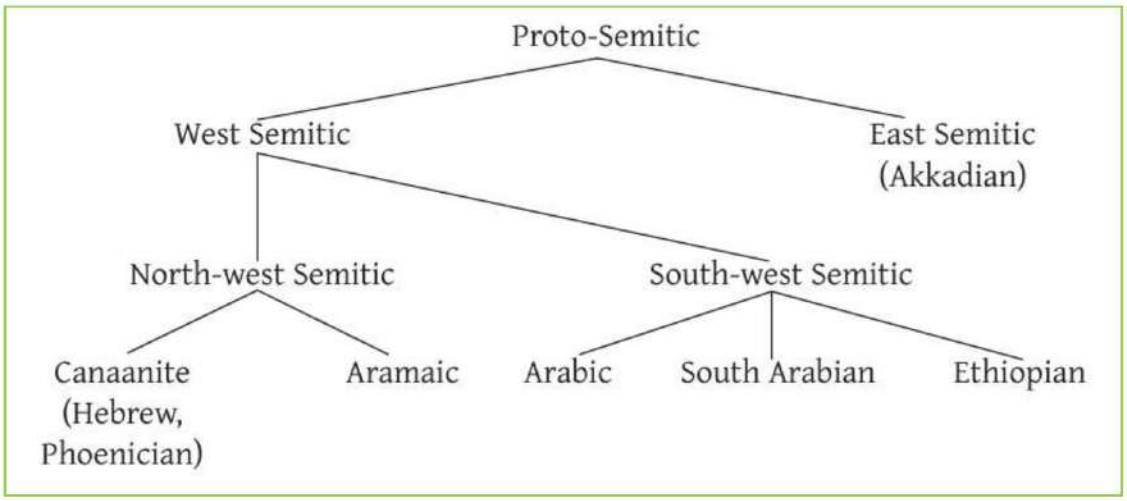


Figure 1: The traditional classification of the Semitic languages

Nonetheless, Kienast (2001) observes that the above map is based solely on geographical location and ignores the time period and waves of nomads to the rich agricultural area; therefore, he proposes a new historical classification:

- Old Semitic languages (Akkadian).
- Early new Semitic languages (South Arabian and Ethiopian).
- Late new Semitic languages (Canaatic, Aramic and Arabic).

The Arabic language is divided into three groups: Classical Arabic, Modern Standard Arabic, and Arabic Dialects.

> *Ordinary Arabs themselves do not make a systematic terminological differentiation between CLA and M SA. Both are termed ʔal'arabi:yatulfuşha: " pure / eloquent Arabic" orsimply ʔl'arabi:ya or ʔal fuşha: for short, in Opposition to ʔl'a:mmi:ya 'the vernacular', which exists in innumerable varieties and is popularly thought to be a grammar less corruption of "real"Arabic(ʔalfuşha:).*

1.1. The Old/Classical Arabic

The origins of Classical Arabic can be traced back to the nomadic tribes of the Arabian Peninsula in the sixth century, as represented in their oral poetry tradition, which was collected and committed to paper by the grammarians of Basra and Kufa in the ninth century.

The Arabic ode, or "قصيدة" , is a short poem that alternates between elegy, panegyric, and satire and is regulated by rigid prosodic principles of meter and rhyme.

A debate has erupted regarding the relationship between the poets' odes and their everyday speech. On the one hand, Fiik and Versteegh believe that the poets' language and the Arab vernaculars are identic in syntax and morphology, because philologists still rely on the ninth-century Bedouin, who speak with full case endings and mood markings. While from the other hand, another opinion sees that the pre-Islamic poetic style is quite different from the contemporary Arab vernaculars.

During the Islamic Revelation period, there was a distinction between the languages of Hejaz and those of Najad. Although there was a little variation in syntax and morphology, a tremendous inflective poetic Arabic was utilized in all recitations of oral poetry and other sorts of diction.

At the outset of the Islamic period, the sole sources were the Quran and pre-Islamic poetry. These two sources were the instruments for a required standardization of the Arabic language for three primary reasons:

- Diversity between the Bedouin dialect and other colloquial variants.
- Seek governmental control even on linguistic matters.
- Unify the fast expanding lexicon.

The standardization of the written codification of the Arabic language required the development of orthography by combining previously scribed activities with the new situation; as a result, a standardized norm, expanded lexicon, and stylistic standard were attained and developed. Similarly, the stylistic norm for poetry was formed based on the existing Bedouin model; nevertheless, the introduction of Arabic style enabled Classical Arabic to take its true position.

1.2. The modern standard Arabic

Modern Standard Arabic is the heir of Classical Arabic; they share syntax but differ in lexicon and phraseology. MSA is now the language of all Arab media stations, airports, newspapers, and education.

Following Napoleon's campaign to Egypt in 1798, Western Europe reached the Arab world first, with the French and British cultures prevailing. Muhammad Ali (Egypt's ruler from 1805 to 1848) pioneered the Arabic translation of several books and articles from French, the majority of which were technical. The Egyptian environment was enlightened by new French conceptions, and the new political ideas fueled the fire of Arab nationalism and the status of Arabic in the Arab world. Not all the scholars praised the new ideas; some protested the uselessness of these new ideas, which can be fulfilled by the Islamic traditions and the linguistic level.

Some academics objected to the new notions since they may be fulfilled by Islamic traditions and at the linguistic level.

According to Catherine Bateson's book, Arabic Language Handbook, three types of shift distinguish MSA from CA:

- A series of acceptable simplifications in syntactic structures.
- A vast shift in the lexicon due to the need for technical terminology.
- A number of stylistic changes due to translations from European languages and extensive bilingualism.

2. The Arab Translation Movement

An antique manuscript lists the names of persons who erected a church in Aleppo in A.D. 513. It was written in Greek, Syriac, and Arabic, and was followed by some interpretive activities, which were observed prior to the arrival of Islam. The Prophet Muhammad's messages to non-Arab rulers, as well as words borrowed and inserted in the Qur'an, demonstrated the presence of an interchangeable linguistic mediation in Arabic.

With the establishment and growth of the Islamic Empire, the residents of the Arabian Peninsula were exposed to a new and rich cultural environment, summed up in the union of east and west civilizations and cultures such as Greek, Indian, Persian, and Egyptian. The Arabic language thereafter evolved into a written and spoken lingua franca for numerous ethno- linguistic groupings.

Encouraged by the Qu'ran to seek knowledge and inspired by new civilizations, nomadic Arabs "the eager learners" seek information wherever it may be found, and employ translation to get easy access to the knowledge of other countries. Unparalleled degree of translation existed in the ninth and eleventh centuries, primarily after the conquering of Samarqand, when paper was accessible, which sped up the translation process.

The Arabs pioneered a significant translation effort that began with the Umayyads (661–750) and flourished with the Abbasid Caliph Al-Ma'mun (813–33), regarded as the Golden Era of translation. It was centered on Baghdad and is distinguished by three characteristics: voracious translation from many languages in many fields, in an organized and institutionalized way.

2.1. Medieval translation movement

The Abbasid Empire, which ruled from 750 until the Mongol conquest in 1258, was a pivotal period in Arabic translation. The second Abbasid Caliph al-Mansur supported the translation of Greek philosophy, Indian science, and Persian literature into Arabic, frequently using the Syriac language as an intermediary.

In 830 AD, the Abbasid Caliphs Harun and his son al-Ma'mun founded Bayt al-Hikma (the House of Wisdom), a library of medicinal, scientific, and philosophical books from China, India, Persia, and, most notably, Greece and Syria. The first method of translation was used by Yuhanna Ibn al-Bitriq and IbnNa'ima al-Himsian, and Hunayn Ibn Ishaq and al-Jawahari used the second method.

Yuhanna Ibn al-Bitriq, the most famous translator, was well known for translating (word for word) "Plato's Timaeus", "Aristotle's On the Soul", "On the Heavens", "Prior Analytics", and "Secret of Secrets" into Arabic. Other Middle Persian literary works, such as

"Thousand and One Nights", were translated into Arabic, and other many writings in the domains of astronomy, alchemy, geography, linguistics, religion, and philosophy.

Hunayn Ibn Ishaq, famed for his sense-for-sense translation, was a prolific translator during this period. Al-Ma'mun rewarded him in gold for the weight of his works, and he translated about 100 manuscripts into Syriac and 39 into Arabic. He is credited with translating Aristotle's, Plato's, and Ptolemy's works into Arabic. He left the most important document on the translations of Galen's work (Risala).

The Arabic state choose which texts should be translated in the pursuit of Arabization; the focus was mostly on the fields of astronomy, medicine, and philosophy, which were influenced by Indian commerce.

During the twelfth and thirteenth centuries in Spain, the Toledo School played a significant role in bringing Arab advances in medicine, mathematics, astronomy, and astrology to medieval Europe. Translations were first from Arabic to Latin in the twelfth century, but by the thirteenth century, they had shifted their concentration to translation from Arabic into Spanish.

According to Mona Baker, the Arabs are credited with the first most orderly and comprehensive translation process, which began in the Umayyad era and reached its apex in the Abbasid century.

Later, the Ottomans enforced their Turkish language in schools and even in vernacular, while Arabic continued to play a translating function in learning and law, in competition with Turkish. Until Napoleon's conquest of Egypt in 1798, Arabs were forbidden and isolated from Europe. The Arabic press was established first under the invaders, with the translation focusing on official and legal papers, as well as some good texts such as grammar of spoken Arabic. Napoleon employed translators to incite the Egyptian people to revolt against the Turkish Empire.

2. 2. Modern translation movement

The Ottoman Caliph created a soldier named "Mohammad Ali" to seize authority and represent him in Egypt; the soldier pursued the Egyptian government and, afterwards, the

governments of Syria and Sudan. Mohammad Ali Pacha built pro-schools and dispatched groups of students to Europe to translate selected materials in order to modernize the army and government.

The Maronite Christian translators of Lebanon and Syria enthusiastically brought many works on Catholic theology. Other European translators gave up the chance to translate works into Arabic, as did the French consul BasiliFakhr, who presented several French literatures on astronomy and natural science to Arab audiences.

Mohammad Ali sent Rifaa Al-Tahtawi as a religious leader of students on their mission to Europe in 1826. Al-Tahtawiwas sent to present the Islamic religion and culture. Al-Tahtawi graduated from al-Azhar, and after five years in Paris, he became a translator at one of Muhammad Ali's prestigious institutions, The School of Languages - madraset al-Alsun (example:madrasat al-tarjama), and was eventually appointed as its head. French and Italian professors administered other schools created by Mohammad Ali with the assistance of translators to facilitate contact with the pupils. Many European sources were available in Arabic; credit goes to Al-tahtawi and his students. In 1849, Al-Alsunwas closed down and El-Tahtawi was convicted.

Mohammed Ali started Nahda (Renaissance) in Egypt, focusing on military and administrative texts in his translations; other translators from Egypt, Syria, and Lebanon focused on literary and artistic works.

3. Methods for Coining New Terms in Arabic

Classical Arabic worked hard to ensure the survival of the Arabic language by coining new foreign terminology and incorporating them into the Arabic language's phonological, morphological and semantic systems. Arab linguists use several methods to preserve the identity of the Arabic language. These methods are as follows:

3.1. Derivation

Word formation is accomplished through two processes: inflectional morphology (various forms of the same word nation-(n.) nations-(n.)) and derivational morphology (creation of new words nation-(n.) and national-(adj.)).

In Arabic, which is known as the "language of derivation al-ishtiqāq" the lexical definition of derivation is the process of forming words from word roots (radicals).The derivation is an essential method for improving vocabulary, developing the Arabic language, and coining new concepts in Arabic. There are three main types of derivation:

1. Simple derivation*al-ishtiqāq al-Saghīr*(الاشتقاق الأصغر).
2. Broaderderivation (metathesis) *al-ishtiqāq al-kabīr*(الاشتقاق الكبير).
3. Greaterderivation*al-ishtiqāq al-akbar*(الاشتقاق الأكبر).

3.2. Simple derivation

By adopting al-ishtiqq al-Saghr, the Abbasids significantly expand the language of philosophy, science, and technology. It does not modify consonants, but rather obtains them from an existing root (verb) represented by the morphological pattern al-mizān al-Sarfī as (did- فعل). Example; from (hit- ضرب) we can derive fifteen forms:Darb (beat) (n.) miDrab (place) (n.) maDrib (bat) Dārib (hitter) maDrūb(beaten).etc.

In the medieval period, a new sort of simple derivation appeared: the derivation from "abstract noun" by adding a final suffix (iyah). Qur'āniyah (Quranic) from Qur'an, mizāniyah (budget) from mīzān (scale), mas'ūliyah (responsibility) from mas'ūl, (responsible).

It is not the case of the derivation from "concrete nouns," which was previously rejected since it cannot be clearly framed when we employ al-qiyās (analogy). Nowadays, noun derivation is popular since it is a practical method for enriching the Arabic language, such as asad (lion) ista'sada (to be brave like a lion).

To summarize, the motivations for active derivation practice are as follows:

- Ensures the semantic preservation of Arabic roots.
- Offers direct understanding of the fundamental meaning of modified terms.
- Words can be shaped using pattern rules.
- Allows the new term to produce new words based on the pattern rules.
- Puts inanarmor system of language.
- Maintains the radical-order of consonants to recognize the terms senses.

3.3.Arabization

Arab linguists and scholars perceive the word «Arabization» differently; on the one hand, it is considered as a process of transliteration in accordance with Arabic phonology and graphology. On the other hand, several technical words have been rendered into Arabic with certain modifications. For example, "filtration" (فلترة) or without alteration, "filter" (فيلتر).

Another point of view regards Arabicization (also known as phonetic borrowing) as a process that translates foreign concepts into Arabic forms, sounds, and characters. For illustration," Philosophy" may be translated into (فلسفة), while" Radar" may be translated to (رادار).

One of the most significant goals of Arabic Language Academies and its agencies is to preserve the integrity of foreign scientific and technical terminology translated into Arabic in order to meet demand and investigate new levels of development in science, arts, and modern civilization. The Arabic Academies have provided practical solutions to update the scientific terminology, Arabicization, phonetics, enunciation, and morphology of Arabic by publishing over 40,000 publications in the aforementioned domains.

The Arabic Language Academy of Cairo published a bi-annual journal that continues to present the academy's conference proceedings, books, and research articles. Furthermore, the Cairo ALA maintains a comprehensive collection of general and specialized Arabic language dictionaries in linguistics, literature, grammar, eloquence, morphology, philosophy, history, geography, psychology, life sciences, arts, medicine, mathematics, and civilization.

Language purists were opposed to this method because they believed that introducing a foreign concept might alter the Arabic language's identity and lead to the creation of a hybrid language.

3.4.Discovery(Al-istinbāṭ)

Instead of introducing new terms into Arabic, academies favor the discovery method since it revives ancient archaisms from the vast vocabulary and expands their meaning to develop new terms. However, some attempts at finding failed due to the comical dealings of these archaisms.

Discovery (also known as metaphoric derivation) looks for any metaphoric alliance between the foreign term and the Arabic root and forms it using the same derivation rules, such as "qiṭār (train; originally used to describe a group of camels)" . Unlike derivation, discovery does not give the direct knowledge of the modified term's meaning.

3.5.Circumlocution/Calque

Circumlocution, also known as al- ishtiqāqbil-tarjamah or al- ishtiqāq al- maanawīis, is a way of introducing new terms into Arabic by providing their foreign meaning. It is used when the foreign term cannot be derived as a single word in Arabic. It can be:

- Complete sentence; for example, the term burglar is rendered as "لص يسطو على المنازل"ليلا, Cartoon "رسوم متحركة".
- Compound neologism; for example, the word ideal is rendered"المثلاالأعلى" .

However, the latter might result in terminology dualism. For example, the phrase conditioned reflex is translated to Arabic sometimes as "الانعكاس الشرطي "and sometimes as "الانعكاس الظرفي".

Because of following, circumlocution is less prevalent than other methods:

- It generates longer words than the original, posing syntactic problems.
- Some translators do not use the Arabic rules to frame their translations.
- The proclivity of several Arab academies toward English or French culture.

4. Problems and Difficulties Confronted in Scientific and Technical Translation

The differences in the languages and cultures of SL and TL have an impact on the translation process, and many problems and difficulties in semantics and style may arise. This process could also be affected when coining new SL terms in the technical and scientific domain that do not have equivalence in TL.

4.1. Language related problems: semantic shift

When there is polysemy, homonymy, or semantic shift, semantic problems occur:

4.1.1. Polysemy

One lexical term having several different meanings, for example, the term plain in English refers to level, undecorated, pure, unobstructed, obvious, clear, common, and ordinary. The same is applicable for the Arabic term" عين", which refers to an eye, a spring, the eye of a needle, and a spy. These senses are derived from a metaphorical or abstract context in which they were employed in, or from their literal meanings. Many Arabic words are polysemic, which means that they have both original and figurative meanings.

The anxiety of numerous interpretations of one word, some of which are so close to each other and stem from literature or religion, is difficult for the inexperienced translator to overcome. The translator should be aware of this problem since each meaning has a distinct sense that may be coherent in one context but not in another.

4.1.2. Homonymy

Two or more lexical items with the same form but distinct meanings, for example, the term "bank" refers to (1) buildings where individuals and businesses can invest or borrow money, and (2) the riverside. The two lexical items with the identical form "bank"differ in meaning depending on their etymological origin; the first "bank"was borrowed from Italian, while the second "bank" was borrowed from Middle English.

The Arabic word" كلية " relates to the college of Arts" كلية الأدب", as well as the complete case" قضية كلية". Every translator should be aware of word homonyms as well as their etymological origins.

4.1.3. Little knowledge of semantic change

The translator should be aware of the semantic shift of the word, which has occurred throughout history as a result of changes in how people think and behave. Generalization, specification, melioration, and pejoration are the four types of semantic change.

4.1.3.1. Generalization

The meaning of a word changes from a narrow to a broad category; for example, the previous meaning of the English term arrive was to come to shore; nowadays, it means to come to any location. The same is true with the Arabic term "سبب", which used to signify rope "حبل"but now denotes reason" مبرر".

4.1.3.2. Specification

In contrast to generalization, word meaning in specification changes from a broad to a narrow category; for example, the previous meaning of the English term meat was food, but it now refers to flesh food. The same is true of the Arabic term "الصلاة", which originally meant before invocation "دعاء", but now refers to prayer "الصلاة".

4.1.3.3. Melioration

The preceding meaning of the English term queen was used to any woman; presently, it refers to a woman leading a country. The same is with the Arabic term "إمتاز", which used to mean to "get apart," but now meaning "outstanding".

4.1.3.4. Pejoration

In contrast to melioration, word meaning in pejoration changes by abusing its original meaning; for example, the previous meaning of the English term mistress was woman; now, it implies a woman possessed by a man for sexual purposes. The Arabic term "أصولي" used to indicate anything that followed the rules or someone who was well-versed in the jurisprudential rules; presently, it refers to a fundamentalist or a terrorist.

4.2. Terminology related problems

The study of specific terms that refer to specific concepts in certain domains is known as terminology. The translator faces numerous problems, when dealing with new technical terms that have no counterpart in Arabic. The issues arise due to the relentless advancement of science, technology, ideas, and inventions.

- The first problem: is that English employs Latin or Greek compound morphemes and roots to allude to technical terminology, such as television (Latin compound morpheme: telos –remote and vision-sight), automobile,

and telephone. However, unlike English grammatical rules, Arabic grammatical rules do not tolerate borrowing or compound morphemes.

- The second problem: arises from the West's pure formulation of these terms, which labeled them by the names of the inventors (eponymy), such as Watt and Pasteur, or by relying on European languages while excluding Latin and Greek.
- The third problem: stems from disagreements among Arabs when it comes to coining new scientific and technical terms. Between Arabs, for example, the English term "engine"is referred to variously, either by "موتور"or by "محرك".Similarly to the English term "engine," the Arabs refer to the English term "mobile" as "موبايل", "بورتابل", "محمول", "جوال", "هاتف متحرك", "خلوي", "نقال".
- The fourth problem stems from the novelty and unusualness of these terms in Arab culture, which makes it difficult to find counterparts in Arabic. For example, the English word "satellite" is referred to variably by the Arabs as "ساتالايت","قمر صناعي", "الساتل".
- The fifth issue is Arab translators' peculiar tendency to use transliterated terms in order to avoid seeking for counterparts owing to variations in the alphabetical systems of Arabic and French or English. Nowadays, Arabic is becoming a receptor language, while French and English are becoming providers of information and terminology; as a result, transliteration is becoming more widespread in scientific and technical terms, mathematical symbols, trademarks, and proper names.

5. The Issue of Standardization of Scientific and Technical Terms between Arab Countries

Users of the Target language are keen to standardize technical words in their talks and ensure consistency in signifier-signified interactions. Inconsistency and stylistic variance, on the other hand, create translation issues when they are regarded similar. Stylistic variety in literature use synonyms to avoid reiteration. However, inconsistency in the technical area

causes confusion when it employs a synonym instead of the assigned lexical item, and the reader is unable to understand the meaning of each synonym.

1. Lexical items in SL have TL equivalents.
2. Lexical items in SL have partial equivalents in TL, which means that there is a slight difference in meaning.
3. There are no TL equivalents for lexical items in SL.

In the last category, the translator must borrow a concept-signifier that corresponds to a technical concept, which results in a plethora of field expert ideas. The inconsistency is caused by:

a. The de-Arabicization of new concepts and their Arabic equivalents is growing slowly and weakly.
b. The Arabic Academies' lack of cooperation in their treatment of foreign terms.
c. The wide gap between language planners and users, users rejected numerous concepts since planners did not consult them for acceptability and accuracy.

For decades, the Arab Academies have worked to standardize terminology through norms established while creating glossaries for a specific vocabulary; yet, these concepts are occasionally rejected, and the academies tend to offer synonyms rather than a specific term. Translators, writers, and readers decide the recognized terminologies.

When a borrowed term is assigned a TL concept or signifier, it is typical in translation to confirm the use of the concept-signifier correspondence to be established in TL. The function of consistency is to highlight and establish the concept-signifier correspondence.

When one-to-one correspondence for a newly developed concept-signifier becomes problematic, stylistic variety or literary device may present a difficulty. The ambiguity might be caused by either multiple meanings of a lexical term or by the technical text. If the translator uses a synonym (X1, X2, X3) to represent the same concept (Y) rather than the newly assigned lexical item (X), the reader may be confused and fail to recognize the evolution of the text and the fact that each synonym has multiple meanings, or the reader may misinterpret the writer's suggested ideas. The consistent use of a signifier (X) to refer to a concept (Y) results in:

- Preserve the translation certainty
- Consolidate and swiftly establish the correspondence concept-signifier.

The standardization of Arabic technical text can be affected by three modes of inconsistency:

a. Synonyms (X1, X2, X3) were employed to refer to (Y), which was introduced by an exclusive signifier (X).
b. In translation, the translator employs both Arabic and the foreign equivalent.
c. Using multiple derivations of the same Arabic word to represent the same concept.

Conclusion

This chapter has introduced a brief history of the enduring of the Arabic Language in front of the development of others' languages and cultures. This Semitic Language survives with the coming different cultures, and the antique policy of goods interchange between nations progressed to reach even the knowledge with the help of translation.

Starting by the Rise of Islam and Quran, which made the Arabic language stronger and the Arabs became more civilians than Bedouin.

Later on, the first Arabic language standardization was a necessary to be compatible with other languages through the Arabic translation movement in the Islamic Golden era, which embodied in the appearance of Bayt al-Hikma and followed by the School of Toledo.

The Pacha Mohammad Ali and his professional schools and students' missions to Europe, which lead to the appearance of the Arab Academies, initiated the second Arabic language standardization. The latter played an important role of maintaining the Arabic Language externally and internally by opening the door to translating foreign terms either literal or technical. This chapter ends with the problems that have been encountered by translators while rendering foreign terms.

Chapter Two

Introduction

Medical translation is considered as the most challenging sort of translation since the medical translator should pick an error-free equivalent for the delivered term. Furthermore, the medical translator must acquire new medical jargon in order to overcome his ignorance of medicine terminology. When translating medical terms from one language into another, the medical translator must react to these challenges by applying specific strategies; he must account for cultural and grammatical differences between the two languages. The challenge in medical translation derives from its terminology and the audience it is addressed for; medicine language differs from vernacular language.

The complex structure and formation of the source language's medical term may make it difficult for the medical translator to become acquainted with the word's features. In another bank, certain equivalence limitations occur in the target language; zero-equivalence or numerous equivalences irritate the medical translator. In the case of utilizing synonyms as equivalences when there is no-equivalence in the TL, inconsistency occurs. The addition or deletion of information, as well as structure adjustments are strategies used by medical translators to circumvent equivalence constraints. The Arabic medical translator employs two types of translations: semantic and communicative. The various languages spoken in Arab countries obstruct the standardization of Arabic medical terminology.

1. Medical Terminology

Alternate meanings of medical terminology exist. Davies (1985) defines medical terminology as the examination of words that represent the ideas and facts of medicine; it is based primarily on the usage and meaning of these words. In other words, a medial term refers to terms, compounds, abbreviations, and acronyms used in medicine. Medical terminology derives from one of three sources:

- Common English vocabulary terms.
- Terms borrowed from another language.
- Invented words.

Many borrowed terms in the English language have had their spelling altered slightly. The majority of English medical and scientific terminologies are derived from Latin or Greek while retaining their original meaning. The Latin terms relate to anatomy, such as the names of human body parts, although the Greek terms are consistent, such as thorax, stigma, iris, and helix.

According to Albin (1999), Latin is the language of anatomical choice, whereas Greek is the language of pathological choice. While Davies (1985) believes that all medical terminology originated in Greek as a consequence of the Greek Civilization, which was known by its physicians such as Hippocrates, the pioneer of medicine's scientific methods.

Similarly, John (2005) believes that modern Western medicine began in the 5th century BCE with Hippocrates, who assigned illness to physical causes, distinguished between medicine and religion, and instructed identification in fostering or restoring natural processes through observation and treatment.

Later, Galen (CE 130–201) developed a broad writing frame in medicine that included a few anatomic, pathologic, and therapeutic terminologies that are still used today with minor meaning changes.

Since the foundation of Rome, the decline of the Greek Civilization has paved the path for the Latin Civilization to overrun the world. Even after the collapse of Rome, the Latin language maintained its hegemonic position over other languages during the era that spanned from the emergence of Christianity until the nineteenth century. The Roman Empire enforced Latin as a medium of communication and education over its territory in Europe, Africa, and parts of Asia.

Even if the usage of Latin has declined, it continues to serve as a source of medical and scientific glossaries. Considering ancient languages are distant from serving the modern discoveries, the Greek and Latin medical words required to be modernized. For example, the term "Internet" does not exist in Latin, despite the fact that it is required and should be invented. Word-elements or breaking down big words into their little components can be used to create the framework of word construction.

The Greek word-element "nephros" (kidneys) is used in "nephropathy" (kidney illness), "nephralgia" (kidney pain), and the lengthy term "postzygapophysis" may be broken down into (the articular part of a vertebra) by adding a Latin prefix and two Greek prefixes to the Greek word "physis." Since medical text translation is extremely important because it is associated with drugs, therapy, disease, medical equipment, and medical professionals, the process of medical translation spends more time discovering and resolving terminology problems.

2. Features of medical term

The main features of the term are the word structure and the word formation:

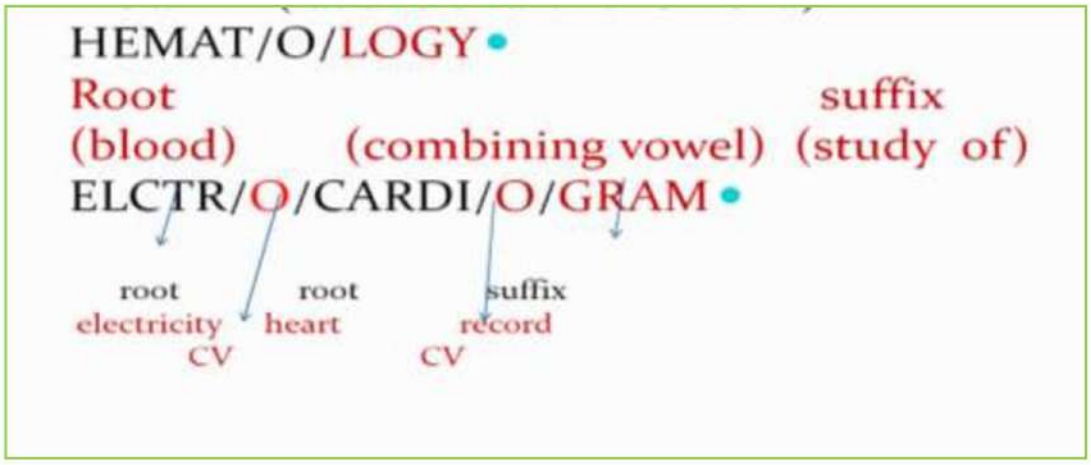
2.1.The structure of medical term:

Due to the knotty nature of this term, even if it is an eminent word, learning a medical word is practically equivalent to learning a new language. Cephalgia, for example, is "headache," while an ophthalmologist is an "eye doctor."

Knowing the structure of the word and its component parts is the first task in the medicine language. To make things easier, each word may be broken down into basic parts.

2.1.1. The word root (stem)

The word root is the core pillar of the word; it serves as the beginning point. Every medical term has one or more roots. In the following example, the root Hemta means "blood."



2.1.2. Prefixes

A prefix is a word component that appears at the start of a term. It is worth noting that the term prefix contains a prefix, pre-. The second element of the word prefix is "fix," which provides a suitable definition of prefix: anything fastened to the front of or before (pre) anything else. The majority of prefixes present in medical terminology are also prevalent in everyday English. A prefix is the component of a word that comes at the beginning.

Prefixes are easier to learn when they are divided into functional groups. There are five different logical divisions:

- Prefixes of time or speed.
- Prefixes of direction.
- Prefixes of size or number.
- Prefixes of negation.

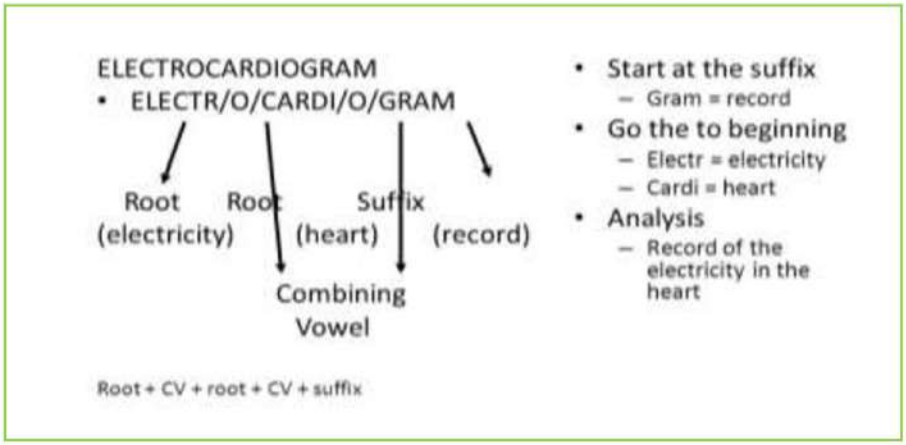
Hypogastric Prefix: hypo– = below Root: gastr = stomach Suffix: –ic = pertaining to	means pertaining to below the stomach
Epigastric Prefix: epi– = above Root: gastr = stomach Suffix: –ic = pertaining to	means pertaining to above the stomach

2.1.3. Suffixes

The term suffix is derived from the Latin word suffixum, which means"to fasten to the end of." Although the suffix is the last word in a medical term, it is frequently the first word in its description. Appendicitis, for example, meaning "inflammation (-itis) of the appendix." Therefore, the suffix, -itis, provides us with the first word of the defining phrase. The term gastrectomy is another example. It is defined as" removal" of the stomach.The definition begins with the meaning of the suffix, -ectomy, which means" removal of".

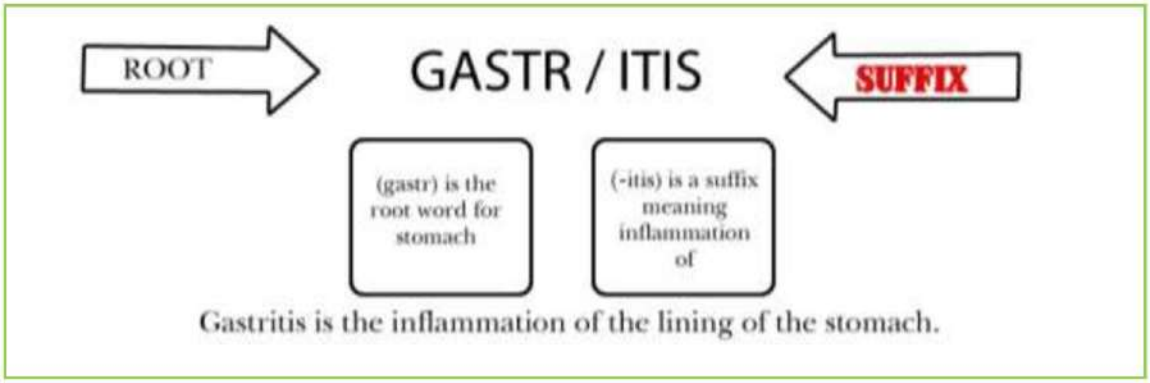
Suffixes are more easily learned when they are divided into functional groups than when they are not. A suffix can add to or modify a root in one of four ways. Suffixes are words that are added at the end of a word.

- Signify a medical condition.
- Signify a diagnostic term, test information, or surgical procedure.
- Name a medical practice or practitioner.
- Convert a noun to an adjective.



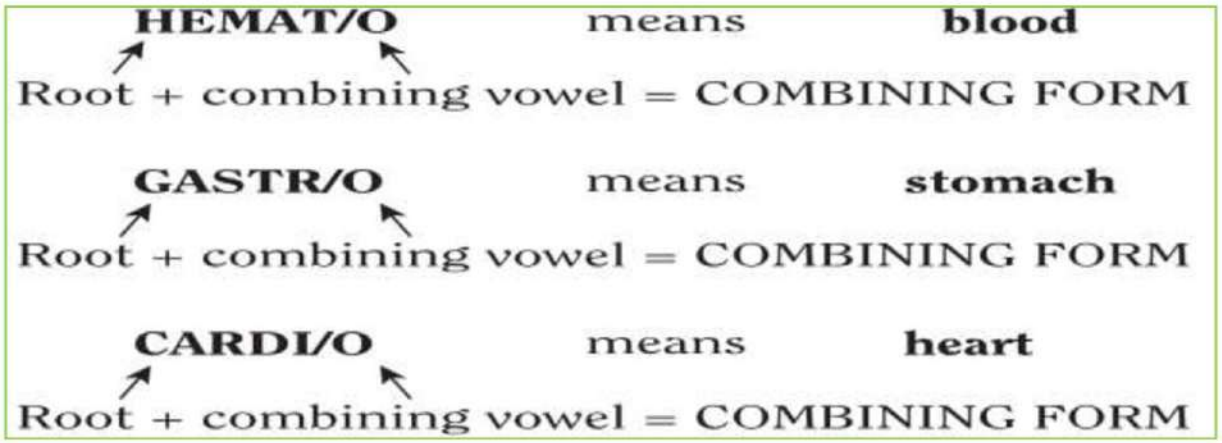
2.1.4. Combining Vowel

The combining vowel is one of the essential components of the word; it has no meaning but connects a root to a suffix or a root to another root. Each medical term has a combining vowel, which is commonly an "O."For example, the suffix " -logy "means a research procedure.



2.1.5. Combining Form

The combining form is formed by combining the combining vowel with the root. It is discussed further below:



If the translator understands the meaning of the Combining Form, it might help them become more comfortable with medical jargon. The important components of the word that should be learned and comprehended in medical terms are: Root, Prefix, Suffix, Combining Vowel, and Combining Form.

2.2.Main types of word- formation in medical terms

2.2.1. Abbreviations

A term or phrase in written language can be shortened by using an abbreviation, which may be constructed in a variety of ways. Not every abbreviation comprises a letter or group of letters from a word or phrase. There are several different types of abbreviations: graphic (g – gram, h – hour), graphic and phonetic (G.P. – general practitioner), acronymic ([eits] – AIDS, which arose from its initialisation), and initialism.

Linguists consider acronyms and initialisms to be sub-units of abbreviations, with minor differences causing them to be labeled as acronyms.

2.2.1.1. Acronomys

Crystal (1995) regards formed acronyms and initialisms, such as SARS (Severe Acute Respiratory Syndrome), to be lone words. At times, word fragments can form an abbreviation, for instance, Ameslan (American Sign Language).

2.2.1.2. Intialisms

Initialisms are often and extensively used in written medical English to bridge long comprehensive words. For example,

Deoxyribonucleic Acid ⟶ DNA

Ribonucleic Acid ⟶ RNA

To avoid confusion, it is necessary in each text to offer the entire term first, followed by its abbreviation within brackets. CML, for example, can refer to either Chronic Myeloid Leukaemia or Chronic Monocyte Leukaemia.

2.2.2. Loan words

A loan word is a word borrowed from another language that refers to either people's names or geographical locations. Names are frequently used in medical language owing to a lack of equivalents in the TL, for example, the names of diseases, bacteria, and drugs. In certain circumstances, some letters exist exclusively in English, such as the letters "P" and "V", which are represented in Arabic by the letters "B" and "F". Other letter sounds exist solely in English, such as "G", which is substituted by "ج", "ق" or "غ"in Arabic, thus lending a foreign word and modulating it to be comprehensible by the TL reader is a difficult process.

2.2.3. Collocations

Collocations are two or more words that regularly occur together; each word contributes an independent piece of the whole meaning of the collocation. For example, the color "white" appears in "white snow" and "white paint," but not in "white lie" (harmless) or "white night" (sleepless), since collocation varies from culture to culture and language to language. When translating collocations, the translator should consider the word order of each language of SL and TL because altering the order creates ambiguity for the native speaker.

3.2.4. Compounds

Compounding is one of the most productive types of word formation. It combines elements from many words, such as human being, blood donor, hay fever, or Black Death. German compound terms are written together, but English compound terms might be two/three words for instance, "blood pressure", with a hyphen "life-span", or one word "gallstone".

Modern American English has an obvious tendency to omit hyphens. Diachronically, composition appears to be older than derivation since word-formation affixes developed from independent Greek and Latin words used for specialized purposes, such as myo-, arthro-, haemo-/haemato-, adipo-, hepato-.

3. Constraints Confronted in Translating Medical Terms from English into Arabic

3.1. Equivalence

Choosing an appropriate equivalent is dependent on the linguistic system/s used by the translator, as well as the method in which the ST is produced by the writer or speaker. The translator is supposed to assume control of the linguistic systems. S/he must understand the meaning of the word "value" in a particular system and propose ways for avoiding the non-equivalence problem.

a. When the translator masters the semantic fields and lexical sets of both SL and TL, s/he may effortlessly analyze the value of a given item lexically. If the translator has an idea of other provided items in the same lexical set as the chosen item, s/he might highlight the importance of the writer's or speaker's decision. It is a method for understanding how to select a definitions' of something from a large number of options. English refers to TEMPERATURE as cold, cool, hot and warm, while Modern Arabic refers to it as "بارد" (cold/cool), "حار" (hot: of the weather), "ساخن" (hot: of objects), and "دافئ" (warm). Hence, Arabic does not make difference between cold and cool but it makes difference between hotness of weather and hotness of objects, on the contrast, English does not distinguish between objects and

weather hotness, even though, it is not always possible to refer to temperature of something using hot.

b. Semantic fields are organized in a hierarchic way, from general (super ordinate) to specific (hyponym). In semantic fields of VEHICLES, vehicle is superordinate while bus, car, truck, coach are hyponyms of vehicle. So any prepositional meaning of vehicle is a part of its hyponyms'meanings but not the reverse. Translators bypass the semantic gaps in TL by changing the superordinate by using circumlocutions.

3.1.1. Grammatical equivalence

The lexical resources and grammatical system of language are important factors in communicating effectively with others. Grammatical rules govern how words and phrases are combined in a language and what information should be made explicit in utterances on a regular basis. Grammar is created along two major dimensions: morphology and syntax. Morphology takes precedence over word structure (single or plural), but syntax takes precedence over the grammatical structure of groups, clauses, and sentences (sequences of classes of noun, verb, adverb, and adjective, and functional elements such as subject, predicator, and object).

The translator is concerned with grammatical or lexical choices in language. It is obligatory to adopt grammatical choice formed from closed systems, such as the number system (singular/plural) or the pronoun system in English, and the optional lexical choice formed from open-ended sets of items or expressions, such as the difference between the order of elements in a statement and a question in English:

- She had forgotten about the party.
- Had she forgotten about the party?

A translator should bear in mind the different aspects of grammar in the SL and in the TL.

Baker (2011:190) states that, "*Unlike the Arabic grammatical system, the English system makes very few distinctions in terms of number, gender, and verb agreement*".

The term "patient" can be rendered into Arabic a"مريض" (masculine) or "مريضة"(feminine).

3.1.2. Cultural equivalence

Coherence and implicature are challenging aspects of cross-cultural communication. The difficulty for translators is to substitute an SL-specific cultural unit or expression with a TL unit that has the same impact on the TL reader despite not having the same positional meaning. The TL reader understands and accepts the specified unit. The translator's judgment is framed individually by the license and purpose of his translation, and generally by the community's existing translation standards. As a result, a translator must control both SL and TL language and culture.

In Arabic culture, a word like "partner" has no counterpart, but it can only be rendered as زوج (husband). Another example is the English expression "You warm my heart," which is translated into Arabic as " أثلجت صدر". To make the TL reader intelligible, the translation uses the opposing connotation of the SL expression. Arabs like the word "cool" since they live in hot areas, whereas English use the word "warm" since they live in cold areas. The translator advocates cultural awareness since the distance between English and Arabic cultures is difficult to bridge, particularly in literature such as novels and poetry. In the medical field, translators are expected to be more knowledgeable about medical terminology than about the cultures of the SL and the TL.

3.2. Non-equivalence

There are several recognized types of non-equivalence at the word level, including:

a. **Cultural specific terms**, occur when the SL brings out a word embodied in a non-existent term in the culture of the TL; it can be abstract or tangible, and it might derive from religion, customs, or foods. For example, "privacy" and "speaker (of the House of Commons)" are abstract words that do not have an exact equivalent in many other languages.
b. **The SL term is not lexicalized in TL**, when the SL brings out a word embodied in non-lexicalized term in the TL though it is known in the culture

of TL. For instance in Arabic there is no equivalent for the English term" standard ".

c. **When the SL brings forth a single morpheme** that corresponds to a broad meaning rather than an entire phrase, the SL word is semantically complicated for TL. For example, the Brazilian word "arruaço" refers to "cleaning the ground under coffee trees of debris and placing it in the middle of the row to help in the recovery of beans dropped during harvesting."

d. **The distinction in meaning between SL and TL**, when the TL brings out a meaning distinct more or fewer in meaning than the SL. For instance, the two Indonesian words (*kehujanan*) and (*hujan-hujanan*) distinct because the person goes out and knows/does not know that it is raining, while the English language does not take in consideration" it is raining or not " while going out, unless it is expressed in the context.

e. **The non-existence of superordinate in the TL**, when the TL has hyponyms (specific words) but no superordinate (general words) to form a semantic field. For instance in Russian there is no equivalent for the word "*facilities* ".

f. **The non-existence of hyponym in the TL**, when the TL has superordinates (general words) but no hyponyms (specific words). For instance in English under the superordinate " article" there are many hyponyms like ; feature, survey, report, critique, commentary, review, etc. which do not exist in other languages.

g. **The SL/TL differentiates in its physical or interpersonal perspective**, when SL or TL gives more importance to relations of people with each other or with places as words of come/go, take/bring, arrive/depart.

h. **The SL/TL differentiates in its expressive meaning**, when a TL word and the SL word share the same propositional meaning. However, they differ in their expressive meaning. This difference may be either big or small but it is significant to invent a contextual translation problem. To deduct expressive meaning is more difficult than to add it, example: the equivalent of the English verb (to batter) is the Japanese verb (tataku= to beat plus modifier as "savagely"or "ruthlessly")

i. **The SL differentiates in its form**, when the SL brings out a particular form which does not exist in the TL; like the English affixes or the English

couples (employer/employee, trainer/trainee). In Arabic use paraphrase to replace these forms'meanings.

j. **The SL/TL differentiates in its frequency and purpose of using specific forms**, when the SL brings out a particular form which exists in the TL but it differentiates in its frequency and purpose of use; like the English frequency and purpose of using (continuous –ing) differ from its using in German and Scandinavian. When translating –ing from English into German, the frequency of the use of –ing in German would be unnatural.

k. **The SL differentiates in its use of loan words**, when the SL use of loan words invents a translation problem because it is difficult to find an equivalent in TL with the same prepositional meaning and prestige. It can also invent a problem of **FalseFriends** *(*two words or expressions of different languages which share the same form and differ in meaning). The English feminist differs from the Japanese feminist (man soft with woman), it is easy to realize the difference between the two feminists, and however, it is difficult to make difference between English sympathetic and French sympathique (meaning "nice/likeable").

3.3. Neologisms

A neologism is a newly coined term in a particular language that poses a problem for both the SL author and the TL translator. The SL author is in charge of coining new terminology, whereas the translator is in charge of finding a suitable equivalent that does not exist in TL dictionaries.

According to Montalt and Gonzalez (2007), medical translators encounter two obstacles in this regard: comprehending the meaning of an English term and finding its equivalent term in the target language. Following the evolution and growth of science, medicine develops, and new diseases, medications, and equipment are found and named by their inventors, and translators have had to look after their equivalents in the TL thus far. For example, the functional-descriptive term is used to name the new disease of 'swine flu,' which is similar to seasonal flu 21, which became an epidemic in 2009 and is easily translated into Arabic by literal translation; however, because there is no equivalent in Arabic, it adopts the virus formula H1N1.

4. Strategies to solve the problems of equivalence

Baker (2011) suggested a "bottom up" strategy for handling equivalence problems at the level of simple words and phrases before shifting on to complex stems. These issues, which may be grammatical or cultural, may be met gradually from to a concept to a character based document of the SL compared to the TL text.

Although each culture determines the meaning of the used words, which can only be known in context, translation cannot often absorb the consolidation of loss and gain information, and the translator should arrange the protest of loss and added data while translating.

Many Studies refer to loss and gain of data as a realistic factor and all translations affect them with the bias data.

4.1 Addition of Information

When there is no equivalency for an SL term, abbreviation, phrase, or event in the TL, the translator applies this strategy.

An unusual detail from the original SL text appears in the TL translation. This unusual data is derived from culture, semantics, or even the technical structure of the SL text.

The odd data are used to make the translated text easier to the TL reader; they are presented between brackets or as footnotes.

> *For example, "speech and language therapist' is a medical specialist and can be translated into Arabic by adding some information as "اخصائي علاج النطق والبلع" khsāʾiʿilāj al-nutqwa al-balaʿas the role of a speech and language therapist (SLT) is to assess and treat speech, language and communication problems in people of all ages to enable them to communicate to the best of their ability. They may also work with people who have eating and swallowing problems".*

Sometimes adding an explanation is a necessary tool to make the text understandable by the TL reader.

4.2.Deletion (Omission) of Information

The translator uses this strategy to avoid repetition, overabundance, and ignorance only in some cases, because this strategy does not always signify the context unlike the expressed idea does.

Certain words do not reveal the same ST meaning and require a lengthy explanation to convey the precise meaning to the TL reader.

In other cases, deletion is permissible when it changes the content more than structure of academic texts.

Before starting the translation process, the translator should put on the reader's hat in order to remove unnecessary words in order to provide a comprehensible text to the TL reader. For example, bovine spongiform encephalopathy (Cow Mad Disease) can be rendered into Arabic as (اعتلال الدماغ عند البقر), which means bovine encephopathy in English, with the spongiform part omitted in Arabic translation.

4.3 Structural Adjustment

The translator uses this strategy to achieve equivalence by modifying grammar from the SL text to the TL text. According to Newmark (1988), structural adjustment has become synonymous with alternation, transposition, or shift.

Some linguists see that the pure changing from SL into TL revises the form and structure of the context, as well as the word order, classes, and categories. This strategy can bring out the appropriate equivalence from a stylistic and semantic standpoint to make the message serves the SL structure. Furthermore, structural adjustment add equal strain from a communicative standpoint (NIDA, 1964), Newmark (1988) classifies the form shift into four kinds:

- When SL grammatical structure does not exist in the TL. "however","furthermore".
- With regard to the position of an adjective or from singular to plural.
- Uses the grammatical structure to explain a present lexical gap.
- When a possible literal translation grammatically becomes not appropriate in the TL.

Other alternations can be found when involving from the word rank into the phrase and clause ranks from different categories, which lay in grammar differences from SL into TL.

5. The Procedures Used in Translating Scientific Terms

According to Peter Newmark's translation theory (1988, 1991), there are two kinds of translation: semantic translation and communicative translation

5.1. Semantic Translation: An author-centered translation deals with duplicating the ST's phonology, morphology, and lexicon within the TL. It denotes proper similarity between the ST and the TT.

5.1.1. Transliteration/Borrowing Translation: When an SL word is translated into the TL alphabet, semantic translation at the phonetic level is examined. (For example, Alzheimer الزهايمر - Microwave الميكروويف- SARS السارس.) Transliteration follows TL rules to make the chosen SL word look natural and correspond to the TL structure.

5.1.2. Calque/Loan Words Translation: The translation of an SL morpheme into an equivalent TL morpheme is semantic translation at the morphological level. It is a medium for expressing the meaning of an SL word using TL components.

The MSA classifies seven kinds of calques, which are:

5.1.2.1. Full (word for word) Calques: it is direct calque and focuses on metaphors or idioms, it is divided into three sub kinds which are; nominal (example: population **explosion**انفجار سكاني), verbal (**kill** the time يقتل الوقت) and prepositional (**behind** closed doors خلف أبواب مغلقة).

5.1.2.2. Partial Calques: when one SL expression is converted into TL, it is occasionally partially transformed. Example: **Sky**scraper= ناطحة سحاب (" sky " is rendered into سحاب instead of سماء to avoid religious sensitivity because the term "sky "سماء relates in Arabic to "heaven "الجنة where God is supposed to reside).

5.1.2.3. Semantic Calques: it is referred to as "semantic shifts –Versteegh", "semantic loans- Jacobson", "loanshifts- Katamba", and "loan meanings- Montero-Martinez". Semantic calque introduces a previously unknown meaning into the TL. (for example: **قطار** was originally used to refer to "caravan of **camels"but** eventually evolved to denote "railroad train" .The term **تسلل** originally referred to "infiltration"but it is now used to refer to "off-side").

5.1.2.4. Foreign Induced Neologisms: it is stated in terms of introducing foreign terms by utilizing Arabic language resources :(**فضاء-فضائية/فضائيات** = space → space channel(s) - **حسب=حاسب/حاسوب**=calculate, count → computer).

5.1.2.5. Compound Calques: is the combination of two SL words into a single TL term. The SL compound words in SL are written in one word (wallpaper), two independent words or more (flower shop), or two words separated by hyphen (left-handed). Unlike the case of full calque, MSA lays on translating word for word of these compound words with separate words (not one word). Examples "antibiotics"(**أجسام مضادة**) Intensive care unit (**وحدة العناية المركزة**).

5.1.2.6. Hybrid Calques: To make this translation clear and acceptable to the Arab reader, one of the Arabic calques components was transliterated similarly to the constituent elements of the SL term. (Examples: Richter scale = **مقياس رختر** : the component RICHTER is transliterated into **رختر**).

5.1.2.7. Acronymic Calques: acronyms are the initial letters of a set of words pronounced as a single word. These acronyms are often translated fully word for word with their constituent elements. Example: AIDS- Acquired Immune Deficiency Syndrome= **الأيدز- مرض نقص المناعة المكتسبة.**

5.1.3. Gloss Translation: it is semantic translation at

The lexical level and it discusses the lexicon of TL equivalent words, with the aim of enriching Arabic terms and concepts through lexicon translation. (Example: Resolution translated into Arabic as **"الاستبانة"and"الميز**)

5.2. Communicative Translation: It is reader-centered and effect-oriented in order to make the new term understandable to the TL reader, who is typically familiar with news reports, textbooks, and public announcements. In this aspect, communicative translation does not adhere to the SL; nevertheless, it intends to make the translation natural, smooth, simple, clear, direct, and customary.

It is frequent to see intersecting of these two kinds of translation in the same text. This text can be more semantic less communicative or vice-versa.

6. Standardization of Arabic Medical Terms

The problem of standardization of medical terms appears due to three main reasons;

1. Arabic is poor of medical terminology and synonyms because these terms framed by rules make it difficult to coin it in Arabic.

2. Existence of different varieties of Arabic as Classical Arabic, Modern Standard Arabic and different dialects of colloquial Arabic.

In the Arab countries, the problem of non-standardization appears when translating medical text. For instance, the term haemoglobin translated into Arabic as

a) خضاب الدم *khudāb al-dam.*
b) يخضور الدم *yakhdūr al-dam.*
c) الهيموغلوبين *al-hĪmūghlūbĪn.*

3. The incoordination in the issue of standardization of medical terminology between the Arabic Academies.

Many attempts of Arab scholars and terminologists witnessed in order to compile dictionaries, encyclopaedia and books in Arabic as; Muhammad IbnYūsuf al-Harawi 1518, Muhammed Sharaf 1926, Dr Yusef Hitti 1968, however, the first attempt toward the standardization of Arabic medical terminology was by the Committee of Arab Experts.

The Committee of Arab Experts was formed in 1966 as a response of the Arab Medical Union's recommendation to compile an English-Arabic unified medical dictionary.

The Committee released the first edition of the (English-Arabic) medical dictionary in Baghdad in 1973, followed by the second edition (English-Arabic) in Cairo in 1977, and the third edition (English-French-Arabic) in 1983.

The Committee's Chairman, Dr. Al-Khayat, worked on the fourth edition with numerous specialists from practically all Arab nations, with the goal of including all medical terminology.

The Committee paid close attention to the medical terminology, approved by the Cairo and Damascus Academies. It relied on the information and comments of many Arab experts and professionals, as well as contributions from many organizations, including the Council of Arab Ministries of Health, the World Health Organization (WHO), the Arab Medical Union, and the Arab League, Educational, Cultural, and Scientific Organization (ALECSO).

In 1996, an electronic copy of UMD was allocated, and in 2000, a package of hard and electronic copies was made available. Since 2006, the English-Arabic Unified Medical Dictionary (UMD) has been accessible online on the WHO website.

Conclusion:

This chapter has introduced the emerging terms in the Arabic language that the formation of a new word is a mixture of English and Arabic words on several occasions. Although they are easily utilized within the language, it has been observed that they are not always capable of totally addressing the technological and scientific notions of the appropriate field. The medical translator has to bear in mind that medical terminology and the addressed audience, the medicine language differs from vernacular language.

Arab translators employ two kinds of translation of medical terms, including semantic and communicative translation. It is stated that by using strategies such as information addition, deletion, and structural adjustment, the equivalence problems can be resolved in the context in which they happen. Furthermore, as science and technology develop, new English words emerge to convey new concepts, techniques, and discoveries.

This would involve the creation of new Arabic equivalent terms. Arab terminologists and linguists' tasks are to create an Arabic equivalent for each new medical term and to update English-Arabic medical dictionaries to include as much medical terminology as practicable, because such dictionaries are the key focus for Arabic translators of medical texts.

In addition to understanding in the medical field, the Arabic translator of medical texts should be fluent in both SL and TL (grammar and culture). Arab scholars' measures to tackle terminological inconsistency, neologism, polysemy, and non-equivalence in medical terminology.

Chapter Three

1. Overview of Drugs

When it comes to translations in the medical profession, especially for drugs, it is critical that there are no errors in comprehension, suppression, or alteration of content. In this case, unlike in others where the repercussions of mistranslations are typically minor, the inaccurate translation of a single phrase, or simply receiving the erroneous dosage, may easily be a matter of life and death.

The translation of any medical document necessitates the use of translators who are knowledgeable and highly specialized in the subject matter, as well as those who are conscientious about finding terms. Researchers know from experience that medical text translation can be fraught with complications. To begin, people must state unequivocally that the terms "medications"and "drugs" are not replaceable. "Medication" should be defined as a substance with a pharmacological effect, which means that it is chemically active and has an effect on the organism. In the pharmaceutical industry, a drug is the commercial representation of a medication, which means that a drug is more than just the active ingredient; it is also the final substance that is marketed to consumers, which includes excipients and product presentation: tablets, powder, etc.

De facto, when examining or working on a medical translation various issues may develop, and this is simply one reason that it is so important to utilize only highly competent translators at each stage of the translation process. One of the difficulties with medical text in English is that they could use one of two ways to refer to pharmaceutical products according to the author:

- Use of commercial brands.
- Use of International Non-Proprietary Names, as recommended by the WHO.

The second of the two elements listed above is the least complex for the translator because the equivalent in any other language may be immediately and easily accessible. With the first item stated above, a choice must be taken regarding whether to keep the commercial brand name, replace it with the INN (International Nonproprietary Names) of the active component, or utilize the corresponding trademark for the host country. The commercial

brand name is typically easily recognizable since it is written in capital letters and is followed by the sign for a registered ("®") or unregistered ("™") trademark symbol.

When a new medicine is produced, it is given a chemical name that describes the medication's atomic or molecular structure. As a result, the chemical name is often too complex and difficult for widespread usage. Following that, a shortened version of the chemical name or a code name is created for ease of use among researchers. When the Food and Drug Administration (FDA -the US government agency responsible for ensuring that drugs supplied in the US are safe and effective) approves a drug, it is assigned a Generic (official) name and a Brand (proprietary or trademark or commercial) name. For example, phenytoin is the generic name for Dilantin, which is the brand name for the same drug.

In the United States, an official authority called the United States Adopted Names (USAN) Council assigns the generic name. The brand name is created by the business requesting permission for the drug and distinguishes it as the business's exclusive property. When a patent protects a drug, the company markets it under its brand name. When a drug is no longer patentable (no longer covered by a patent), the firm may offer it under either the generic or brand name. Other companies that apply for permission to distribute the off-patent medicines must use the same generic name but may create their own brand name. As a result, the same generic drug may be marketed under the generic name for example, ibuprofen, amongst several brand names such as Advil or Motrin.

When drugs are prescribed and prescriptions are dispensed, generic and brand names must be different in order to avoid one drug from being confused for another. To avoid potential confusion, the FDA must approve each proposed brand name. Government authorities, doctors, researchers, and others who write about the new compound use the medicine's generic term since it relates to the drug itself, not a specific company's brand or product. Doctors, on the other hand, frequently put the brand name on prescriptions since it is simpler to recall, and doctors commonly learn about new drugs through the brand name.

Generic names are generally more complex and difficult to memorize than brand ones. Many generic names are abbreviations for the chemical name, structure, or formula of the drug. Brand names, on the other hand, are usually catchy, often related to the drug's intended purpose, and generally easy to remember, so that physicians will prescribe it and

customers will search for it by name. Brand names frequently allude to a drug's function. Lopressor, for example, reduces blood pressure, Glucotrol controls excessive blood sugar (glucose), and Skelaxin relaxes skeletal muscles. In some cases, the brand name is only an abbreviated form of the drug's generic name, such as Minocin for minocycline.

When applied to foods and home products, the term generic refers to a less priced, sometimes less effective or lower-quality copycat version of a brand-name product. However, while most generic drugs are less expensive than equivalent brand-name drugs, they are just as effective and of the same quality. In truth, generic medicine manufacturers produce a large number of brand-name drugs for industries that own the brand names. There may be more than one generic version of a drug available at times. Many manufacturers, for example, sell acetaminophen, a nonprescription drug, which is used to treat pain and fever.

Introduction

Any language's lexicon is classified into two categories: native and non-native lexicon. Transliterated terms refer to non-native words; the latter is found in the borrowing lexicon with the most similar sound to the original term and the most similar meaning. All medical terminology may be deconstructed into word parts. One will be concerned with three word parts: the prefix, the stem (root), and the suffix. In most cases, only two of these components are included in a medical term.

2. Analysis of the Study

2.1. Transliteration

Both of the linguistic systems of English and Arabic are very different. English is descended from a Germanic subfamily of Indo-European languages. Arabic is a Semitic language. English has twenty-six letters in its alphabet, but Arabic has twenty-eight. The letters of the alphabet represent speech sounds. The sound system, however, is a key distinction between English and Arabic. The English sound system varies from the Arabic sound system in terms of articulation points. Some English consonants are not found in Arabic, and vice versa.

Example 01

- **Epinephrine (ابينفيرين)**

Prefix	root	suffix	meaning
Epi-	nephros (kidney in Greek)	-ine"chemical"	As it is defined in Merriam Webster Medical Desk Epinephrine is a colorless crystalline feebly basic sympathomimetic hormone C9H13NO3 that is the principal blood-pressure-raising hormone.

Bilabial, labiovelar, and labiodental sounds are examples of labial sounds. The upper and lower lips articulate bilabial sounds. All bilabial sounds can appear in one of three word positions: beginning, medial, or final. Among the bilabial consonants in English are /b/, /p/, but Arabic only contains /b/ sound. In Arabic, the aspirated /p/ does not occur, although it is used for the sound /ب/. However, when /b/ is used instead of /p/, the meaning of the word changes. In the example01, the translator resorts to the procedure of"Transliteration" and renders "Epinephrine" to "ابينفيرين", which is a brand name while the generic name is Adrenaline. The prefix "Epi", is prefix of position, which refers to "upon", "above", "besides", "following", or "subsequent to". Since the example above is a **transliteration** of drug's name in which the example word parts meanings were not conveyed into Arabic. Therefore, there is no affect when the letter "P"is mapped to "ب".

Example 02

- **Glucose(غلوكوز)**

Prefix	Root	suffix	Meaning
Gluco- (gleukos"sweet wine" in Greek)	/	ose (from Latin – osus)	According to Merriam Webster Medical Desk Glycoside is dextrorotatoric monosaccharide, in its free form and in combination with glucosides, Glycogen, disaccharides and polysaccharides (starch cellulose); is the main source of energy in the metabolism of humanity. It is the final carbohydrate digestion product and the main sugar of the human blood is the principal source of energy in human metabolism.

Glucose is a compound term, it consists of the prefix "gluco" which means "sweet wine"and the suffix "ose" which refers to (full of,"abounding in", or"having qualities of". The translator resorts to **transliteration** procedure in rendering the Greek prefix The American Heritage® Medical Dictionary" gluco" into Arabic in the above-mentioned example "غلوكوز". Arabic does not consists the sound /g / therefore, the sound /g/ is replaced with either " ج "or " غ ". In example number 02 it was replaced by /غ/.

Example 03

- **Levodopa(ليفودوبا)**

Prefix	Root	suffix	Meaning
Levo (from Latin laevus)	Dopa	/	According to Collins Dictionary of Medicine, The drug levodopa is used to treat PARKINSON'S DISEASE. In the vast majority of cases, levodopa relieves symptoms and often results in a significant reduction in disability. Madopar and Sinemet are the brand names for the drug if used in combination with benserazide and carbidopa, respectively.

English has two labio-dental sounds, /f/ and /v/; whereas Arabic has/f/ but /v/ sound does not exist. In Arabic, it is easy to pronounce /f/ because it is one of Arabic sounds. However, pronouncing /v/ sound is not. There is no contrastive /v/ sound in Arabic in order to produce /v/, one must vibrate the sound produced by the lips and the teeth, and the latter explains why Arabs must pronounce /v/ in the same way as /f/.The prefix levo From the Latin word "laevus" means"left", or"on the left side". The translator resorts to **transliteration** procedure in translating the term levodopa using Arabic alphabet ليفودوبا keeping the same sounds while The sound "p" was transformed into "ب" and the sound"v" into "ف" Levodpa is known as Ldopa the generic name while larodopa is one of its brand names.

Example 04

- **Hydrocortisone (هدروكرتيزون)**

Prefix	Root	Suffix	Meaning
Hydro (Geek means water)	Cortisone (Latin from cortices)	/	According to Merriam Webster Desk C21H30O5, a cortex steroid hormone that is active in the metabolism of carbohydrate and protein.

Hydrocortisone is a compound term, it is consisted of two parts the prefix hydro and the root cortisone . The term Hydro is from a Greek origins which means"water". While cortisone is Latin term from cortices. "Hydro "is rendered into Arabic as "هدرو".Despite their many differences, English and Arabic consonants have a few commonalities; for example, " h", and " ه "consonant sounds exist in both languages. As a result, such similarity may make it easier for persons who speak both languages to pronounce words containing these specific sounds in either English or Arabic. Hydrocotisone is the generic name while it has different brand names like Cortef. The translator resorts to **transliteration** procedure in rendering this example.

2.2. Calque

Every language has its own procedures and strategies for adopting or coining new terminology. They either increase their vocabulary treasure by borrowing from other languages or by expanding their vocabulary treasure depending on their own existing language capacities.

Example 05

- **Typhoid vaccine (لقاح التيفية)**

Prefix	Root	Suffix	Meaning
/	Typhus (From Greek tuphos means "smoke,stupor")	oid (from Greek "oeides" and Latin"oides" to form adjectives and nouns)	According to McGraw-Hill Concise Dictionary of Modern Medicine Vaccine for immunization against typhoid fever contains a suspension of inactivated salmonella typhi.
	vaccine		

Borrowing some terms or incorporating them into the Arabic language undergoes through a process called naturalization, which means bring under Arab influence or control; to make the new term in Arabic form, style, or character in which the term typhoid has no counterpart in Arabic. Therefore, The naturalized term was treated as if it was an original Arabic term by adding the the definite article "ال" and changing it's final letters providing it with the feminine form The tied " ة ",the borrowed term "Typhoid " comes close to Arabic pronunciation and sound as"التيفية "thus, there is a morphological modification. This case is communicative translation in which the translator resorted to "hybrid calque". The generic name is Typhoid vaccine while Typhim Vi and Typhoid Vi Polysaccharide Vaccine are its brand names.

Example 06

- **Influenza vaccine (لقاح الانفلونزا, النزلة الوافدة)**

Prefix	Root	Suffix	Meaning
/	Influenza (From Latin influentia) vaccine	/	According to McGraw-Hill Concise Dictionary of Modern Medicine a cute respiratory virus infections, epidemics and pandemics in isolated cases. Also known as grippe and flu.A recommended vaccination for people at high risk of serious influenza complications

The term influenza vaccine is hybrid calque consisted of two terms, the first term is rendered into Arabic as الانفلونزا. although the latter is traced back to Arabic origins انف العنزة . The term الانفلونزا is rendered from the English term with the same phonological and morphological structure, with the addition of the definite article"ال" to look natural. On the other hand, the second translation "النزلة الوافدة" is descriptive translation to the situation of the disease. According to Reima AL-JARF (2018), the second Arabic equivalent "النزلة الوافدة" of the term influenza is incorrect (inaccurate) translation of the English source term, which requires correction, equivalents that do not match the source term in part of speech such as given an equivalent that is a noun for a source term that is an adjective. However, the purist, Mona Baker (1987) claimed, "transcription and naturalization are rejected because they threaten the position of Arabic". The term vaccine is translated as "لقاح"the translator resorts to literal translation in translating it whereas the translation of the name is a hyprid calque. The generic name is Influenza Virus Vaccine whereas it had many brand names such as Afluria, Fluarix, Flublok, Flulaval, Fluvirin, FluMist, and Fluzone.

Example 07

- **Gentian violet/crystal violet(بنفسجية الجنطيانا)**

Prefix	Root	Suffix	Meaning
/	Gentian(from gentiana flowers)	/	As defined in Collins Dictionary of Medicine a biological dye used in microscopy, as well as a bactericide, fungicide, and anthelmintic in medicine.
	Violet		

Gentian violet or crystal violet is a green crystal, violet in water, used as a dye, bactericide, or burn treatment. The gentian violet solution is obtained by using a substance from a plant of the same name (Gentiana flowers). The term Gentian is rendered into Arabic as الجنطيانا it was identified with the Arabic article "ال" and supplemented by (الف المد) at the end to look natural Arabic term, and the sound/t/ that exists in Arabic was replaced with /ط/ , which does not exist in English. While violet is translated literally into Arabic as بنفسجية. The translator resorts to "hybrid calque"in which the first term was transferred and the second was translated. Whereas the second English name (Crystal violet) has other equivalent in Arabic البلورات البنفسجيةin which the name was translated literally however, the term crystal was given the plural from in Arabic.

Example 08

- **Antiscorpion Sera(المصول المضادة لسم العقارب)**

Prefix	Root	Suffix	Meaning
Anti means against	Scorpion	/	According to Collin Medical Dictionary it is a serum that contains antitoxin specific for an animal or insect venom. Antiscorpion is prepared from the sera of immunized animals.
	Sera		

The term Antiscorpion is compounded of the **prefix of negation** "anti "which means against, opposed, and the root scorpion which is an insect. The name of this drug is rendered into Arabic as المضادة لسم العقارب.The prefix"anti"is rendered as المضادة with the definite article "ال" and the tied (ta) because the term sera is translated into Arabic as ."المصول" while the term scorpion is translated into "لسم العقارب" the proper name scorpion is singular in English but have a plural form in the Arabic translation. The translator resorts to" compound calque", also a communicative translation by adding the term venom to the term scorpion when translating into Arabic (لسم العقارب).

Example 09

- **CalamineLotion(دهون الكالامين)**

Prefix	Root	Suffix	Meaning
/	Calamine lotion	/	According to Concise Medical Dictionary a mildly astringent and protective lotion containing zinc oxide–98% mixed with iron oxide, or zinc carbonate; it is used for a variety of skin conditions, including poison ivy and sunburn.

The translator resorts to "compound calque" in translating this drug name. Calamine is rendered into " الكالامين " with the definite article"ال" in Arabic while lotion was replaced by its equivalence in Arabic" دهون" .The generic name is Calamine lotion while it had 47 brand names such as Calamine Plain Caladryl, Callergy, Cala-Gen ,and Caldyphen.

Example 10

- **BCG vaccine (لقاح ب س ج)**

Prefix	Root	Suffix	Meaning
/	BCG	/	According to Farlex Partner Medical Dictionary live, weakened strain of the BACTERIUM Mycobacterium bovis, used as a VACCINE against TUBERCULOSIS.

Bacille Calmette Guérin (BCG) vaccine is the case of Acronymic Calques (eponym) represented the initial letters of the inventor's names Albert Calmette and Camille Guérin.

The term BCG vaccine which was developed over a period of 13 years, from 1908 to 1921, by French bacteriologists Albert Calmette and Camille Guérin, who named the product Bacillus Calmette-Guérin, or BCG, is transliterated using Arabic alphabet with keeping the same sound of the SL term. The term vaccine is translated literally by into Arabic as لقاح.

Example 11

- **Oral rehydration salts (أملاح تعويض السوائل عن طريق الفم)**

Prefix	Root	Suffix	Meaning
	Oral		According to Farlex Partner Medical Dictionary the World Health Organization's fluid preparation, which is able to reduce fluid loss for patients with diarrhea. Commercial preparations have recently been developed to be prepared with materials available at home.
Re :(from Latin rē (in the) matter, affair, thing (ablative of rēs) refers to "back, back from, back to the original place;" "again, anew, once more," "undoing" or "backward,")	Hydration		
	Salt	s(plural)	

Oral rehydration salts also known as (ORS). This drug is compound of three terms. Oral, which is translated into Arabic as "عن طريق الفم" in the latter translation there is an addition which is for the purpose of explanation for the Arabic reader since medical field need exactness. While rehydration is consisted of the prefix"re", it is rendered into Arabic as "تعويض" and "hydration" to "السوائل"with the definite article."ال" Salts in plural form is rendered into Arabic as plural "املاح".The translator resorts to the "compound calque".

Example 12

- **Intraperitioneal dialysis solution (محلول الديال داخل الصفاق)**

Prefix	Root	Suffix	Meaning
Intra :From Latin preposition intra "on the inside, within, in, into;" of time, "during, in the course of," related to inter "between,"	Peritioneal		According to The American Heritage® Medical Dictionary solution runs into the cavity, for a while leaves and then retreats. The metabolic waste products are diffuse and consequently removed from the body while the solution is in situ.
	Dialysis		
	solution		

Intraperitioneal consists of the **prefix of position**"intra" which means "inside, within". The prefix is rendered with its equivalence in Arabic"داخل" and peritioneal to" الصفاق" with the addition of the definite article "ال" while dialysis is consisted of dial and the suffix "lysis",which means dissolution translated into "الديال" deleting the translation of the suffix. Solution translated into its equivalence"محلول".The translator resorts to" compound calque".

Example 13

- **Tuberculin, purified protein derivative (PPD) (توبركولين,المشتق البروتيني المنقى)**

Prefix	Root	Suffix	Meaning
	Tuberculin		According to Merriam Webster Dictionary Desk sterile solution of a pure protein fraction precipitated from a filtrate of tubercle bacillus culture produced on a specific medium, used for tuberculin testing.
	Purify	ed	
	Protein		
	derivate	ive	

Tuberculin purified protein derivative is a purified protein used in the Mantoux test for Mycobacteriumtuberculosis testing, known in English as (PPD) translated into Arabic as توبركولين,المشتق البروتيني المنقى .In Arabic the acronym is not translated becauseit is meaningless. The translator resorts the procedure of "compound calque". (PPD) is the generic name while the brand names are *Aplisol, Tubersol.*

Example 14

- **Activatedcharcoal(الفحم المنشط)**

Prefix	Root	Suffix	Meaning
	Active	Ate (from Latin - atum,): chemical compound or complex anion derived from a (specified) compound or element	According to The American Heritage® Medical Dictionary highly adsorbed fine black odorless powdered charcoal used in medicine in particular as an anti-flatulently poisoned antidote in many forms.
	Charcoal (from char origin obscure) + coal		

Activated charcoal is used to filter and purify liquids, to absorb poisons, and in emergencies to neutralize swallowed poisons. Activated is translated into Arabic as "المنشط" and charcoal as "الفحم" both of them with the definite article "ال" .The translator resorts to "compound calque". The generic name is activated charcoal whereas its brand names are Activated Charcoal, Eucarbon, Norit, and Actidose-Aqua.

Example 15

- **Yellowfever vaccine(لقاح الحمى الصفراء)**

Prefix	Root	Suffix	Meaning
/	Yellow	/	According to The American Heritage® Medical Dictionary an infectious tropical disease caused by a flavivirus from Aedes, in particular A mosquitoes. High-fever, jaundice, and often-gastrointestinal haemorrhage characterizes Egypt and Haemagogus.Also called Yellow jack.
/	fever	/	
/	vaccine	/	

Yellow fever vaccine, the "yellow" in the name refers to the jaundice (yellowing of the eyes and skin) that some patients experience. Yellow fever is a viral acute haemorrhagic illness delivered by infected mosquitos. It is rendered into Arabic as"لقاح الحمى الصفراء", the terms yellow and fever are indefinite in English while their translation into Arabic were الصفراء and الحمى with the definite article"ال". The translator resorts to "compound calque". The generic name is yellow fever vaccine while the brand names are YF Vax and Stamaril.

Example 16

- **Diphtheriaantitoxin(ترياق الخناق)**

Prefix	Root	Suffix	Meaning
/	Diphtheria Greek diphthér(a) skin, leather + -ie -ia	/	According to Merriam Webster Dictionary Desk a bacillus Coryne bacterium diphtheriaea cut contagious disease causes fever, severe postration and trouble breathing and swallowing due to swelling of the throat and fake membrane formation
Anti means against,opposed	Toxin		

The lexical theory on the intelligibility of cognates by current Arabic speakers can have certain issues. Since some Cognates are out of vogue, they become outdated or underused they have already fallen into popularity in Arabic, such as tiriaq (ترياق).In some cases, they may not be understandable or need clarification. This should not, however, prevent people from utilizing them to get acquainted with time. Actually, they learn and adopt these words more quickly than you can imagine when you know they come from Arabic. It is not a serious matter, briefly. Ultimately, specialists can understand and appreciate this and determine what they should use and do not use quickly enough. In the WHO report of drugs, the term diphtheria is rendered into"الخناق" with the definite article "ال". Antitoxin which consisted of the **prefix of negation** refers to" against, opposed " and toxin which refers to "السم" in Arabic is translated into "الترياق" , means anti-venom drug in Arabic, with the definite article "ال".The translator resorts to gloss translation in this term while he/she resorts to" compound calque "in diphtheria antitoxin . The latter brand name is the same generic name.

3. Finding and the discussion of the Study

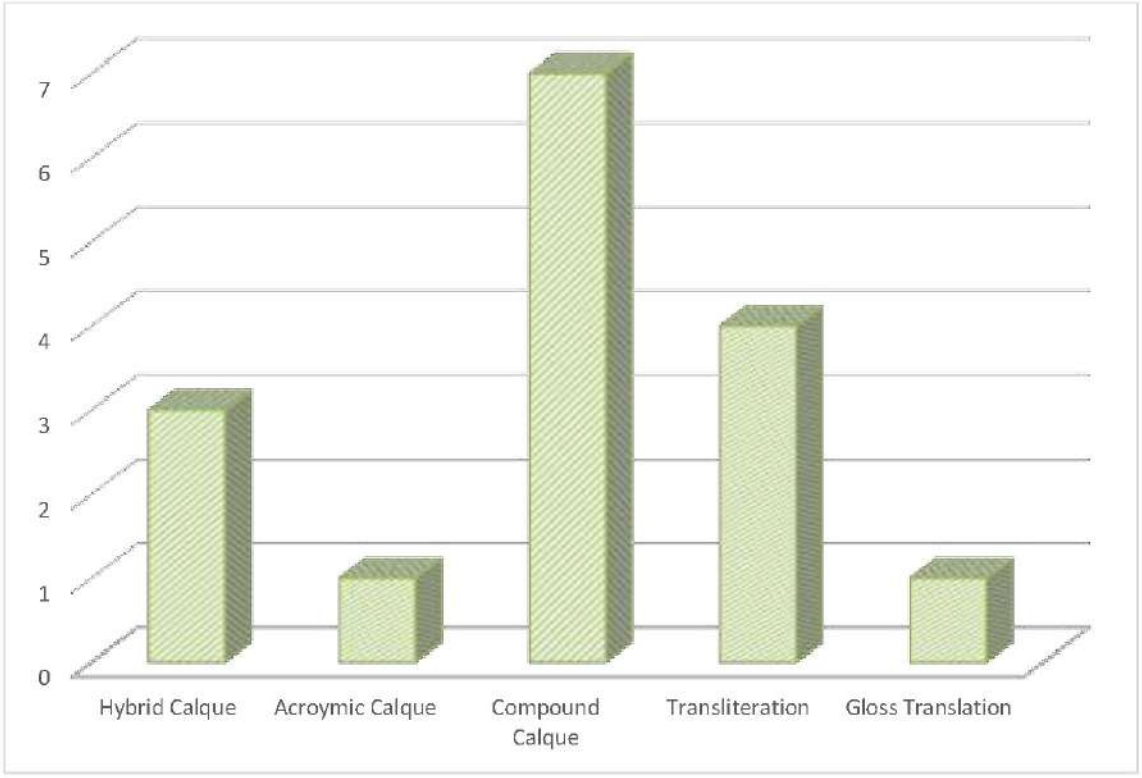


Figure2. The frequency of use of Newmark procedures

- What are the translation procedures used in translating medical terms from English into Arabic?

➢ Different procedures are used in rendering the names of drugs as figure 02 shows, in which compound calque is the most used procedure with 44 %.

- Why does Inconsistency appear between Arab countries?

➢ Multiple equivalents for one English pharmacy-term exist in Arabic due to lack of coordination between Arab academies.

- What are the problems that arise from the differences between English and Arabic?

➢ Differences between English and Arabic forced Arab translator to make phonological and morphological adaptations.

Hypothesis

- Calque and literal translation are the most used procedures in rendering medical terms from English into Arabic.
    - Calque and transliteration are the most used procedures in rendering drug's name.
- ✓ Inconsistency between Arab countries is the reason an English medical term is translated by more than one Arabic translation.
- ✓ Differences between English and Arabic might create morphological and phonological problems.

Conclusion

Studying medical terminology is very similar to learning a new language. This because most medical terms stem from Greek or Latin origins. Medical terms are constructed from small pieces; prefixes, combining forms, and suffixes. Medical terms are complex and contain more than one affixes. However, knowing the meaning of affixes would help in grasping the meaning of the term.

Conclusion

Arabic is the largest Semitic language is determined by the number of speakers. Arabic is found in three functional variants; Modern Standard Arabic, Classical Arabic and, Arabic dialects. Modern Standard Arabic is the official written-and mass media language used throughout the Arab world. Arab scholars have produced several important works in various fields throughout history, which have contributed to the boosting of human civilization. This has been achieved thanks to the greatest work done in Bayt Al-Hikma by a team of eminent translators.

During the Golden Arabic Era of Translation, which goes back to the Abbasid Caliphate, these translators conducted works in Greek, Persian and, Indian. Due to language differences, translation of new concepts into new terminology has always been a challenge. English has become the medium of science and technology. This is why it dominates other world languages. Terms, conditions, and concepts are mainly translated from English into other languages such as Arabic.

As a result of the multiple Arabic, equivalents to English medicine terminology, medical terms are translated and translators face varied challenges. In medical terminology, there are several Arabic counterparts. Sixteen of drug names were collected from the WHO report use on drugs in order to identify the different procedures used in rendering these names into Arabic; the translators face different difficulties one of them is the multiple use of Arabic equivalents.

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الملخص العام

ملخص

تعد اللغة العربية (لغة الضاد) من اللغات السامية القديمة التي انتشرت في شبه الجزيرة العربية، وقد مصطلح " الساميةّ" عند الألماني شولتزر اقتباسا من إسفار التوراة تصف مجموعة من اللغات التي توارث من ام اللغات السامية.

تعززت مكانة اللغة العربية لما غدت لغة الدين الإسلامي والقرآن، فتأثرت المعرفة العربية بالقيم الإسلامية من ناحية الفكر والايدولوجيا وكل مناح الحياة، تولد اقتران بين العربية والإسلام وصاحبه اعتزاز وفخر بهذه الهوية العربية الإسلامية.

يتحدث باللغة العربية ما يرنو عن ثلاثمائة مليون شخص في ثلاث وعشرين دولة عربية فيتحدث لسان الواحد منهم اللغة العربية القديمة و/أو اللغة الرسمية و/أو اللغة العامية.

عمرت اللغة العربية لقرون وذلك لقابليتها للتأثير والتأثر باللغات الأخرى، ففي العصر العباسي أسس الخليفة أبو جعفر المنصور بيت الحكمة فكان منارة تنهل مما ترصده من علوم الآخرين من هندسة وطب وفلك ونجوم، فترجمت ألسن اليونانية والفارسية والسريانية والهندية (اللغة المصدر) إلى لسان عربي (اللغة الهدف).

لما اختلط العرب بالأقوام الأخرى وتحدث أهل البدو بسليقتهم اللغوية، تباينت لغتهم عن اللهجات الحضرية فاضطرت حكومة الدولة العباسية آنذاك إلى تقعيد أسلوبي النثر والشعر العربيين بضوابط تحمي اللغة العربية وسط الوضع الاجتماعي والسياسي الجديدين، فقامت بجمع وتدوين الألفاظ والكلمات ووضعت معاجم للغة العربية.

شهدت الدولة العباسية نهضة ثقافية وفكرية، فألف المفكرون الكتب والمعاجم وترجموا ونقلوا من العلوم الأخرى، لكن بدأت هذه النهضة في التدهور في الدول المتتابعة وفي الدولة العثمانية وتراجعت مكانة العربية أمام اللغة التركية إثر الجمود الثقافي والفكري.

إزاء هذه الظروف توجب النهوض بالقومية العربية والاستقلال وكان ذلك مع بدايات الاحتكاك بالحضارة الغربية الحديثة في القرن التاسع عشر وخاصة بعد حملة نابليون بونابارت على مصر، فابتدأ الباشا محمد علي نهج الإصلاحات السياسية في مصر،فأرسل رفاعة الطهطاوي على رأس البعثات الى فرنسا ليستقي من علومها، فأنشئت مدرسة الألسن عام 1835 م والتي كانت نبراسا في اصلاح التعليم في مصر بالاعتماد على المعارف الاوربية. فقامت نهضة عربية فكرية بمصر وسوريا وغيرها من كل أصقاع العالم العربي، مست كل جوانب الحياة وتم تأسيس أول مجمع للغة العربية على أثرها.

تحظى العربية الفصيحة اليوم بمكانة مرموقة ومفهومة وذلك رغم عدم استعمالها في التخاطب اليومي، فهي لغة الكتابة والحديث في المحافل العلمية وهي لغة المؤلفات الأدبية، وهي صوت الإذاعة والتلفاز والمسرحيات والأفلام.

عملت المجامع اللغوية (المؤسسات اللغوية الوحيدة) على توحيد المصطلح العربي نظرا لتعدد المكافئات العربية للمصطلح الأجنبي الواحد، وقد اعتمدت هذه المجامع على حقيقة زخر اللغة العربية بالألفاظ والكلمات لتواكب ركب الحضارة الغربية وقد صدرت عن هذه المجامع الكثير من المصطلحات العلمية في كل مجال على حدة من غير تنسيق وتوحيد للمصطلحات في جميع العلوم لغرض الدقة العلمية وتوحيد الفكر والثقافة في العالم العربي.

رأت منى بايكر أن اللغة العربية غنية زاخرة ولا يجب اقتراض مصطلحات أجنبية مادام هناك مكافئ لها في اللغة العربية ولغرض استنهاض المهجور من ألفاظها، في حين يرى آخرون أن اللغة العربية عاجزة عن مواكبة الحضارة الغربية المتجددة بشكل متسارع، فوجب الاقتراض دون الخوض في البحث عن مكافئات في اللغة العربية ويعتقدون أن توحيد المصطلح يساهم في تجميد اللغة العربية لا إحيائها.

بين هذا وذاك ظلت الترجمة تنقل النصوص المتعلقة بالعلوم الغربية إلى العربية، وشملت كل المجالات التقنية والقانونية والطبية، ففي المصطلحات الطبية التي لا غنى عنها ترجم باع كبير من الكتب والمجلدات الى العربية للضرورة الملحة وأن أغلب المناهج الطبية في الدول العربية تعتمد على اللغة الإنجليزية او الفرنسية باعتبارها لغة العلوم.

تعتبر الترجمة الطبية من أصعب أنواع الترجمة نظرا لافتقار اللغة العربية لمكافئات حاضرة للمصطلحات الطبية الإنجليزية التي تتنوع من حيث أصلها إلي يوناني وإغريقي أو أخذت تسميتها من أسماء المكتشفين أنفسهم، يعزز من صعوبة الترجمة الطبية عدم إحاطة المترجم بعلم الطب بالقدر الكافي للخوض فيه وفي الجمهور الموجه له هذا العمل من أطباء وشاكلتهم من سلك الصحة والطب والصيدلة.

دون إغفال قواعد وثقافة اللغة الانجليزية، يجب على المترجم التعرف على تركيب المصطلح الطبي من لواحق وسوابق ومعانيها ليكون على دراية تامة بالمعاني توخيا للدقة في المعنى وعدم الوقوع في الخطأ عند نقل المعنى المصدر الى اللغة الهدف.

ينتهج المترجمون الطبيون العرب استراتيجيات متعددة فمنهم من يلجأ الى ابسط طريقة للترجمة وهي الاقتراض (Borrowing) لسهولتها مع معالجة الفروق اللغوية الفوقية فقط، في المقابل الترجمة الاقتراضية (Calque) يترجم فيها التعبير المقترض حرفيا إلى اللغة الهدف.

تعتمد أساليب أخرى خلال عملية نقل المصطلحات من اللغة الإنجليزية (اللغة المصدر) الى اللغة العربية (اللغة الهدف) منها: الترجمة الحرفية (Literal Translation)، التكافؤ (Equivalence).

تظهر مشكلة صياغة وتوحيد المصطلح أيضا عند عدم وجود المكافئ في اللغة الهدف، فيلجأ حينها المترجم الى إستراتيجية الترادف بأن يختار المترجم أقرب مرادف قريب من معنى النص المصدر وليس أول ترجمة حرفية له، أو أحيانا يلجأ المترجم آلة استخدام عضو في كلمة أكبر (Hyponymy) أو عن طريق الشرح لتقريب المعنى للقارئ العربي بإضافة كلمة توضيحية للمعنى أو بحذف معنى أو كلمة ليست ضرورية لفهم المعنى العام.

يجدر بالذكر أن جهودا مضنية من المدارس المصطلحية من أجل توحيد المصطلحات لغرض توحيد المصطلحات الطبية ومنها المعجم الطبي الموحّد (عربي-إنجليزي) الصادر عن اتحاد الأطباء العرب التابع للمنظمة العربيّة للتربية والثقافة والعلوم سنة 1973 في نسخته الأولى، ثم صدرت النسخة الثانية عام 1977، ثم النسخة الثالثة (عربي-إنجليزي-فرنسي) عام 1983.

قام رئيس لجنة الخبراء العرب التابعة لاتحاد الأطباء العرب، الدكتور الخياط ومساعديه من كل الدول العربية بإصدار النسخة الرابعة من المعجم الطبي الموحّد، آخذين في عين الاعتبار المصطلحات الطبية المتوافق عليها من مجمعي اللغة العربية بمصر وسوريا وبملاحظات من عدة خبراء منظمات منها منظمة الصحة العالمية. أصبح في المتناول الاطلاع على هذا المعجم الطبي الموحّد على الموقع الالكتروني لمنظمة الصحة العالمية ابتداء من سنة 2000.

أصدرت منظمة الصحة العالمية تقريرها حول الأدوية سنة 1985 مترجم الى عدة لغات منها اللغة العربية، اقتبسنا منه ما يناهز ست عشر مصطلح الغرض تتبع الإجراءات المتبعة من طرف هاته المنظمة العالمية في ترجمة المصطلحات من الإنجليزية إلى العربية، قصد اتخاذه كمرجع موحد لكل الدول العربية في ترجمة المصطلح الطبي في طريق القضاء على إشكالية عدم توحيد المصطلحات الطبية بشكل خاص والمصطلحات العلمية بشكل أعم.

Abstract

This study looks on the procedures of translating medical terminology from English into Arabic. It delves at and discusses the procedures and complexities involved in translating medical terms from English to Arabic. The study's purpose is to prove the problems of translating medical terminology and how medical translators overcome them in order to obtain suitable work in the medical field. The study extracts and focuses on several procedures used in translating medical terms, particularly pharmacy-related terminology. Sixteen (16) terms are extracted from the WHO report of Drugs in Arabic version issued in 1985, in order to determine and identify the genuine challenges involved in translating medical terminology, as well as how translators could approach them.

Keywords: Modern Standard Arabic, Classical Arabic, medical translation's procedures, World Health Organization, drugs.

الملخص

تعتبر الترجمة الطبية أحد التصنيفات المتشعبة للترجمة وبشكل أدق تصنف كنوع من أنواع الترجمة العلمية، تختلف الترجمة الطبية عن بقية الترجمات النمطية الاخرى لأنها تتطلب مجهود مضن للحصول على المعلومات الحكرية عند المتخصصين في المجال الطبي .تلقي هذه الدراسة الضوء على الإجراءات المتبعة في ترجمة المصطلحات الطبية من اللغة الانجليزية الأصل إلى اللغة العربية الهدف وتناقش الدراسة الإجراءات والصعوبات التي يواجهها المترجم الطبي وتهدف الى الكشف عن الصعوبات وكيفية التغلب عليها من طرف المترجم الحصول على عمل مقبول بالمجال الطبي .تم اختيار ستة عشر مصطلحا طبيا من تقرير منظمة الصحة العالمية عن الأدوية باللغة العربية الصادر عام 1985 وتم جمع الملاحظات والبيانات المتاحة والمعلومات المتعلقة بإشكالية الدراسة تعتمد الدراسة المنهج الوصفي بتحليل الاجراءات المتبعة في ترجمة المصطلحات الطبية في تقرير المنظمة العالمية من اللغة الانجليزية الى اللغة العربية.

الكلمات المفتاحية: اللغة الفصحى المعاصرة، اللغة العربية القديمة، إجراءات الترجمة الطبية، المنظمة العالمية للصحة، الأدوية

Résumé

La traduction médicale est l'une des plus grandes classifications de la traduction, et plus précisément elle est classée comme un type de traduction scientifique, la traduction médicale diffère des autres traductions standard car elle nécessite un effort acharné pour obtenir des informations exclusives chez les professionnels de la santé. Cette étude met en lumière les procédures suivies pour traduire les termes médicaux de la langue Anglaise d'origine vers la langue Arabe et cette même étude traite les procédures et les difficultés rencontrées par le traducteur médical et vise à révéler les difficultés et comment les surmonter par le traducteur pour obtenir un emploi acceptable dans le domaine médical. Seize termes médicaux ont été sélectionnés en langue Arabe du rapport de l'Organisation Mondiale de la Santé sur les médicaments publiés en 1985 et des observations, des données disponibles et des informations liées à la problématique de l'étude ont été recueillies.

Mots-clés : Langue Standard Moderne, Arabe Ancien, Procédures de Traduction Médicale, Organisation Mondiale de la Santé, Médicaments.