

Notes :

- (1) Pierre Legouis, *Andrew Marvell: Poet. Puritan, Patriot*, 2nd edn (Oxford, 1968), p. 64 .
- (2) Joan Bennett, *Five Metaphysical Poets*(Cambridge, 1964), p. 125.
- (3) W. Peacock, ed., *English Verse*, Vol. II, the world Classics: No 309 (1929; rpt. London: OUP, 1971). page 394, lines 1-2 . Subsequent references to the poem are to this edition and are cited paranthetically.
- (4) John Press, *Andrew Marvell, Writers and their Work* (London: Longman, Green and Co. Ltd, 1966), p. 29.
- (5) Dennis Davison, *The Poetry of Andrew Marvell*, Studies in English Literature (London: Edward Arnold (Publishers) Ltd., 1964), p. 26 .
- (6) Ibid., pp. 26-27
- (7) Bennett, *Five Metaphysical Poets*, p. 69 .
- (8) C.A. Patrides, ed., *Approaches to Marvell* (London: Routledge and Kegan Paul Ltd., 1978), p. 220.
- (9) Bennett, *Five Metaphysical Poets*, p. 71.



مرکز تحقیقات کامپیوتر علوم اسلامی

To sum up, the poem "To His Coy Mistress" has a logical progression. The reader's attention is drawn to the function of the embedded conditional clause in "Had we..." at the beginning, the "but" at the beginning of the middle verse paragraph, and the "therefore" at the beginning of the final verse paragraph. Also our attention is directed to the modalised verbs of the first verse paragraph which, together with the conditional clause, create a hypothetical situation in the first verse paragraph. The simple present tense used in the second verse paragraph creates a factual situation and a sense of certainty. These two situations of the two verse paragraphs are opposed to each other. The "therefore" of the final verse paragraph gives a sense of conclusion, and the use of the form of the verb "let" in the third verse paragraph gives a sense of urgency and immediacy to the conclusion and creates an imperative situation.



The short vowel sounds and monosyllabic words outnumber the long vowel sounds and polysyllabic words. They reinforce the urgent speed and smoothness of the lines. In so doing, the poet reaches quickly to the point he wants to emphasise, that is, his desire to seize the time and his personal interest in the lady. The harsh /r/ sound is the most dominant in this verse paragraph. It suggests and reflects the impatience, quickness, and urgency of the poet's emotional mood—his desire to defeat time by courting the lady. This sound also appears in such words as “every” in line 4, the “amorous birds of prey” in line 6, “rather” in line 7, “roll” and “strength” in line 9, “rough” and “strife” in line 11, and “thorough” in line 12 of the final verse paragraph. In the concluding part, the words “sits” and “skin”, “which” and “willing”, “while” and “we”, and “stand” and “still” are all alliterative. The alliteration of /s/ and /w/ sounds, together with the assonance, may create a musical element. The couplets of the concluding part become faster and more exciting, for here we have an urgent recognition of reality. The “effect of speed in the short syllables and tight octosyllabic couplets communicates the impassioned urgency of the poet's plea to outturn “Times winged chariot”. (7) This speed of the last lines of the poem expresses the “breathless urgency” of the poet's invitation to love (8). The lover's call to act, the dynamic images of love, and the attempt to remove the iron obstacles (gates) of life are suggested by the “(urgent) fires”, “birds of prey”, and “at once our time ‘devour’ ”. Like the birds of prey, the poet not only wants to make use of time but to defeat (devour) it by flirting with the lady and enjoying life:

Thus, though we cannot make our sun  
Stand still, yet we will make him run.

This paradox expresses the poet's “defiant challenge to Time”(9). In fact, the concluding couplet is the triumph of love and life over time and death. It is a call to defeat time quickly before it defeats human life slowly by its jaws.

Therefore, it is possible to imagine a scene of an invitation to love taking place outside the world of the poem but not far removed from it. Moreover, the stylistically progression in the argument of the whole poem gives it a sense of unity, completeness, and fulfilment. It is thus possible to suggest that this sense of fulfilment allows us to visualise a scene of an invitation to love taking place within the world of the poem. Hence one feels a sense of triumph stylistically achieved in this poem.

change from the leisurely past to the urgent present. The abstract and concrete are employed so carefully that we can “associate the worm’s physical rape, and the actual dissolution of the body, with death’s violation of vain concepts of chastity” (6). The worms will “embrace” and “devour” the lady’s body. The force of the last couplet lies in the alliteration, assonance, and short vowel sounds. The word “private” alliterates with “place”. The words “grave” and “place” are tied up by assonance, so are “fine” and “private”. Both alliteration and assonance may reflect the poet’s serious, realistic tone which ends the second part. Obviously the short vowel sounds dominate this part, which ties in with the urgent situation and admission of reality.

The argument comes to its synthesis with the word “therefore” in the third verse paragraph. The verbs of action create urgency in this part. The repetition of “let us” creates the imperative situation. The “amorous birds of prey” and such verbs as “let”, “sport”, “devour”, “roll”, and “tear” are verbs of action. A call to action is created which is supported by the absence of formality and the shortening of distance between the two lovers by the recurrent use of the pronouns “us” and “our”:

Now *let us* sport *us* while we may;  
 And now, like amorous birds of prey,  
 Rather at once *our* time devour,  
 Than languish in his slow-chapt power.  
*Let us* roll all *our* strength, and all  
*Our* sweetness, up into one ball:  
 And tear our pleasures with rough strife. (II., 37-46)  
 (my underlining)

The verbs chosen harmonise with the poet’s invitation to urgent action. What gives emphasis to the urgency of action and the imperative situation is the adverb of time “now” which is repeated three times in this part. The poem moves from the static verbs of the first verse paragraph to the verbs of action of the last verse paragraph. Images of life, activity, and energy replace the terrifying images of death of the factual situation in the second verse paragraph. The intimacy between the speaker and the addressee is reinforced by the choice of verbs which suggest the urgency of intimacy. The rhythm shows a sense of urgency and immediacy. The urgency and call to action here are also emphasised by the use of trochaic foot which is suitable for the imperative mood introduced by “Now let us” and “Let”.

The use of the connective "But" denotes a turning point in the poet's argument. This connective suggests that the factual present situation is contrasted with the imaginative, idealistic past one. This change in the type of situation is reflected by figurative language (metaphor) :

But at my back I always hear  
Time's winged chariot hurrying near:  
And yonder all before us lie  
Deserts of vast eternity. (II., 21-24)

Time moves fast. We will find nothing but the emptiness of death, "Deserts of vast eternity", before us. The simple present tense which is normally employed in presenting facts is used for the factual situation of the second verse paragraph. Unlike the modals "would" and "should" of the hypothetical situation, the use of "shall" in the second verse paragraph creates a sense of certainty that is suitable for the factual situation created by the verbs, such as "hear", "hurry", "lie", "turn", and "do". The realistic, terrible images of death used are in harmony with the factual situation of reality and presence :

*Thy beauty shall no more be found;  
then worms shall try  
That long preserved virginity:  
And your quaint honour turn to dust;  
And into ashes all my lust. (II. 25, 27-30)*

Time is portrayed as a real, existing enemy which is to be feared and conquered before it kills love through the death of the lovers. The last couplet, "The grave's a fine and private place, / But none I think do there embrace", (II, 31-32), is frightening. The light and playful tone of the first verse paragraph disappears and is replaced by fearful reality, instead of the vastness of space of the first verse paragraph, we have the space of a narrow grave. Hence the tone becomes frighteningly factual rather than hypothetical, as is the case in the hypothetical situation. The relaxed rhythm of the first part changes into a faster one, and the images become realistically harsh and horrifying. The change of rhythm supports the new situation and gives some indication of the mood. The monotony of the iambic foot is broken when there is a break or change in the idea. The trochaic foot of the second verse paragraph replacing the iambic of the first verse paragraph suggests the significance and seriousness of the

adoring for ages. Hence the compliments are too extravagant to be taken seriously :

An hundred years should go to praise  
Thine eyes, and on the forehead gaze .  
Two hundred to adore each breast:  
But thirty thousand to the rest. (II., 13-16)

The "unhurried pace", Dennis Davison notes, "suggests both the dignity and lethargy of their relationship"(5) Besides the fact that the first verse paragraph is larger than the rest goes with the vastness of the time and space of the hypothetical situation. The slow movement is also achieved by the many pauses caused by the recurrent use of "and". It is also realized by the use of enjambment in the third and fourth couplets:

Thou by the Indian Ganges' side  
Shouldst rubies find: I by the tide  
Of Humber would complain: I would  
Love you ten years before the Flood. (II., 5-8)

Alliteration is used to produce a musical effect and achieve a certain emphasis or effect. There is the repetition of the /w/ sound which also helps to slow down action. This sound appears in such words as "we" and "world" in line 1, and "we", "would", "which", and "way" in Line 3. The emphasis of the alliteration ties in with the exaggeration through which the hypothetical situation is presented. The smooth /w's/ contribute to the meaning since they describe the slow movement of the hypothetical situation. Assonance is another aural device used here. It appears in the words "sit", "think", and "which" of line 3, and in such words as "we", "rubies", "please", "each", and "least". The words "rubies", "you", "refuse", "Jews", and "two" are linked together by assonance. Alliteration of the /r/ sound ties up the words "world", "conversion", "thirty", and "deserve" Also there is assonance in "thou" and "thousand". The words "lady", "day", "complain", and "age" are assonantal. The word "grow" is linked up by assonance with "go" and "show". Evidently those long assonantal vowel sounds and the assonance of diphthongs outnumber the short vowel sounds and have an effect on the tempo. They serve the poet's purpose of achieving slow movement that fits in with the vastness of time and space of the hypothetical situation. The slow movement of music harmonises with the mood in the first situation

Had we but world enough, and time,  
This coyness, Lady, were no crime. 3 (II., 1-2)

Hence the addresser would not mind waiting for three hundred centuries, and would continue loving her and she rejecting his invitation, and would put off his case "Till the conversion of the jews" which will occur immediately "before the Day of Judgement" (4) only if the speaker and the addressee had all the time and space under their control:

I would  
Love you ten years before the Flood:  
And you should, if you please, refuse  
Till the conversion of the Jews. (II., 7-10)

The hypothetical situation enhanced by using static verbs. Such static verbs as "think", "sit", "complain", "refuse" and "grow" and "gaze" are verbs of inaction and slow down movement. The 'Lady' and "if you please" are selectors of conventional expression of politeness. Because these are a formal kind of address, they create a sense of formality and distancing as well as inaction between both the addresser and the addressee. The repeated use of connective "and" creates a sense of relaxation which strengthens the idea of the infiniteness of time and space in this imagined, hypothetical situation:

We would sit down, and think which way  
To walk, and pass our long love's day.  
Thou by the Indian Ganges' side  
Shouldst rubies find: I by the tide  
Of Humber would complain. I would  
Love you ten years before the Flood. (II., 3-8)

The rhythm is relaxed and slow, which suggests that no urgent response to the addresser's call to love is required by the addressee. It ties in with the lightness and unseriousness of the speaker's mood or tone: the speaker could wait thousands of years and delay his call to love—if he had time. The playfulness of the poet's tone attributed to the fact that the poet's argument is achieved by the use of a series of hyperbolic unrealistic compliments in praise of the lady's beauty. Each part of her is worth

Marvell's "To His Coy Mistress":  
A Stylistic Analysis

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Marvell's "To His Coy Mistress" is a dramatic poem addressed to a seemingly present but silent woman. The poem goes back to the tradition of the cavalier, courtly lyrics; yet it deals with the familiar and conventional *carpe diem* theme 'seize the day'. The theme of the poem is love, the intention of the poet is to convince the lady of his love. The manner in which he handles his subject is different from that tackled by the traditional courtly love poets. Unlike the other conventional cavalier lyrics, this poem does not flatter the woman in order to win her, but it tries to woo her by means of argument or appeal to the mind. He tries in a straight forward and logical manner to convince his lady to respond to his call to love. Hence the relationship between the addresser and the addressee is no longer the traditional master-slave relationship. It is the aim of this paper to shed some light on how the poet's style goes with his theme. The poem has the "strictness of a syllogism" (1) The three verse paragraphs of the poem are contrasted, and have the order of "Had we..." — "But..." — "Therefore..." which is equal to the order of hypothesis, antithesis, synthesis or "first the supposition, then the necessity to reject it, and lastly the consequence of rejecting it" (2).

The first verse paragraph is the hypothetical situation which is created by the use of the embedded conditional clause in "Had we..." and the modals "would" and "should", which create an impossible situation

The supposition presents the unlimited availability of time and space:



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uced by means of these methods vary, sometimes considerably, as to their agreement with the morphological patterns of Arabic, and their degree of practicability .

Most of the views we have discussed suggest an absence of a clear understanding of the linguistic change. A case in point is *Al-ishtiqāq* which is deemed as a distinctive process of word formation; it seems to be employed by some Arab linguists as an argument against any type of development outside the range of this process. We think that this view is somewhat rigid, because languages are always liable to adaptation according to the change taking place in any society. The Arab society, like other societies, is incessantly changing and developing. This has led to a serious problem facing the Arabic language, because nowadays it is faced with the problem of adapting itself to the flux of innumerable neologisms referring to new concepts which were not existent in the past.

Thus from the beginning of the 19th century, the language has had to assimilate a host of neologisms in both its oral and written forms. This process of assimilation could hardly be avoided at a time when the Arab society became fully aware of its shortcomings. To assimilate these neologisms, we believe that all processes of word formation must be utilized with no emphasis on one method rather than the other, since they all contribute to enriching the Arabic vocabulary.

These attempts are represented by the Arab Academies of language which have been directly concerned with various aspects of classical Arabic.

The first language academy was established in Damascus in 1919, called "al-Majma' al-Ilmiyy al-'Arabiyy (The Scientific Arabic Academy). It consisted of two major committees. A literary and linguistic committee and a scientific one. The latter committee took charge of enlarging the scope of the technical and scientific subjects. The academy has concerned itself with gathering and editing manuscripts and published books. Furthermore, attempts were made to arabize the curriculum of teaching.

(1) The Egyptian Academy was established in (1932). Since its inception, it has addressed itself to the task of creating scientific and technical terminology needed for various disciplines as well as different branches of government. As a rule, the academy opposes any usages which do not conform to the basic rules of Arabic; nevertheless, it has examined and approved a large number of grammatical features and lexical items of modern usage which not violate the structure of classical Arabic.

The Iraqi Academy (al-majma' al-'ilmi al-'Iraqi) was founded in 1947 by the Ministry of Education. On the whole, the linguistic movement in Iraq came late, due to several factors, but mainly to the absence of educational activities similar to those which occurred in Syria .

The fourth academy was recently founded in Jordan.

The creation of scientific and technical terminology has been the major challenge to which the main efforts of the academies have been devoted. They have coined and continue to coin a large number of technical terms for almost all fields of knowledge. But the major problem which none of the academies has been able to resolve is how to make classical Arabic effective in meeting the requirements of modern life without major alterations to its structure and vocabulary.

### Conclusions

This paper is an attempt to discuss the application of word formation methods in Arabic and the extent to which they conform to the structure of Arabic. As we have seen, lexical creation and coinages introd-

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(1) See Al-To'ma (1970) pp. 710-713

terms on the grounds that this will result in an overflow of foreign terms, that can in the end corrupt and deform the language and even overwhelm it. They insist on the processes of (Al-istinbât. or discovery) and (al - ishtiqaq or derivation) from Arabic roots, alleging that adopting these methods of word creation instead of At-ta'rib is the only way to ensure safeguarding the integrity of the language. Thus for the Arabized word *utumubil* (automobile), they prefer the coined word *sayyarah*; for *taramway* (trolley car), the word *jammâz*, and so on (1) .

Thus Arabic has not borrowed wholesale like certain languages and most borrowings have been from French, e.g./ *aristuqratiyya*/ and/ *dimuqratiyya*/, from English, e.g./ *fulklur*/ and /*kuktil*/ and from Italian, e.g. /*sigàra*/ .

#### **Language Academies and the Standardization of Arabic Terminology:**

The fact that the Arab World has split into a number of political units has been a major deterrent to achieving some measures of linguistic standardization and uniformity, especially at a time of transition from a medieval to a modern society. Moreover, the absence of a supra-national language academy that would regulate the efforts of individuals and official agencies was also in itself a reason of diversity in a language persistently in need of important adjustments. This awareness was strongly felt in each of the Arab countries and in the Arab World as a whole.

From the 1930's onwards, it has been generally realized that the independent efforts of individuals and academies for linguistic revival would prove inconclusive and would add to the difficulties of the Arab countries if they were not fully coordinated. The effects of the serious differences related to the choice of technical vocabulary and scientific expressions, besides, contradictory approaches to the same linguistic problems became strongly felt and attempts were made to solve the differences with a call for a unified effort. For example in the 1930's a move was made to unify the postal service in the Arab World through the use of a uniform Arabic terminology .

However, various attempts have been made by the purists on the official level to check the foreign elements entering into the language.

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(1) Chejne, Anwar,G. (1979) *The Arabic Language, Its Role in History* pp. 151-152 .

i.e. through putting two full words together, and because their segmentation is unpredictable.

Much controversy has arisen about the applicability of al-naht in Arabic. The opponents of *manhūtah* constructions base their arguments on the difficulty of comprehension they present for many of them are puzzling and can only be understood in a context or when one knows the origin of their constituents. Added to this are other problems such as spelling and pronunciation. For these reasons, compounds of these kinds are rarely used, and they do not constitute an important part of the Arabic vocabulary. The proponents of al-naht in Arabic on the other hand say that this process of word formation is necessary for enriching the language with many new constructions through producing economical terms and helping us to avoid long constructions(1) as in :

/al-qabtarix/ (prehistory)

/(ma)qabla t-tarix/

Some old Arabic *manhūta* formations are like *sabhala* 'to say *subhana l-lāh*' and *dam'aza* 'to say *'adāma l-lāhu 'izzaka*' (may Allah perpetuate your prosperity)

Examples of modern *manhūta* formations are:

/dimkhalawiy/ (intracellular)

/baykawkabiyy/ (interplanetary)

/sarnama/ (somnambulism)

## 6- At-ta'rib ( Borrowing ) :

This method is supposedly the (last resort) after other methods of word creation have failed. In At-ta'rib, certain terms which are deemed untranslatable are transliterated into Arabic like 'chocolate' and 'bourgeoisie'

Al-Kasimi ( 1979 ) contends that for the last five decades, a linguistic controversy has been raging between 'innovators' and 'purists' in the field of linguistics. The innovators advocate borrowing from English, French and even from colloquial dialects of Arabic in order to meet the ever-increasing need for scientific discoveries and technological inventions, while the purists disagree with the adoption of borrowed

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(1) Stetkevich, J. (1970), the language of science pp. 62 -- 67

is determined or defined by another element. The determined noun which is always the first element is called *'al-mudāf* 'the annexed' while the determining element which is the second is called *'al-mudāf ilayhi* (called by Beeston 'the amplifying term') (1) and the relation existing between the elements is called *'al-idāfa* 'the annexation'.

Western languages, mainly English and French have been the main sources from which Arabic adopts scientific compounds of this type . Hence we have:

/qasab as-sukkar/ (sugar cane)

/rajul ad-dafadi' (frogman)

/'aqrabu l-bahr/ (scorpion fish)

/najmu l-bahr (starfish)

AI - Murakkabu l-mazjiy Mixed Compound' is mainly used with names of people and places and it consists of two juxtaposed nouns. In most compounds of this type, the two components are joined orthographically as in *Ma'dikarb* (a man's name ) and *Ba'labakk* ( a town in Lebanon) .

In modern Arabic, more compounds of this type have been introduced into the language, whose elements can be either joined or written separately like *ra'sumal* 'capital' and *qā'immaqām* 'approx. district governor'

*A-Murakkabu l-'isnādi* 'Predicative Compound' is rare in Arabic and it is used in proper nouns of people and places. It consists of a verbal element and a nominal one following it, which in Arabic could stand as an independent sentence. Examples of this type are the classical example *ta'abbata sharran* 'he carried mischief under his arm' and *Jāda l-haqq* (lit. 'God gave with generosity') .

## 5 - AL - Naht:

AL - Naht in Arabic is similar to blending in English because in both languages they consist of a process where by one word can be formed one word joined to the splinter of another word, from the splinters of two words or ( in Arabic ) the splinters of more than two words. The resulting forms are identified by their morphological irregularities because they are not formed in the same way as other types of compounds

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(1) Beeston (1970) p. 40.

Nevertheless, it is fair to say that theoretical potential of derivation as a means of word formation has not been matched by practical achievement. Moreover, duplication of technical terms has resulted from this method of word coinage; there are three derived terms for 'handle-bars'— *al-mauajjih*, *al-miqwad* and *al-mudawwir* .

A careful examination of the early vocabulary is bound to reveal the fact that the occurrence of morphological patterns with their respective meanings has not been a consistently observed process. A noun of instrument, a noun denoting motion, a name of a disease, etc. may be denoted by words assuming morphological patterns other than the respective ones mentioned before. Here are some cases where words denoting names of diseases have patterns other than *fu'al* or *fa'al*:

/xilfah/ (diarrhoea)	<i>fi'al</i>
/haydah/ cholera)	<i>fa'la</i>

A word assuming the pattern *fu'al* or *fa'al* is not necessarily denotative of a disease or ailment, for instance:

/shu'a'/ (beam ray)	<i>fu'al</i>
/barad/ (hail)	<i>fa'al</i>

The instances of patterns we have just discussed are already occurring in the language but at present being adapted to certain specific significations in the language of science. But the main fact that should be realized before any attempt to revive further patterns that were operative in early Arabic is that these patterns are not sufficient enough to meet the large variety of concepts brought about by scientific and technological progress.

#### 4- Compounding :

We can define compounding as the adding together of two lexemes (independent lexical morphemes) to make a new lexeme as is the case with 'gunpowder' and 'spaceship'.

Traditionally, classification of Arabic compounds falls under three categories : '*al-murakkabu l-'idafiy* 'the compound with the construct relation', '*al-murakkabu l-mazjiy* 'the mixed compound' and '*al-murakkabu l-'isnadiy* 'the predicative compound'.

*Al-murakkabu l-'idafiy* is realized by what is known as '*at-trakibu bil-'idafa* 'compounding by the construct relation' where one nominal

b- Structures of the derivational affix type:

e.g. /la-silkiyy/ (wireless)

/‘al-lāwa‘iy (subconscious)

Loan translation may also involve al-ishtiqāq (neologismes derived through translation), as for example: ‘al – tamiyiz al – ‘unsuriyy’ (racial discrimination)

### 3- Al-Ishtiqāq (Derivation)

A glance at the literature concerned with the development of Arabic vocabulary suffices to indicate that Al-Ishtiqāq (derivation) in Arabic has been and indeed still is a major method of word creation in Arabic .

Al- Ishtiqāq refers to the derivation of words from native triconsonantal roots by means of prefixes, infixes and suffixes according to the patterns of the language.

Medieval philologists recognized three types of derivation. These are 1- Minor Derivation (Al-Ishtiqāq as-sagīr), 2-Major Derivation ( Al-Ishtiqāq al-kabīr or qalb ), 3-Root Modification (Ibdāl). The two processes were important at an earlier stage of Arabic but are no longer productive in MSA,. Minor derivation, on the other hand, is enormously productive in Arabic and it is the only form of derivation which remained fully operative after the formative stage of the Arabic language. The following qawālib have a fairly constant meaning:

fi‘āla : profession, type of activity

fa‘ālān: concepts denoting flowing movement

fu‘āl : illness

fa‘‘āl : profession

fa‘‘āla : intensive faat-moving machine

māf‘āl, māf‘il’ māf‘āla : nouns of place/time

mif‘āl, mif‘āl, mif‘āla : nouns of instruments .

..The pattern *fi‘āla* which means ‘craft’ can give us names such as *siḥāka* (‘foundry worker’s trade’) and *hiḍāda* (‘black smithery’). By derivation many neologisms have been introduced into MSA . From the pattern *māf‘il* we can derive the term *mawqif* (bus stop), from *mif‘il* we can derive *mujhir* (microscope), from *māf‘āla* *matba‘a* (press) and from *fa‘‘āl* the term *matār* (airport) is derived .



Based on our reading of Stetkevych (1970) and writers, we have found six methods of word creation. They are as follows:

### 1- AI-Istinbat (Discovery) :

Some Arab linguists contend that words do not die in Arabic and that they can always be brought to life. This method of vocabulary creation ( AI- Istinbat ) is the most favoured by the academies. The native resources of the language are utilized. There are two types of Istinbat :

a- 'Ihya' Fasih al-Luga: Reviving old words with basically the same meaning as before, The following are examples of this type:

/al;mantiq/ (logic)

/al-màdda/ (matter)

/al-jawhar/ (essence)

b- Extend figuratively meanings of old words (al-wad' bil-majaz) :  
The following are examples of this type.:

jarida ('stripped palm branch for writing' - 'newspaper')

dabbàba ('war tower'-'tank')

qitar ('file of camels'-'train.

Many of these words were proposed by writers and journalists and later sanctioned by the academies. Some of the academies' own proposals were unsuccessful:

e.g. \*irziz ('sound of a distant thunder'-'tramcar')

In MSA nowadays, a number of doublets are used. One of the pair is the native term and the other is a loan word used and understood by educated people and laymen such as hâtif ( lit. invisible caller' / *tilifün*- 'telephone') and marnà (derived from the verb rana 'to gaze at' / *tilivi-zyün*'-'television'). (1)

### 2- Loan Translation :

This is a form of borrowing. The concept is borrowed (or the semantic structure is imitated and expressed) using native Arabic words. such terms can be classified structurally:

a- Idâfa constructions:

e.g. 'ilm al-'ahyà' (biology)

'ilm an-nafs (psychology)

natihàt as-sahàb (sky scrapers)

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(1) Emery, P.G. (1982) Towards a Unified Scientific Vocabulary in Arabic. pp4-5.

used for the same referent (dialect differences) and social factors are constantly at work influencing the meanings of words. Word meanings are constantly changing (although the process may take hundreds of years, e.g. *awful, nice, terrible, hound, meat* and often we can notice words falling into disuse (e.g. *aerodrome, wireless.....*). Thus there is an endemic conflict between the demands of scientific vocabulary and reality of semantic change in language.

The main aim of this paper is to delineate the major factors which helped the growth of the Arabic language and the aspects that featured the development of (MSA) as far as scientific and technical terminology is concerned.

At the beginning of the Twentieth Century, there were a number of linguistic problems concerning the modernization of the Arabic vocabulary. It was evident that the vocabulary of scientific and technical writings was not standardized in the Arab World. The impact of Western civilization confronted the Arab World with the serious linguistic problem of expressing a vast and ever-increasing number of new concepts for which no words in Arabic existed. The creation of a scientific and technical terminology is still a major intellectual challenge (1).

Classical words are a further problem. Arab writers and authors steeped in classical tradition and they frequently draw on words which were already archaic in the medieval times (2). As far as the Arabic Language is concerned, it should be noted that it has an abundance of synonyms. By contrast, scientific concepts should be represented ideally by precise and accurate scientific terms. Certain words express concepts which were out of step with 'modern' scientific notions, for instance, the word 'tayr' denoted in (classical Arabic) anything that flew (birds, insects, etc.) while in modern Arabic it is used to refer to birds only.

Consequently, a major objective of the Arabic League Academies was lexical reform (al-'islah al-lugawiyy). The aim of these academies was to modernize the Arabic vocabulary. By so doing, the language could handle and express modern ideas adequately.

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(1) Wehr, Hans (1980) p. 8

(2) Wehr, Hans (1980) p. 9

**Aspects of Lexical Development  
In Modern Standard Arabic**

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After four centuries of Ottoman and Western colonisation, the Arabic language—which is nevertheless considered by Prominent orientalists as having made possible the first progress of science in the Middle East—became rigid and sterile. All efforts to modernize Arabic and put it on an equal footing with modern western languages have so far proved ineffective. This is due to the fact that the gulf of four centuries has led to a lack of a large number of neologisms in Modern Standard Arabic (MSA) in all disciplines (1).

The rapid development in science and technology has raised terminological problems which even the most highly developed countries are finding difficult to solve. Thus it is easy to visualize the situation in the Arab World, despite the fact that the exhaustive terminology of Arabic left its stamp on technical progress and on the experimental sciences throughout the Middle Ages and until the beginning of modern times.

The terminological problems caused by the scientific and technological advance have not been confined to Arabic. They exist in all language situations to an extent. For example, there are in English well-known differences in the vocabulary referring to cars. British English uses *bonnet*, *bumper*, *boot*, which American English uses *hood*, *fender*, and *trunk*.

The root of the problem is that scientific language needs to be precise (ideally one word for one referent) and language by its nature is not neat and tidy. Geographical factors give rise to different words being

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(1) Ibn Abdallah, Abdel-Aziz (1976) Problems of Arabization in Science p. 5.

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كان الاخوان مختلفين تماماً ، فقد كان بوب طويلًا ووسيمًا ورشيقيًا . اما جون فقد كان قصير القامة واسمر وبديناً . كان بوب يشبه امه بينما كان جون يشبه ابيه . وكانت سعادة بوب غامرة عندما يقوم باداء شيء عملي . الا ان جون من ناحية اخرى كان لا يحسن استخدام يديه . وكانت اختهما ماري هي الاخرى لا تحسن استخدام يديها . لم يكن بوب ليتكلم مع احد مالم يبادره الآخرون بالكلام بينما كان جون دائماً مركز الحديث في اي مجموعة من اصدقائه ، فهو يتحدث ويتندر وكان حياته تعتمد على ذلك .  
اني على ثقة ان لديكم اصدقاء كهؤلاء . في الحقيقة لقد كانا مختلفين لدرجة انه من الصعوبة تصدق انهما اخوان .

The Arabic translation expands the highly reduced English text thorough coordination and subordination means .Expansion has been done through the introduction of الخ . . . . الخ A literal rendering of the English Text without expansion would look alien to most Arabic readers.

7. To conclude it seems clear that Arabic usually prefers redundancy where English opts for Contraction and, This tendency is explicit in translation (Arabic-English-Arabic),rendering Arabic versions almost always longer than their English counterparts.Differences like these are to be taken into consideration by translators and students of translation if a more accurate translation is Sought.

Acronyms formed on the same principles in Arabic assume wide currency – and have proved to be of potential reduction power, e.g. واع، سانا، وفا... الخ.

But when the case concerns initialism, shortened forms verbalized letter by letter with each letter representing a full word, the case is widely restricted. rare attempts are made at transliteration. Up to now Arabic does not have an initialism of its own for the very common term UN, PLO, EEC, IOO, OFAQ, etc., neither has there been an attempt to abbreviated forms of their Arabic equivalents.

What is surprising is the fact that while English freely reduces most translations of Arabic political and administrative institutions, no attempt is made at their reduction in Arabic. A case in point is PLO which still does not have an equivalent initialism in Arabic. Note also ICO, ABSP, RCC, etc.

The situation is almost similar with abbreviations when the shortened form represents elements in compound or just parts of a word . While Dr. has its Arabic reduced form . د.; TV, Ph.D., D.G .etc. retain their expanded forms in translation.

6. Among major means of structure expansion are coordination and subordination. Coordinating and subordinating elements play different roles in Arabic and English. Generally speaking, coordination and subordination means surface more in Arabic than English, while in today's English the tendency is to reduce these elements as far as possible. An examination of the following English piece from Chaplen (1976: 7) and its Arabic translation proves the point.

“The two brothers were quite different. Bob was tall, fair and slim: John was short, dark, and fat, Bob was like his mother, and John was like his father. Bob was never happier than when he had something practical to do; John, on the other hand, was clumsy when using his hand. Their sister, Mary, was also clumsy with her hands. Bob rarely spoke to other people unless he was spoken to first, but John ws always the center of a group, talking and chattering as if his life depended on it. I am sure you have friends like this. In fact, they were so different that it was hard to believe they were brothers”.

5. The use of abbreviation as a means to reduce linguistic structures is at peak in today's English. Newly coined or newly found acronymic terms are widely used in forward-moving activities of science, medicine, military affairs, etc. Even current events are often the cause of abbreviated designations intended as time and space savers or as catchy references to timely topics. Precious inches of newsprint and precious seconds of broadcast time are saved by newspaper editors, radio, and T.V. through the use of these shortened forms.

English distinguishes three groups of reduction in this area. Distinction between the three types, though necessary, is not very clear-cut, since their definition overlaps in many ways. The following definitions, though somewhat simplified, clarify the differences between the three groups of acronymic forms in English (Crowley, 1980:10).

- a. An *acronym* is composed of the initial letters or parts of a compound term. It is usually read or spoken as a single word, rather than letter by letter. Examples include RADAR, LASER, etc.
- b. An *initialism* is also composed of the initial letters or parts of compound term, but is generally verbalized letter by letter, rather than as a single word. Examples include PO, UN, etc.
- c. An *abbreviation* is a shortened form of word or words that does not follow the formation of either of the above. Examples include Ph. D., Dr. Prof. etc.

Though the three types exist in Arabic, their currency is still limited and in cases ad hoc. There is no dictionary of acronyms in Arabic and Arab lexicographers do not bother to include them in their monolingual dictionaries. As far as the knowledge of the present writer goes, there is no study in Arabic on the use of acronyms and their function, despite their growing use in many phases of modern life in the Arab world. It seems that the power of abbreviated forms to reduce and save time and space is not yet fully appreciated.

Acronyms of English origin are perhaps among the most widely used in Arabic out of the three types of abbreviated forms. Pronounced as a sequence of letters, acronyms are not hard for Arab readers to adopt or even accommodate in the language. Note for example the wide-spread use of RADAR, LASER, UNICEF, OPEC, OAPEC, UNESCO, UNIRWA, FAO, etc., all read or spoken as single words. Furthermore, the acronyms and the like have been transferred and transliterated into Arabic

يونسكو ، اوبك ، اوابك ، رادار ، ليزر ، يونسيف ... الخ .

4. Repetitive structures are essential in Arabic for ordinary politeness and emphasis. This is not always the case in English, a language which avoids repetition of structures and words wherever necessary. The exchange of greetings in Arabic, for example, seems redundant, repetitive and stilted when with their English equivalents. It is quite possible for the following general friendly greetings to be exchanged on encounter in Arabic.:

- |  |                                     |
|--|-------------------------------------|
| - Peace be on you  | - السلام عليكم                      |
| - On you be peace  | - عليكم السلام                      |
| - How are you?   | - كيف حالك                          |
| - Well praise be to God                                      | - بخير والحمد لله                   |
| - And you how are you?                                       | - وانت كيف حالك                     |
| - Praise be to God. I am well                                | - الحمد لله بخير                    |
| - How are the children, I wish to the Almighty they are well | - كيف حال الاولاد . انشاء الله بخير |
| - They are well. Praise be to God                            | - بخير والحمد لله                   |
| - How is uncle Ahmad   | - كيف حال الخال احمد .              |

In colloquial Iraqi Arabic, the informal repetitive greeting phrase (*How are you*) (شلونك) is often repeated three times by the same speaker, rendering the English version redundant and meaningless: *وبعد شلونك ، وبعد شلونك ، وبعد شلونك* and *How are you? and How are you? and How are you*.

It has to be noted however, that repetition in the case of Arabic is expressive of the views the Arabs entertain about the world and their own culture. It cannot be viewed as redundant but part of the language, manifesting itself in several contexts among them grammar. Note, for instances the following examples of (المفعول المطلق) , the cognate object, which are highly productive in Arabic:

1. (عددهم عدأ) , literally, *he has numbered them a numbering*, (with an exact numbering).
2. (ضربهم ضرباً) , literally, *he has beaten them a beating* , (he beat them severely).
3. (دفعهم دفعاً) , literally, *he has pushed them a push* (he pushed them strongly).



that differences between texts can easily be determined by the potentiality of noun phrase for making stylistic contrasts (Crystal and Davy, 1969:55).

When comparing translations of English noun phrases with the Arabic equivalents, differences in style and the way reduction and expansion are expressed become evident. Complex noun phrase with several adjectives and nouns preceding the head are often expanded in Arabic. But rarely an attempt is made to condense structures with complex noun phrases when translating from Arabic into English.

My Students provided expanded Arabic Structures for the following highly reduced complex English noun phrases.

1. The 200 milligram gold tablet drug.  
ان العقار عبارة عن اقراص من الذهب كل قرص يحتوي على ٢٠٠ ملغم من الذهب .
2. The first permanent artificial heart fitted person, Dr.Barney Clark .  
الدكتور بارني كلارك وهو اول شخص يزرع له قلب اصطناعي دائم .
3. Yesterday's early attacks.  
النوبات التي حدثت في وقت مبكر امس .
4. Heart surgery patients.  
المرضى الذين تجرى لهم عمليات جراحية في القلب .
5. The 37 year-old conservative leader .  
زعيم المحافظين البالغ من العمر ٣٧ عاماً .
6. The 155 page, 44. 000 word document .  
الوثيقة التي تضم ١٥٥ صفحة و ٤٤ الف كلمة .
7. Our 'Buy British' Sales Campaign.  
حملة المبيعات التي قمنا بها من اجل شراء ما هو بريطاني المنشأ .

In the meantime when given the Arabic version, the students preserved the expanded structures in their translation. No attempt was made to reduce the elements into a condensed complex noun phrase.

1. The drug is an equivalent to gold tablets, each tablet contains 200 milligram of gold .
2. Doctor Barney Clark, who is the first person to have been fitted with a permanent artificial heart.
3. The attacks that occurred early yesterday.
4. Patients who underwent heart surgery.
5. The leader of the conservatives, who is 37 years old.
6. The document which contains 155 pages, 44,000 words .
7. The sales campaign we launched to buy what is made in Britain .

Although reduction may in general be regarded in semantic or pragmatic terms as a means of avoiding redundancy of expression, what kind of reduction and what kind of redundancy are permitted is largely a matter of syntax. Quirk et al. discuss in detail means leading to structure expansion and those that lead to structure reduction. The theoretical framework of this paper is largely based on their syntactic analysis of the grammatical principles governing the processes of structure expansion and contraction.

Coordination and subordination are according to Quirk et al. (1985: 867) among major means of structure expansion. Expanded complex pre- and post-modification is another syntactic device leading to expanded linguistic structures. The agent by-phrase, though generally optional in English is also taken by the authors as a structure that can be left out as redundant. The spelling out of acronyms, whenever unnecessary is a redundancy factor. How acronyms come into play in both languages is a matter which causes a great deal of trouble for Arabic - English - Arabic translators.

Reduction as a means of avoiding redundancy is mainly discernable at two levels, e.g. proforms and ellipsis, Reduced relative clauses, complex pre- and post-modification in noun phrases and acronyms are also among the ways leading to abbreviated sentence structures. In the following sections expansion and reduction of syntactic structures in both Arabic and English will be contrasted, focussing attention on the problems they may cause in English-Arabic-English translation.

3. The capacity of the noun phrase to reduce structures is tremendous. Elements preceding or following the headword exhibit this potential. In the pre-modification structure, strings of adjectives and nouns can precede the headword when expanded these elements usually belong to finite clauses marked with *wh*-words, Separate phrases or even independent sentences. Similarly, post-modification can be achieved non-finite clauses which are mostly a reduction of *wh*-finite clauses.

The noun phrase, then, is endowed with a great degree of potential to reduce or expand structures. This ability has led some grammarians to the belief that it can be used to help show differences between texts. Scott et al. (1968: 123) write: "One readily measurable aspect of different passages is the structure of noun phrase. The use of simple or complex noun phrase and the structure of noun phrase will give factors of comparison". To enhance this position further, other linguists stress the fact

In translation, redundancy plays a positive role. It makes the translated text coherent in meaning and cohesive in structure. It is used to elaborate and clarify what is being translated. It is a common fact among translators that the translated subject is almost always longer than the source. This means that a translator has to expand his translation to overcome ambiguity and to clarify certainty and to explain certain points that new reader might not be familiar with. This, however, does not mean that new information can be added. Redundancy is mainly used to overcome the problem of "communication load" due to the difficulties involved in the translation of rare forms, poetic use of language, unusual syntactic structures and peculiar usage of the source language according to the peculiar subject or social setting. Madsen and Bown (1978: 159) put it aptly when they say that the use of redundancy presents the information content in a less concentrated form or at a lower rate, thus enabling the reader to assimilate it.

2- A study of redundancy as a linguistic process should originate an analysis of means of structure reduction. Meanwhile, it is difficult to explain the meaning and grammatical status of reduced forms without postulating or reconstructing the unreduced ones. Means of structure reduction in a language and the ways used to recover them are mostly a matter of syntax (Quirk et al., 1985: 858). This paper will be mainly concerned with grammatical redundancy placing special emphasis on the problems it may cause when texts are translated from English into Arabic and vice versa.

Other things, being equal, writers and language users in general follow the maxim 'reduce as much as possible'. This generally means preferring reduction to expansion in writing. But this should not be taken to mean that the expanded linguistic structures are always preferred to contracted ones. For example, reduction is avoided at least in careful written style where it would otherwise lead to ambiguity or some other kind of difficulty for the interpreted language. That, however, does not show the same degree of preference for abbreviated structures. Arabic, as we shall see in the following sections, is a language that opts for expansion, particularly in areas where English would prefer reduction. Such a preference on the other hand should not be taken as merely a preference for economy. Then sentence structures are abbreviated by reducing items which are shared as given information, attention will be focused on clarity, fresh material or new information.

## Redundancy and Translation with Application to Arabic and English

BY  
Jassim M. Hassan

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1. A wide controversy has been going on among linguists about two contradictory concepts. The first is "economy" in language which means the use of as short as possible structures to convey the message and achieve communication. The second is the use of longer structures to receive the message properly and communicatively. Application of these two concepts differs from one language to another due to some cultural, environmental, social and rhetorical factors – These differences, however, are more noticeable in translation, where the use of redundant structures is often unavoidable.

The use of redundant structures is justified in translation. Additional linguistic structures are needed to convey the message and achieve communication particularly with the presence of longer information pieces. This case, technically known as "communication load", causes the linguistic performance to be redundant. While economy in language can be achieved by the use of shorter linguistic structures with form and meaning being in one to one relation, redundancy requires different forms to account for the same meaning. Redundancy is vital to disambiguate the communicative acts and the linguistic structures (Nida –1974: 205).

Human languages in general tend to minimize uncertainty or ambiguity by maximizing redundancy which is not a waste of effort but a very important reinforcing communication.

Linguists provide more or less similar definitions of redundancy as a linguistic concept. For Nida (Ibid 1964: 125) it is the expression more than once of the same unit of information. (Bolinger 1981 : 18 ) defines it as "the surplus of information in the language or the amount of explicitness needed to avoid ambiguity. Madsen and Bown ( 1978 : 6 ) hold that redundancy characterizes all languages without which communication would be impossible".

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### Conclusions:

1. Sc. & T translation from English into Arabic involves many bewildering problems and difficulties ( such as the lack of equivalent terminology in many scientific and technical domains; as well as the translators ' inadequate command of the subject matter of many translated works) .
2. Despite the valuable contribution made by many Arab academies (that were established to face the problem), and the Arab universities and institutes, as well as the co-ordinating bodies, the problem remains unsolved, and further confusion and inconsistencies are sometimes created by the variety of suggestions made by such multiple bodies .
3. It is often the case also that when the translators of the Sc. & T. texts are specialized in the domain from which translation is made, much use of transference (i.e. of S.L. terms) is made; which is inevitable and quite legitimate in many cases .
4. Translators of Sc. & T texts who are specialized in the Sc.&T domain from which they undertake a translation often show a lack of command of the general linguistic terms and expressions with regard to the S.L. &/or T.L. leading to many shortcomings and inaccuracies . Such translators should have a good command of the general language as well .
5. The way of facing this maze seems to be in the hands of Arab universities and institutes by forming highly specialized teams of translators ( i.e. specialized in various Sc & T. fields and domains) and contrastive linguists, in order to unify and standardize the Sc. & T terminology and review them from time to time as necessary.

D/: "However to ask such questions about molecules in collections of inanimate matter is irrelevant and meaningless".

يمكن من ناحية ثانية ذكر بعض الأسئلة حول الجزيئات المتعلقة بالمواد الجامدة  
الا ان الجزء المتعلق بالمواد الجامدة خال من المعنى )

E/: "They can also carry out other forms of purposeful work such as the mechanical work of locomotion".

(وتستطيع ان تؤدي اشكالا اخرى من العمل الهادف مثل العمل الميكانيكي)

F/: "In fact, inanimate matter usually decays to a more random state when it absorbs external energy such as heat or light".

وبالحقيقة فان المواد الجامدة تتناقص إلى حالة عشوائية اكبر عند امتصاصها  
للطاقة الخارجية مثل الحرارة او الضوء)

G/: "This may imply that the nucleus is the real essential of the cell".

(وهذا قد يظهر ما يدل على ان النواة هي ضرورة اساسية للخلية)

H/: "This point of view seems to have been widely adopted.."

(ويبدو ان وجهة النظر هذه قد اخذ بها ....)

I/: "and they were perhaps also the first to attach a meaning to the term 'cell' "

(وانهما من المحتمل كانا اول من ربط هذا المعنى بمصطلح الخلية)

The inaccuracies and shortcomings of translation in the above examples explicitly fall in the area of general language errors. In the examples A, & F, the cause of error or inaccuracies is failing to select the appropriate equivalent of the S.L. item (s). In 'A' The S.L. verb "approach" has been rendered into Arabic as: *توصل* whereas the appropriate T.L. equivalent is rather *تتاول*. In 'F', the S.L. verb "decay" has been translated as *تتناقص*, whereas it is more appropriate and accurate to render it into the T.L. equivalent *تتحلل*. In 'H', the S.L. structure "widely adopted" has been inaccurately rendered as the adverb "widely" has been neglected. This is also applicable to 'B', & 'C' in which the relative clause "that describe the behaviour of inanimate matter", and the adverb "comparatively" are omitted or neglected respectively. As for the examples 'D', 'E', & 'I', the inaccuracy of rendering seems to have resulted from missing the general signification of each.

From the above examples, it is explicit that a high percentage of inaccurate translation of Sc. & T. texts is caused by the lack of adequate command of the S.L. general (or standard) language. The translator's acquaintance with the Sc. & T. Terminology and subject matter is not a sufficient guarantee against the shortcomings and inaccuracies of translation in the domain of Sc. & T. work.

translating(1) from the language of a developed nation into the Language of a developing or under-developed nation).

### General Language Errors in the Translation of Sc. & T. Texts :

When one studies the Arabic translations of many Sc. & T. texts, one finds out that translators' errors or inaccurate renderings are also found in the area of general language. Let us consider the following examples:

A/: "Yet living organisms possess extraordinary attributes not shown by collections of inanimate matter. If we examine some of these special properties, we can *approach* the study of bio-chemistry with a better understanding of the fundamental questions it seeks to answer".

وعلاوة على ذلك تمتلك الكائنات الحية صفات مميزة استثنائية لا يمكن اظهارها بواسطة مجموعة المواد الجامدة وعند فحص بعض هذه الصفات المميزة عندئذ نستطيع ان نتوصل إلى دراسة الكيمياء الحيوية مع مفهوم احسن للمسائل الاساسية التي يتطلب الاجابة عليها (٢) .

B/: "These molecules, when isolated and examined individually, conform to all the physical and chemical laws *that describe the behaviour of inanimate matter.*"

(ويمكن تطبيق القوانين الفيزيائية والكيميائية عليها عند عزل وفحص هذه الجزئيات)

C/: "In contrast, the inanimate matter in our environment, as represented by soil, water, and rocks, usually consists of random mixtures of simple chemical compounds, with *comparatively little structural organization* .

(وعلى العكس من ذلك فان المواد الجامدة الموجودة في محيطنا والمتمثلة بالتربة والماء والصخور تتكون عادة من خليط عشوائي من مركبات كيميائية ذات تركيب بسيط)

(1) It is worth mentioning perhaps that Arab technicians who deal with technical items in colloquial Arabic make much use of transferred items in their daily speech as in the case of motor mechanics: coil: كويل ; fuse: فيوز ; battery: باتري ; piston: بستن ; carburettor: كلاج ; gear: كلاج ; exhaust: اكروز ; tyre: تاير ; dynamo: داينمو ; carburetor: كارجيتور ; brake: بريك ; switch: سويج ; gasket: كازكيت ; wire: واير .

(2) Examples "A-F" are quoted from : A.L.Lehninger, *Short Course in Biochemistry*, Worth Publishers Inc., 1976; which has been translated into Arabic by Q. al-Chalaby et al, Univ. of Mosul, 1982 .

Examples "G-I" are quoted from: G.B. Wilson, *Cytology*, Reinhold Publishing corporation, New York, 1976; This book has been translated into Arabic by J. Barsom, et-al, Univ. of Mosul, 1978.



The Arabic versions of Sc. & T. texts abide in transferred terms (the original form of which is sometimes written to the side of the Arabic transliterations. Let us consider the following examples:

1. "though amino acids and even low molecular weight proteins with a tendency to make microspheres superficially similar to micrococci"

علماء بان الحوامض الامينية وحتى البروتينات الواحدة الوزن الجزئي تميل إلى تكوين كريات دقيقة microspheres تبدو ماثلة للميكروكوسي micrococci

The terms "amino", "proteins", and "micrococci" have been transferred and transliterated into Arabic in the above rendering. The original English terms "microspheres", and "micrococci" are found to the side of the Arabic forms (transliteration. in the case of "micrococci", and translation equivalent in the case of "microspheres").

2. "Living organisms are made of protoplasm".

تكون الكائنات الحية من البروتوبلازم

The term "protoplasm" is transferred and transliterated in the above rendering (into Arabic).

3. "although in the case of viruses we may be approaching the situation where a nucleus or part thereof exists in the presence of a minimum or none of its own cytoplasm, for example, the bacteriophage".

والشيء الذي لا يشك فيه حالة الرواشح حيث تقترب إلى حالات توجد فيها نواة أو جزء منها بوجود قليل من السايوتوبلازم أو عدم وجوده كما في ملتهيمات البكتيريا

The term "cytoplasm" is transferred and transliterated into Arabic in the above example.

4. "Enucleate protoplasts either fail to carry on life processes at all"..

«والبروتوبلاستات المجردة النوى اما ان تفشل في مواصلة أفعالها الحيوية كلياً ..»

The term "protoplasts" is also transferred and transliterated into Arabic in the above rendering.

From the above examples, one finds out that the process of transliteration (and transference) is often employed when the translator is short of T.L. Sc. & T. equivalents (which is often the case when

This process is called 'Al-Naht' :

e.g. asymmetry:	الاتناظر	;	hydroelectric :	كهرومائي
Space-time:	الزمكان	;	electromagnetic:	كهروطيسي
photoelasticity:	الصومرونة	;	Aerobia:	الحيهوائيات
Hypodermic:	تجلدي	;	subsoil:	تحتربه

Al-Naht, however, is not encouraged by the Arab academies.

#### D. Transference:

Transference is encouraged by innovators when no equivalent T.L. item is found; but detested by purists, who accept it as a temporary measure till new Arabic Sc & T. terms are coined later. The Arab academies have succeeded in replacing some transferred terms by Arabic equivalent ones as in the case of :

“telephone”: هاتف , تلفون ; “microscope”: مايكروسكوب , مجهر  
“thermometer”: مقياس الحرارة , ترمومتر ; “microwave”: مايكرويف , موجة دقيقة  
“tractor”: جرار , تراكتور ; “barometer”: منواء , بارومتر

In some other cases, the suggested Arabic terms do not seem to be successful (such as: oxygen: المصدى , اوكسجين), because some transferred terms have been in use for a long time, and have thus acquired formal and contextual Arabic meanings, and have also been naturalized according to Arabic grammar (i.e. have acquired new derivative forms in accordance with the Arabic rules) as in the case of :

“متلفز , تلفز , تلفزة , تلفزيون”  
“ممنط , ممنط , ممنطة , ممنطيس”  
“بروتوبلازمية , بروتوبلازمي , بروتوبلازم”

Such words should rather be treated as Arabic terms since they have acquired Arabic syntagmatic and paradigmatic relations.

In certain cases, the new transferred term is given a brief paraphrase to make it more comprehensible, as in the case of:

“ohm”:	اوم	(وحدة المقاومة الكهربائية)
“amu”:	آمو	(وحدة قياس الكتلة الذرية)
“phon”:	فون	(وحدة قياس الصوت)
“dioptr”:	ديوبتر	(وحدة قياس العدسة)
“dyne”:	داين	(وحدة قياس القوة)
“gauss”:	كاوس	(وحدة مجال)
“vector”:	فيكتور	(وحدة استقطاب)
“farrad”:	فاراد	(وحدة السعة الكهربائية)
“magneton”:	مغنطيوم	(وحدة العزم المغناطيسي)

Transference (into Arabic) is not free from problems, because the some terms are transferred from English into the Arabic of the Middle East Arab countries), whereas other terms come from French (into the Arabic of North African Arab countries) since English is the second language learnt in the Middle Eastern countries and French is the second language in the North African countries.

The solutions suggested by the Arab Academies concerning the problem of scientific terminology in English – Arabic translation (or French–Arabic translation) are:

1. The translators are advised to use the classical scientific Arabic terminology wherever applicable whether those terms that have been transferred into many European languages (such as: alcohol, alkali, القلي, alembic, الامبيق, elixer, الألكسيد, meri, المرى, nucha, النخاع, corona, القرنية, borax, البوراكس, arsenic, الزرنيخ, etc), or such terms that may be considered the equivalent of foreign Sc. terminology (such as:

الشب for 'alum', الامونيا for 'amonia', الجير المنطفىء for 'calcium hydroxide', الاشعة for 'rays', العصب البصري for 'optic nerve', حامض الكبريتيك for 'sulphuric acid', شبكة العين for 'retina of the eye', الترشيح for 'filtration', التبلور for 'crystalization' .

2. When no such equivalent classical Arabic scientific term is found, the translator is advised to follow one of the following procedures:
  - A. The process of what is usually referred to as "Majaz" in which a new denotation is assigned to a classical Arabic term ( as in the case of قطار i.e. train, which originally denoted a caravan of camels; سيارة i.e . car , which originally denoted all moving things; دبابة i.e. military tank , which originally signified crawling animals or creatures that live on earth).
  - B. To make use of the derivational potential of Arabic which has a variety of derivational forms:
 

"mafCal"	:	مكوى ومرصد و مدفع
"mifCal"	:	مزرع و مجهر و مشرط
"mifC-al"	:	مشقاب و منشار و محرار
"fa-Cila"	:	رافعة و شاحنة و طائرة و ماسحة و كاسحة
"faCC-ala"	:	كسارة و دراجة و نفثة و غواصة
"faCC-al"	:	طراد و غواص و نفث و جرار
  - C. Making compound terms by combining the roots of more than one word.

It has often been the case that a Sc. or T. term has been given different renderings by different bodies or authorities, and thus creating further confusion and inconsistency in the translation of Sc. & T. language. Let us consider the following examples:

<i>The SL Term:</i>	Arabic Equivalent (as suggested by the Journal of the Iraqi Academy, vol. 23 1973)	Arabic Equivalent (as suggested by the Morroccan Journal al-Lisan al-Arabi vol. 8, No. 3, 1971)
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volatility	تطاير	تصعيد
alkaline earth	اتربة قلووية	اقلاء ارضية
flow	جريان	سيلان
gravity	جاذبية	ثقل
power	قدرة	قوة
radial	شعاعي	نصف قطري
angular momentum	العزم الزاوي	الزخم الزاوي
carburetor	مبخر	منفعم
clutch	جهاز تعشيق	واصل
coil	وشيعه الاشتعال	ملف
hub cap	غطاء المحور	غطاء البطيخة
rack	ترس	شبكة

In an attempt to overcome the problem of multiple Arabic renderings for the same Sc. & T. term, two co-ordinating organizations were established: The Bureau for co-ordination of Arabization in the Arab World in Rabat (Morrocco); and The Association of Arab Academies in Cairo to co-ordinate the efforts of Arab Academies (Sieny, 1985).

Since translators rarely restrict themselves to dictionaries or glossaries produced by official bodies or Arab academies, and often coin their own terms or equivalents, the co-ordinating efforts exerted by official or non-official bodies and authorities become a two-edged weapon; for in their endeavour to unify scientific terminology, they have themselves produced and disseminated different terminology. The situation thus becomes a vicious circle. This is not only applicable to the national level, but also true of the situation of Sc. translation within the same country owing to the lack of serious and practical co-ordinating measures. A translator would resort to transference when no T.L. equivalent is found for a certain S.L. item.

What adds oil to the flames is that Sc. terms increase nowadays by leaps and bounds. In the previous decade, the number of newly coined Sc. terms per day was estimated about 100 terms (Khan, 1979).

English – Arabic Sc. translation is almost always uni-directional (i.e. from English into Arabic), and problematic, because English is the linguistic medium of a scientifically developed nation; where as Arabic is the linguistic medium of a scientifically developing nation. To find correct and consistent Arabic equivalent Sc. terms for the English Sc. terms is in fact a major problem in English–Arabic translation and this is responsible for a high percentage of errors and inaccurate renderings of such texts .

In an attempt to cope with such problems of translation (and Arabization), some Arab Academies were established (The Arabic Language Academy in Damascus, 1919; The Arabic Language Academy in Cairo 1932; The Iraqi Scientific Academy in Baghdad, 1947; The Arabic Language Academy of Jordan in Amman, 1976; and The Academy of Baït al-Hikma in Tunis in 1983), all of which have been engaged with terminological issues and problems. In other Arab countries, research institutes were established, which became involved in the production of Sc. & T. terminology (The Institute for Studies and Research for Arabization in Morocco; The Kuwait Research Institute, The Arab Development Institute, etc). Many ministries of Culture (and/or Information in the Arab world (such as Iraq, Syria) have undertaken the promotion of translation into Arabic as well as the compilation and production many specialized dictionaries and glossaries. Many Arab Universities (such as the Technological University in Baghdad, the Unuversity of Mosul (Iraq), King Abdulaziz University and King Faisal University in Saudi Arabia)); as well as many publishing houses (such as al-Ahram Establishment in Cairo, Librairi du Liban in Beirut, and Dar al-Mammoon in Baghdad), have followed pace in producing Sc. dictionaries and glossaries in various fields. Some foreign oil companies too, have produced and compiled their own dictionaries and glossaries in the fields of oil industry, finance, and administration (as did ARAMCO in Dahrn Saudi Arabia). Mass Media, as well as individual efforts on the part of translators, have produced and introduced their own adhoc Sc. T. terms too, and influenced other individual translators.

Comparing the above S.L. text and its equivalent T. L. version shows the main features and characteristics of Sc. texts (simplicity and neutrality of style, the prevalence of subject matter, and Sc. terms, the lucidity of expression and verbal accuracy, etc.). The translator has managed to reproduce the S.L. information in his rendering (despite the fact that the two Languages are formally different which is explicit from the longer sentences and different structures used by the translator).

#### **What Is Sc. & T. Translation & What are the problems of English-Arabic Sc. & T. Translation?:**

Sc & T. translation is a process in which S.L. Sc. & T. text is replaced by T.L. Sc. & T. text that is found to be its equivalent.

According to Catford's classification of types of translation (1965) it may be classified as "Total" according to the notion of "Level"; and perhaps "Literal" in accordance with the notion of "Rank"; and "Full" (when no transference is involved) according to the notion of "Extent". It also matches what Nida calls "Formal Equivalence", and what Newmark calls "Semantic Translation", since the main emphasis in Sc. & T translation is on the message or signification rather than on the general stylistic niceties of the medium.

The classification of this variety of translation as "Sc. & T." translation is in fact by virtue of dealing with the domain of science or scientific register (in contrast to "Literary Translation" which is related to the domain of literature or literary register; "Legal Translation" which is related to the domain of law or legal register, etc).

Since scientific translation is a process performed on Sc. & T. texts, the convergence of Sc. standards and progress between the S.L. & the T.L. plays an essential role in facilitating (or otherwise) complicating Sc. translation between any pair of languages.

Scientific terminology is specialized, and is not intelligible but to scientists and students of science. This is tantamount to saying that a translator would face many difficulties unless he has a general knowledge of the subject matter, and the T.L. has a developed equivalent Sc. register (and/or sub-registers). In developed countries, Sc. register is sometimes further divided into specialized sub-registers (e.g. civil engineering, mechanical engineering, electrical engineering, etc.). This does not seem to be the case in developing (or under-developed) countries.