Metathesis in English and Arabic :
A Comparative Study

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Abstract

This study tackles the notion of metathesis in English compared with that in Arabic. The central goal of this paper is to elucidate the cases in which metathesis occurs in both English and Arabic reaching at the points of similarities and differences between them. To explicate the linguistic phenomenon at hand, an introductory idea about metathesis is given viewed from historical and psychological aspects. Then a particular attention is paid to its causes and context in English and Arabic. Finally, the findings of this paper are summed up.

1. Metathesis in English

1.1 Metathesis: Definition

Language is a set of units that are catenated in a unique system of rules to have communicative value based on the linguistic situations speakers find themselves in. It is possible to say that two languages share the same sounds but differ in the way they combine. To be well-formed, these sounds are arranged according to phonotactic rules. In certain linguistic contexts, speakers sometimes unconsciously misarrange their segments to have either a meaningless word or of a different meaning depending on the nature of linguistic system of the speakers' language. Variation in the linear ordering of elements is typical in the domain of syntax, but comparatively striking in phonology, differing in nature from most other phonological processes which are typically defined in terms of a single sound, or target, which undergoes a change in a specified context. Thus, the change from /nb/ to [mb] can be described in simple terms as a sort of assimilation of the target /n/ in the context of a following /b/, thereby yielding [mb]. In contrast, the reversal of sounds such as /sk/ -> [ks] defies such a simple formalism given that such a case of transposition or metathesis seems to involve

two targets, with each essentially providing the context for the other. To Carr (2008: 100), metathesis is the rearrangement of <u>sounds</u> or syllables in a word, or of <u>words</u> in a sentence. As a common term, it refers to the switching of two or more adjacent sounds:

Target   Output

1. Integral   intergal

2. Foliage   foilage

Due to the distinct nature of the process, metathesis has traditionally posed a challenge to theorists attempting to develop a unified and predictive account in phonological theory. Though some linguists see the metathesized forms as a sort of speech errors,   historically speaking, some of those forms have gradually become a linguistic mark for language change (Carr, 2008:100).

1.2 Metathesis and Historical Linguistics

Speakers' errors represent significant sources for historical linguistic change, as a means for verifying the mechanism of speech production process, in addition to their role in understanding the reality of the phonological units and rules, and the relationship between competence and performance (Fromkin,1967:47) and (Green, 1969:80). To Sturterand (1947:38), such speech-errors, or **'lapse'**, are defined as "an intentional linguistic innovation". It sometimes occurs in both learners' performance, as in [t∫ikin] for *'kitchen'*, and that of the native speakers. *Metathesis is known as a process of switching the linear ordering of segments. It* has generally been treated as a minor sound change. Sporadic and irregular examples of metathesis are often treated as if they were explaining it. To Powell (1985:106), "Rules of metathesis are rarely productive. This is why they are most likely to be discussed from the point of view of historical linguistics; and even there, their sporadic nature gives them a definitely marginal character". Synchronically, metathesis is viewed more as "a performance factor responsible for spoonerisms and other erratic surface deviations." (Montler , 1989:67)

According to linear formalism, metathesis is not a basic process or operation. Being unlike assimilation and other speech processes and productively or articulatorily driven, metathesis is given relatively less attention. Though impossible not to hear or commit metrathesized forms in daily communication producing either a funny or a well-formed word but contextually of a different meaning, metathesis is seen as a marginal process for being perceptually, or acoustically, driven (Kiparsky,1995:33). Unlike perceptually-driven processes, articulatory driven processes generally develop due to physiological constraints on the vocal tract apparatus and, as a result, tend to be more automatic and hence, widespread. As such, it is not surprising to find metathesis affecting only a restricted portion of a given phonological system. A further reason for giving that limited attention to metathesis in phonological theory stems from the observation that metathesis is often used as a means of distinguishing between morphological classes. So one might argue, metathesis lies outside the realm of phonology and, consequently, phonological theory need not provide an account of it. For a different and positive view to metathesis, see Chomsky and Halle (1968:56), as indicated in (1.3).

Being connected with the sense of linguistic change, metathesis is well recognized in historical linguistics, see Crystal (2003:343), and gradually becomes a common one that leads to a change in language, in its all aspects, as in the word, 'bird', in Modern English that is developed from the word, 'brid', in Old English or 'hros', as stated by Crystal (1992:249), for 'horse'. Lass(1984:188) adds saying that most metathesized forms sporadic, for instance, there have been other examples in the history of English. Thus, it is possible to find in Old English interchanges of /p/ and /s/, as shown in spelling variants: /ps/→/sp/ in 'wapse'—waspe, / ps /→ /sp/ in 'apse—aspe ' , 'wlisp'- 'wlips' to be indicated as 'lisping'.

Moreover, talking about the role of metathesis in historical linguistics, it is unavoidable to find one tackling the social communicative factors in shaping language systems; i.e., the need in a communicative system to use forms that

others will identify and accept also influences sound systems.(Labov,1980:30) From a social perspective, the need to conform to a linguistic norm, for example, can exert influence over an individual's cognitive language sound patterns.

1.3 Metathesis and Psycholinguistics

Crystal(1992:356) takes the question to further direction considering 'metathesis' as an alternation in the normal sequence of any units within the sentence in the sense that it is a case of all linguistic units starting from sounds, syllables, words, or other units. In other words, phonemes, morphemes, words, and sometimes larger units of grammar are affected, this keeps pace with the fact that speech errors through which, to Roach (2002:71), it is possible to discover the control of speech production in the brain and not be considered as a slip of the tongue, but the brain itself does show a "disordering of units in the string, omission of a unit, or replacement of a unit"

To prop deeply, such an analysis is, psychologically speaking, called 'apraxia' or 'dyspraxia' which is defined as "the loss of ability to carry out purposeful movements on request, as a result of damage to specific areas of the brain, but in the absence of any basic deficit of a motor or sensory kind". Being concerned with linguistics, such a case is referred to as 'articulatory or verbal aparixia', and is characterized by labored and disordered speech production. Speakers' inability to order and articulate speech sounds caused by an impairment in the nervous system in a sever form is known as 'dysarthria' or 'anarthria' that is a motor speech disorder. Such a kind of disorder may affect any part of the vocal tract, and any aspect of speech sound production can be impaired (Crystal, 1992:25-111).

1.4 Metathesis : Causes and Context

Dealing with metathesis as a sort of disorder of segments leads us to think of it as miscatenative use of language, to be clearer, catenation is defined as "the linking of sounds together in speech, such as the grouping of phonemes into syllables, and the grouping of syllables and words through assimilation, elision,

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Thus, metathesis is phonetically less natural than other processes, and has a relatively greater phonological motivation. This view was clearly stated by Grammont (1985:239):" metathesis arises when the order of sounds and the syllable boundary make inconvenience; it causes a group of sounds to be placed where it is easier for the speaker ". This phonetic optimization approach has prevailed in descriptive and typological studies. According to Ultan (1978:395), for instance, "metathesis yields a better syllable structure safeguards unity and harmony of languages sound system in replacing unusual groups by common groups which have become unpronounceable in substituting simple types for them and avoids useless articulatory effects". Ultan's survey also concludes that the superficial cause of most metatheses is conversion of a phonologically inadmissible or disfavored sequence into an acceptable one. Hock (1985:532-33) contends that metathesis becomes regular only when it serves a specific structural purpose usually that of converting phonologically or perceptually marked structures into more acceptable ones.

In Chomsky & Halle's (1968:34), seminal work in generative phonology, metathesis is formally described by means of transformational notation, where (1) shows the metathesized sequence of consonants /s/ and /k/,

1. Target   Output

   S K   K S

   1 2   2 1

while (2) is a case in which the first consonant in a word is metathesized with the final consonant of a word over a string of five segments. All regular cases of synchronic metathesis involve strictly adjacent segments, for related discussion, see Hume (1998), Mielke & Hume (2000),

2. $C_1V_2C_3V_4C_5V_6C_7 \rightarrow C_7V_2C_3V_4C_5V_6C_1$

the fact that linear formalism was inadequate to represent metathesis is not a

sufficient argument for rejecting metathesis as a basic operation. Metathesis has resisted a unified, explanatory treatment in nonlinear phonology despite advancements in the formalism used to account for many other processes, such as assimilation (Clements,1985:34) and dissimilation (Odden,1987:45). Unlike these phenomena, there is no unique formalism for characterizing metathesis as a primitive rule-type. Instead, 'metathesis effects', as cited in (Fromkin, 1973:218-20), have been derived by a variety of different means including:

- successive application of rules of deletion and insertion (Besnier 1987, Hume 1991)
- single feature spreading (Rice 1992)
- planar segregation (McCarthy 1989)
- template maximization (van der Hulst & van Engelenhoven 1994)
- vowel epenthesis into degenerate syllables (Lyche 1995)

From a theoretical perspective, therefore; metathesis ceased to exist as a distinct phonological process (Wanner,1989:26).

To clarify, the disordered units are possibly to be segments, which Nooteboom (1969:114) sees as 'phonemic speech errors' and 'non-phonemic errors', morphemes, or words. Transposing two segments in the linear ordering is considered a sort of errors that is referred to, attributed to Spooner, as 'spoonerism'. To be interpreted, those errors may occur either within words such as:

Target	Output

3. Relevant → revelant

4. Asterisk → asterix

    or across word boundaries as in:

5. Keep a tape → teep a cape.

6. Wasted a term → tasted a worm

7. All you sons of toil → all you tons of soil

8. Praise God from whom all blessings flow → ....flessings blow

There are cases in which the heavy coda, final consonants in the syllable structure, prohibition has led to instances of v/r/ being reversed to /r/v as in:

9. Modern → [modrən]

10. Pattern → [pátrən]

Not only can single segments be metathesized but also the whole cluster. This kind of errors does, according to Fromkin (1973:221), occur very often giving the following examples: :   11. At the bottom of the pay scale→ at the bottom of the [skej peyl] 12. **Throat cutting** → coat **thrutting**

Such a movement of the whole clusters is but further evidence that the syllable is not a single indissoluble unit in speech production, but itself composed of a sequence of segments. This is attested by the fact that a CV or a VC sequence which is part of a syllable can be involved in speech errors, for illustration:

13. **Pussy cat** → **cassy put**

14. **dress** and **pitch** → **piss** and **stretch**

Where (13) shows the monosyllable *[kat]* as a sequence of three segments [k+a+t], with the first two segments transposed with the first two segments of [p+v+sij],(14) shows transposition which can be explained in a way that the word 'piss' is substituted for '*stress*', and '*stretch*' for '*pitch*'; or instead, that the speaker started to say '*pitch*' and '*stress*' and the error is one of the final consonant substitutions. (Fromkin, 1973:221). Committing such errors supports the idea that syllables, like other segments, have independent status as behavioral units of performance. As slips of tongue, metathesis in its all kinds does not negate what Nooteboom (1969:119) suggests" the distance between origin and target (or the substituted segments) does not generally exceed seven syllables, (and) since we know that the short memory span of man may contain about seven units... we might interpret our findings as an argument for the syllable to be a unit in the phonemic programming system". Furthermore, Boomer and Laver (1968:7) state "segmental slips obey a structural law with regard to syllable place; that is, initial segments in the origin syllable replace initial segments in the target syllable,

nuclear replace nuclear, and final replace final". MacKay (1969 :65) points out that the "syllabic position of reversed consonants was almost invariably identical"

There are a number of errors occurring within the same word shows sequential ordering of segments within syllables, as in the following examples:

   15. **Harp**-si-chord→ carp-si-hord

   16. Ma-ga-zine →ma-za-gine

The assumption that clusters on a performance level should be interpreted as sequences of consonants raises the question of affricates. It is interesting to note that while [*str*], [*pl*], [*kr*], [*bl*], [*fr*] etc., as well as final clusters, reveal the splitting of clusters into segments, not a single example from Fromkin's data (1973:222), or of other to show a splitting of [*t*[*]* or [d] into sequences of stop plus fricative:

17.Pinch hit → pinch hitch not [pint hit []   It is certainly true, to Fromkin (1973:225), that errors which involve a substitution of features are rare, compared to errors involving larger units. They nevertheless require some explanation, and one can conclude that some features appear to be independently extractable as performance units. Many segmental errors may also be examples of such feature errors; but since they can also be accounted for as errors of larger units, as in: call the girl→ gall the curl ([k]-[g], or [-voice]-[+voice]). The transposition 'brake fluid' to 'brake fruid', one might suggest that what is involved is a transposition of the feature [lateral] or [anterior] rather than transposition of the two segments

To Lass (1984:188), there is a sort of metathesis of uncertain age that involves nasal sequences, particularly /m/ and /n/: 'enmity' for 'emnity' is quite frequent, and 'anemone' for 'amenone' seems to be developing near-standard status. Metathesis represents a formal problem that has two possible interpretations, either to be considered as a sort of 'interchange' or as a movement of one phoneme 'over the other'.

Moreover, Fromkin's data (1973:219) reveals that not only consonants but also vowels can be metathesized, as shown below:

18. Ad hoc → odd hack

19. Wang's bibliography → wing's babliography

20. Turn the corner → torn the kerner

It is perhaps worthwhile pointing out that in both linear and nonlinear phonological theory there is a principled reason to resist recognizing metathesis as a legitimate phonological process of segment reversal: extending the theory to account for the inherently distinct nature of metathesis has the potential of opening 'a Pandora's box of implausible-seeming processes'. (Janda,1984:92) This resistance according to metathesis formal status in phonological theory has been reinforced through viewing metathesis as a sporadic, marginal process. For example, Webb (1974:24) states that metathesis does not exist as a regular phonological process in synchronic grammar. Rather, metathesis is commonly thought to be restricted to performance errors, child language or sound change, that is to Webb (ibid), "a view regularly expressed in the linguistic literature, including the most up-to-date instructional texts and dictionaries". However, to conclude while metathesis is not as widespread as processes such as assimilation or deletion, and can be limited in its scope affecting only a subset of forms or morphological classes of English, metathesis can nonetheless be completely regular as a synchronic phonological process .

2. Metathesis in Arabic

2.1 Metathesis: Definition

The process whereby letters, not sounds as the case in English, appears to switch position with one another in Arabic is generally called (الاشتقاق الكبير) . Morphologists name this linguistic phenomenon as (القلب المكاني) (Al-khamash, 1996:13)

Al-Jarf (2003: 6) defines metathesis as a process which involves a change in the position of the root consonants and the retention of the original meaning; for example:

Target   output

جَذَبَ jathaba   جَبَذَ jabatha

صَعَقَ sa'aqa   صَقَعَ saqa'a

وَشَبَ washaba   وَبَشَ wabasha

مَدَح madaha   حَمَدَ hamada

Al-mutaliby (1978:196) and Safwa (1980:431) maintain that metathesis can be considered as a dialectal phenomenon. For example, both خَذَب and جَذَبَ have the same meaning, but the target is used by *Bany Quraysh* while the output is used by *Bany Tamym*.

2.2 Metathesis: Causes and Context

Anees (1985:169) says that one of the reasons for making metathesis in most of the Arabic words is the excessive availability and the ease of pronouncing certain sound clusters than other .

Target   output

يَئِسَ ya'asa   أَيِسَ 'ayasa

To clarify, the root which starts with 'ء', *al-hemza*, followed by 'ي' exists more than that which starts with 'ي' followed by 'ء', *hemza*; therefore, the word 'يَئِسَ' is matathesized into 'أَيِسَ', the same reasoning can be applied to the following word :

Target   output

كهرَب kahrab   كرهَب karhab

In Arabic, metathesis is a well-known linguistic phenomenon that can not be ignored. It can be noticed clearly in children's language and the colloquial one. Its realization, as stated by Amaar (2006:13), differs according to the position of the metathesized letters .It occurs between the initial letters, such as 'حَشرَج', hashraj, which is metathesized into 'شحرَج', shahraj, as in:

لعمرك ما يغني الثراء ولا الغنى   إذا حشرجت يوما وضاق بما الصدر

This word is metathesized into 'شحرج ', which is not found in Standard Arabic, because of the ease of pronouncing 'ش' followed by 'ح' than 'ح' followed by 'ش'.

Medial letters can also be metathesized as in 'دَعرَم', *da'ram*, which is metathesized into 'دَرعَم', *dar'am*. Further realization is the transposition of the final letters as in 'مطحلب', *mtahlib*, whose output is 'مطحبل', *mtahbil*:

فيها الضفادع واخيتان تصطخب   عينا مطحلبة الأرجاء طامية

As a result, what can be observed out of the given examples is that the transposition happens between adjacent letters. As in English, metathesis in Arabic can be extended to take place between non-adjacent letters (ibid.):

Target	output
اوشاب 'awshab	أوباش 'awbash
منازل manazil	ملازن malazin

Arabic is written with consonant symbols only. Arabic short vowels are indicated by means of '*diacritics*' below or above letters. Usually only consonants and long vowels are written down. Metathesis in Arabic consists of modifying the linear order of root consonants, for example:

Target	output
عُشب 'ushub	شُعب shu'ub
بحر bahar	حبر habar

Prunet, Beland and Idrissi (2000:614) state that the aspects of metathesis are noteworthy. First, even if the linear order of consonants is affected, vowels usually remain intact in all tasks, for instance:

Target	output
فاشل fashil	شافل shafil
صحيفة sahyfa	صفيحه safyha
قرود qurud	قدور qudur

An overview of these metatheses reveals that they all involve consonants only. The order of the vowel melody elements is never affected. Although the long vowels 'او ويا' are transcribed in the Arabic scripts of the aforementioned words,

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they are not metathesized. In addition, Idrissi(1997:127) says, metathesized cases target the consonants of the root only, and affixal consonants (in prefixes, suffixes, infixes) are never involved, as shown in the following instances:

Target	output
فقراء fuqara'	فُرَقاء furaqa'
مهرجان mahrajan	مرهجان marhajan

The root of the word 'فقراء' is 'فقر', when it undergoes metathesis, only the consonants of the root are changed to be 'فرق', while the plural suffix 'اء' is not affected. Regardless of the number of prefixes, infixes or suffixes, the consonantal root is the exclusive domain of metathesis. Further illustrations are the following:

Target	output
فراشات farashat	فشارات fasharat
يغرقون yaghraqun	يرقغون yarqaghun

Not only does metathesis not move affixal consonants around but it does not even do this when they are homophonous with root consonants:

Target	output
مَسَح masaha	سَمَحة samaha
مَساء masa'	سَماء sama'
مُخرج mukhrij	مُخجر mukhjir
مَسبَح masbah	محبس mahbas

When 'm' is the part of the root, as in 'سَمَحة' and 'مَساء', it can be metathesized , but when it belongs to a prefix, as in 'مُخرج' and 'مَسَح', it remains as it is. (Prunet, Beland, and Idrissi, 2000:617) Out of the examples shown, it is evident that the speaker, who produces metathesis, has problems with speech production and more specifically with phonological planning, but he has no semantic disorder. If the speaker's competence were affected, that is, if he had lost all information

pertaining to the order of root consonants, he would misunderstand words containing identical root consonant in different orders, such as the verbs 'كَتَبَ', wrote, and 'كَبَتَ', repressed. However, he makes no such sort of confusion at the input processing level, that is, comprehension. Moreover, although the normal speaker's metatheses are frequent, they still form a small percentage of his production: most of his words show appropriately ordered consonants. Both characteristics are incompatible with actual loss of underlying order in his root entries. (ibid; 619) The lexical entries of roots contain information of a syntactic, semantic, morphological and phonological nature. The last is divided between segmental features; which encode place and manner makeup, and ordering information, which encodes precedence relations. Those who produce metathesis have problems with precedence relations. However, all consonants can be moved, sometimes with two or more wrong outputs for the same root as shown in:

Root	target	outputs
ظرف	أظرفه	أفظره أظفره
كتب	كَتَبَ	كَبَتَ بكَتَ بتكَ تَبك تكَبَ

Where these examples indicate that any reordering of root consonant seems possible, reordering could conceivably be governed by phonological or perceptual factors. Transpositions can occur with two or even three consonants. Ordering in which two consonants are displaced is called ' **bipartite**', as in بتك, كبت, تكب and those in which three consonants are displaced '**tripartite**', such as بتك, بكت (Al-Mozainy, 1981:86 and Heath, 1987:184)

An overview of the Arabic words indicates, according to Kiparsky (1987:24), that Arabic has few phonatactic constraints on the nature of CC clusters, such as 'قِرد', qird (CVC_1C_2) and its output 'قِدر', qidr (CVC_2C_1). Generally speaking, Arabic consonants are separated by vowels and the consonant reversals in errors such as 'صُفحى', sufha, result in the same CVC structures of the target forms, 'فُصحى', fusha.

Sometimes the whole root can be exchanged with another leaving the affixal unaffected. Abd-Eljawad and Abu-Salim (1987:149) report certain Arabic examples that fall into this category.

سكته قلبيه sakta qalbya   قلبه سكتيه qalba saktya

نيل وكامل Nabyl w Kamil   كميل و نابل Kamyl w Nabil

In the above mentioned cases, the two vocalized template remain in situ while the two roots are switched. As a result, each root finds itself mapped to a template it should not select. It is also crucial to know if metatheses are predictable on semantic grounds because lexical confusion within semantic fields is the hallmark output deep **'dyslexia'**, such as uttering *'fork'* when shown the word *'knife'*. Consequently, it is conceivable that the speaker would metathesize consonants not because of a phonological problem but because he is pronouncing a semantically related word that happens to contain the same consonants ordered differently (Heath, 1987:87). Semantically, Prunet, Beland, and Idrissi (2000:622) state that metathesis can be divided into two categories: First are those outputs that happen to be existing words with specific meanings. It should be considered that there is no semantic association between the target and the output and it is only by chance that the output happens to coincide with a real word.

Target	output
دَخَلَ (entered) dakhala	خَدَلَ (became numb) khadala
طرف (envelop) tharf	ظفر (victory) thafr
فَحَصَ (examined) fahasa	فَصَح (was fluent) fasaha
قرد (monkey) qird	قدر (cooking pot) qidr

From the psycholinguistic perspective, these words are said to be lexically biased because one cannot rule out that they are prompted by phonological similarities between the target and the output forms. The second category comprises lexically unbiased words: it contains outputs that are nonwords.

Semantic motivation is out of the question for these outputs since they have no meaning.

Target	output
أثيوبيا (Ethiopia) 'athyubya	أبيوثيا 'abyuthya
بعثر (scattered) ba'thara	بعرث ba'ratha

Thus, it is possible to say that metatheses are not caused by confusion between lexical entries that are semantically related. They are either due to inability to consistently maintain the underlying order of root consonants during phonological derivation and speech production or, for lexically biased metatheses, to confusion between roots whose segmental makeup happen to be similar (Prunet, Beland, and Idrissi, 2000:622) .

Conclusions

In both languages, metathesis seems to be of two types: creating a new root by changing the order of consonants and selecting another template.

Arabic has few phonotactic constrains on the nature of CC clusters, such as 'قرد', qird $CVC_1C_2 \rightarrow$ 'قدر', qidr CVC_2C_1, as compared with English which does have such phonotactic constraints. There are certain cases that cannot be metathesized in English because the result will be inadmissible consonant clusters, for instance, 'brake fluid' could be mispronounced as 'frake bluid',but 'brake switch' could never be done as 'srake bwitch', for having no English syllable begins with /sr/ or /bw/ . Consequently, Arabic consonants are more prone to metathesis than are English consonants do.

Furthermore, Arabic exploits far more combinations of consonant orders than English does. In other words, the order of stem consonants is easier to disrupt in Arabic than in English. This ease of root consonant reversal can mostly be related to the fact that Arabic has a number of synonymous roots containing the same consonants in different orders.

What is more is that English vowels can be metathesized unlike Arabic ones that can never undergo metathesis, for illustration:

قرود qirud → قدر qidur

Fish and tackle → fash and tickle

It is evident that ordering in which two consonants are displaced, **'bipartite'**, is available in both languages, while that in which three consonants are displaced, **'tripartite'**, is limited to Arabic language only. Moreover, onset – coda metatheses are limited in both languages since the floating consonants can be attached to either onset or coda depending on the template.

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الخلاصة

تتناول هذه الدراسة ظاهرة القلب المكاني في اللغتين الانكليزية والعربية. تهدف الدراسة لتوضيح ؛
التي يحدث فيها القلب المكاني في كلتا اللغتين وصولا لنقاط التشابه والاختلاف بينهما. لغرض شرح
الظاهرة دُرست من الناحيتين التاريخية و النفسية ثم وُضحت أسبابها و سياقها في كلتا اللغ
و أخيرا نتائج البحث لُخصت في ألخاتمه.