

The Multi-Dimensional Arabic Adjacency Versus the One-Sided English Morphological Adjacency: Towards a Comprehensive Adjacency Principle

Gatie Niema Risan Al-Hilfy
Faculty of Education, Muthanna University, IRAQ

Abstract

The topic of assuming the genitive by reason of adjacency الحمل على الجوار is one of the most important topics in Arabic grammar and Arabic language in general.

The topic is multi-dimensional and has roots and examples in grammar, morphology and rhetoric, and early Arab grammarians made no separation among all these fields; rather they were all dealt with under the heading "Assuming Adjacency or Contingency"

It may also be worth noting that preference in translation is given to the term "adjacency" because of frequent use in modern linguistic studies in English, though it relates only to one type which is the morphological; whereas in Arabic ,it includes all the linguistic levels, lexical., phonological, morphological and syntactic levels. This may be of utmost importance to contemporary non-Arab grammarians , especially those who are still going around the "orphan" morphological level.

1.0.Introduction:

The principle of adjacency in Arabic may reveal striking conclusions for other grammars especially when we take into consideration that Arabic is an inflected language in the sense that a grammatical category is not decided only by word order as it is in English ,but also by inflection affecting the last letter of the word. There can be no word in an Arabic sentence that is not bearing a diacritic or inflectional letters even for words that are supposed to be indeclinable or structured: they must bear an inflectional sign.

Greek certainly is an inflectional language which could be traced back to the influence of the Phoenician grammar before reversing the Phoenician alphabet in a way that the researcher may prove one day as hasty and lacking in comprehending the special internal structure of the Phoenician words which lead the Greek linguistic heritage alongside the heritage of all alphabets descended from Greek to be deprived of natural rhythm at the very lexical level .This has affected dramatically the phonetic aspect until today. The researcher hopes to devote in the near future an article dealing with this "fertile" subject if researchers ponder over it.

We shall simplify bellow ,for the benefit of non-Arabic speakers, the main types of inflection affecting all parts of speech.

Parts of speech in Arabic are three, only three,: nouns, verbs and particles, the last being extended to include prepositions, conjunctions and some adverbs.

The inflectional signs are four: کسرة fatḥah (---- $^\circ$ ----) and $^\circ$ $^\circ$ $^\circ$ $^\circ$ Some Arabists overlook the last sign and treat it as no vowel. Actually, it does the function of an" implicit vowel through its being an absence of a vowel " This may seem contradictory but it is certainly not and its main function affects the inflection of verbs in particular in addition to some indeclinable words especially adverbs and particles.

The paper will discuss all the linguistic level for Arabic adjacency. More emphasis will be allotted so syntactic level because it raises many arguments that may be of use especially when it relates to the structural ambiguity of sentences as detailed in Chomsky(2002).

1.1. Types of adjacency in Arabic

The paper will present the following types:

- a. Phonetic Adjacency
- b. Morphological Adjacency
- c. Syntactic Adjacency

1.1.1.Phonetic Adjacency

The phonetic adjacency has no equivalence in English except sporadic hints that are made into it but without indepth studies.

An example is found in the classical speech of the Arabs in the expression:

جاءَ بالضِّيح والرِّيح

Transliteration: $j\bar{a}'a\ bi\dot{q}-\dot{q}\bar{l}h\dot{i}\ war-r\bar{l}h\dot{i}$ (He has brought the sun and the wind)



The word $d\bar{l}hi$ with long " \bar{l} " was originally dihu with short "i" after the "d." The word has assumed the long vowel " \bar{l} " in order to agree with the adjacent word after it, namely, $r\bar{l}hi$ (Ibn Manzūr, 1956, article c).

Another interesting example narrated by Ibn Jinni, the renowned morphologist, (Ibn Jinni, 1966,1,37f), is the a portion from the Qur'an, Chapter 1, verse 1, الحمد شن, al-hamdu lillahi (Praise be to God) According to Ibn Jinni , some Arabs recite this Quranic portion of the verse as فنم by attaching a damah فنم (---أ--) to the first letter of the second word in order to agree with the first word ending by reason of adjacency. However, this anomalous reading, though, not heard by the current Quranic reciters, is supposed to be correct in its being an old Arabic dialect.

1.1.2. Morphological adjacency

English deals mainly with the morphological rule for adjacency as introduced by (Siegel,1977) and taken up by (Allen,1978). One may also state here for the sake of comparison that "Adjacency Condition" and "Adjacency Principle" are lacking in an in-depth interpretation since they deal with a simple rule when compared to early Arab grammarians "sophisticated" augments.

Examples of this type of adjacency in Arabic are taken mainly from the مُعْتَلُ mu^ctal verb lit. "sick, ailing" (unsound or imperfect verb).

The first example is $صَّرَةُ عِيْرِ عِيْرِ عِيْرِ عَلَيْمِ wyam "v.to fast". This word was original عَنْرِ عَلَيْمِ suwwam where the "عَسْرِ" "ā" has been converted into <math>y\bar{a}'(\varphi)$ " \bar{l} " by reason of "fraternising" between these vowels in resemblance and due to the adjacency to the conjugation of the verb "عَسِي". According to Sibawayh (Sibawayh, n. d., 4,362-363), the reason behind this change is due to the fact that "since the $y\bar{a}'(\varphi)$ " \bar{l} " is quicker or lighter for them (the Arabs) in pronunciation and since it is falling after a damah ضمة (-----), then they gave it the resemblance of the conjugation (باب) of the unsound or defective verb."

Ibn Jinni(Ibn Jinni,3,222-223), holds a similar opinion.

If we ponder over all the above examples about the معتل unsound , defective", verb, we can see that the cause of this "unsoundness" is purely morphological which is motivated by ease and quickness in pronunciation.

According to the Arabs, the conversion of " ν " "waw " \bar{u} " into $\nu \bar{a}'(\varphi)$ " \bar{I} " has resulted in quickness in pronunciation and harmony.

Another example attributed to morphological adjacency as regards the transposition of " $_{\mathcal{S}}$ " waw " $\bar{\mathbf{u}}$ " into ($_{\mathcal{S}}$) $_{\mathcal{Y}}$ $\bar{\mathbf{a}}$ " $\bar{\mathbf{I}}$ " is found in the measure or morphological scale of the verb" put for the broken plural of paucity ,i.e. persons or things whose number is between three and ten" (Vehr,1974, article $_{\mathcal{S}}$).

According to al-cukbari(al-cukbari,1976,1,423)," if the 'alif of plurality falls between two waw_s , and the waw is adjacent to the end, then it should be converted or changed into hamza as in the example 'awā'il''. He elaborates further by explaining that" when three "unsound" letters meet together, they(the Arabs) change one of them in an "escape" from tongue—heaviness, and since the last waw is adjacent to the end, then that change becomes due" (Ibid).

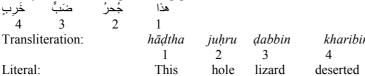
1.1.3. Syntactic Adjacency

Syntactic adjacency may present rich grammatical material for English and even non-English grammarians especially the generativists.

1.1.3.1.Appositives

Early Arab grammarians differed over the permissibility of adjacency in appositives. There are three opinions over this subject, the most important of which being that of Sibawayh and the majority of grammarians. According to this opinion, adjacency which is putting(the noun) in the genitive ,though deviant from the norms of grammar as regards appositives ,is permissible (Sibawayh,n.d.,1,436-437).

A very oft-cited example among grammarians is:



Translation: This is a deserted hole of a lizard

This is an Arabic nominal sentence which consists of a subject and a (non-verbal) predicate or attribute. The first part is the مضاف (construct or prefixed noun) in the nominative, the second noun is the مضاف (the complement of the prefixed noun) which is always in the genitive while the third part is an adjective. This adjective is supposed to modify its noun, *juḥru*, which is in the nominative for its being the predicate noun and to be assigned the same nominative case .Instead, it has become *kharibin* in the genitive by reason of adjacency to *dabbin*.

There are also many Quranic examples.

اشْتَدَّتْ بِهِ الرِّيحُ فِي يَوْمٍ عَاصِفٍ السَّتَدَّتْ

Translteration: 'ishtaddat bihir-rĪḥu fĪ yawmin c āsifin (the wind blows it hard on a stormy day)



We have two nouns and an adjective as follows:

rĪḥu: subject in the nominative(wind)

yawmin: noun in the genitive after a preposition (day)

^c āsifin: adjective in the genitive (stormy)

The adjective ${}^c\bar{a}sifin$ is supposed to be in the nominative since it modifies $r\bar{l}hu(n)$; nevertheless it is put in the genitive as though it modified *yawmin*. As a matter of fact, it is not a process of modification; rather a process of adjacency.(al-Farā',1983,2,73)

التنازع في العمل 1.1.3.2.Contest or conflict in domination

This grammatical category or topic is unique to Arabic and we suspect it exists in other language though it relates almost wholly to word order.

Contest is based on the famous theory in Arabic grammar known as ${}^c\bar{a}mil$, (regent or operative or as defined by Hans Vehr (Vehr, 1974, article عمل) as "word governing another in syntactical regimen, regent"

Contest or conflict means that two regents or operatives are claiming the right to dominate the contested noun or the accusative. This is motivated mostly by semantic considerations. The example below is a sentence with two (uncoordinated) verbs and there is only one regent:.(al-sabban,1974,2,142)"(NB: Arabic is written from right to left like Phoenician and early Greek language!):

There is a disagreement among grammarians over this issue. For Basrans , the regent deserving governing is the second verb, i.e. (hit I) .They cite examples and analogy. As for citation, they cite the Qur'anic verse:

$$96/$$
 $\frac{3}{4}$ $\frac{3}{4}$ $\frac{3}{4}$ $\frac{3}{4}$ $\frac{3}{4}$ $\frac{3}{4}$ $\frac{2}{4}$ $\frac{1}{4}$ $\frac{3}{4}$ $\frac{2}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{2}{4}$ Literal: (bring me) pour thereon (molten cooper)/object $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{3}{4}$

Translation: Bring me molten copper to pour thereon.

In this cited verse, the second verb *ufrigh* 'pour', is the operative in which case *qitran* is put in the accusative as an object. The Basrans elaborate further by stating that if the first verb 'ātūnī,'bring me' had to be the operative, then the second verb would be *ufrighhu* 'pouring it". As for analogy, they argue that the second is more deserving to be the operative because it is the nearest to the governed noun in addition to its being confirmed by the principle of adjacency upon which many of the predicaments of the second noun are assigned to the first and that of the first to the second (Sibawah,n.d.,1,73-74).

As for the Kufans, they hold the opposite view and they also support their argument with examples from classical Arabic and analogy (al-^cukbari,1986,254).

This debate between the Kufans and the Basran relates directly to the principle of adjacency which is employed to support the argument of one party against the other. (Ibid, 254).

2. Adjacency and structural ambiguity

According to Crystal(2003,438)" a structural ambiguity is a term used in linguistics to refer to a construction with more than one grammatical interpretation in terms of constituent analysis....A much used example is *old men and wome*n, which is structurally ambiguous. In generative grammar, this phenomenon is sometimes referred to as 'constructional homonymity'."

This what applies to Arabic syntactic and even non-syntactic adjacency.

By reason of the established grammatical norms, the word in focus agrees in case with the word it modifies; by reason of adjacency the same word in focus modifies the most adjacent word, mostly if not compulsorily, in the genitive case.

Similar examples can be found in many Quranic chapters and verses.:

3.Adjacency restricted to specific grammatical cases

Adjacency has been restricted by the overwhelming majority of grammarians to the genitive case as far as nouns are concerned It is inadmissible in the nominative case. There are only two grammarians, al-'aṣmac'i and Ibn qutaiba, who present a single example from Arabic poetry in which they try to prove that adjacency is also applicable to the nominative.(al-Baghdādī, 1976, 5, 101):ft.6



Example:

مَشيَ الهَلوكِ عليها الذّيعلُ الفُضلُ

Transliteration:

mashya al-halūki ^calayha al-khay^calu al-fuḍulu

we have here three words as follows:

- 1. *al-halūki*: in the genitive(shameless, insolent)
- 2. *al-khay^calu*: in the nominative(sleeveless garment)
- 3. *al-fudulu*: in the nominative(single or modest garment)

According to Arabic grammar norms, an adjective should agree with the noun it modifies. It may be worth noting for the sake of reasonable attention of non-Arabic researchers that the adjective in Arabic follows the noun similar to French and contrary to English.

Let us analyse this line of poetry to see how we can assign two grammatical descriptions to it:

al-halūki is in the genitive because it is the governed noun in in the genitive construct, the first one being the construct state, Ar. فضاف lit. "added (p.p.)". This مُضاف is dominated by what precedes it and it stands like any other noun. The second is always subjected to the genitive case wherever it falls.

We are expecting ,therefore, that al-hal $\bar{u}ki$ is modified by an adjective in the genitive. This adjective is al-fudulu which has assumed the \dot{c} dammah of the nominative. When we discover that al-khay alu is the most the adjacent word to al-fudulu in the nominative as well, then we realise that adjacency has "overcome" the norms of Arabic grammar.

However, this type of adjacency is extremely rare and anomalous and may be negligible. What supports this opinion is that this example is the *only* evidence in support of this nominative and the second evidence is that not a single example has been picked from the Quran.

4. Morphologica Adjacency in English

There is no doubt that the principle of adjacency or adjacency condition in English relates to the morphological component of the language.

The adjacency conditions is defined by its major advocates, i.e.(Allen,1878:49) and((Siegel,1978)as follows:

"The Adjacency Condition: No WFR (word-formation rule)can involve X and Y, unless Y is uniquely contained in three cycle adjacent to X"

Crystal's Dictionary,(Crysta,2003,11) defines adjacency principle as follows," A principle in government – binding theory which provides for the order of complements It requires that compliments capable of being casemarked precede those compliments which are not, and thus to be adjacent to the head of the phrase in question. In English, for instance, the principle ensures that no constituent intervenes between a verb and its object noun phrase, e.g. *John read a book yesterday vs.*John read yesterday a book."*

If we trace the history of adjacency further, we discover that it is a condition on words formation rules proposed in Siegel(1977) and taken up by Allen(1978). It states that an affixation rule can be made sensitive to the context of an embedded morpheme only if that morpheme is the one most recently attached by a morphological rule.

Thus far, the initiators of this principle have not revised it in view of what other languages, such as Arabic, present.

Though Arabic presents comprehensive adjacency models or types, yet there are studies which resemble to some extent the syntactic adjacency in Arabic in an apparent departure from Siegel -Allen morphological adjacency.

A study conducted by Mark C. Baker (Baker 2011) from Rutgers University entitled "On the Syntax of Surface-Adjacency: The Case of Pseudo Noun

Incorporation," reveals strongly something similar to Arabic. The researcher has made reference to Turkish (Öztürk 2005) and Spanish and other Asian languages. Needless to say that Turkish, which was one day written in the Arabic script, is greatly influenced by Arabic while Spanish is also influenced through hundreds of years.

Let us have a look at some extensive examples and comments by the researcher:

"Direct objects of this sort need not be next to the verb, since these languages allow some variation in word order, presumably due to scrambling. For example, the object can easily be separated from the verb by an adverb or by a PP/dative NP, as shown in (2). It can also scramble to before the subject in both languages, deriving OSV orders.

(2) a. Masha salamaat-y türgennik sie-te. (Sakha)

Masha porridge-ACC quickly eat-PAST.3sS

'Masha ate the porridge quickly.'

b. Min kinige-ni Masha-qa bier-di-m. (Sakha)

I book-ACC Masha-DAT give-PAST-1sS

'I gave the book to Masha."

c. Maala anda pustagatt-e veegamaa padi-cc-aa. (Tamil)

Mala the book quickly read-PAST-3fS

'Mala read the book quickly.'



d. Naan oru pustagatt-e anda pombale-kiţţe kudu-tt-een. (Tamil)

I a book-ACC the woman-LOC give-PAST-1sS

'I gave a book to the woman.'

He continues by saying that " objects that are interpreted as nonspecific indefinites can omit the accusative case marker, showing up as caseless nominals (not distinct from nominative case in these languages"

After many examples Baker comes to conclude that" This makes sense if the PNIed nominal and the verb are indeed separate words, with a boundary between them. So we seem to have syntactic juxtaposition of an NP and a V, not union of an N and V into a single word on the surface" (Emphasis is mine)

The researcher has also produced evidence from Spanish and Romance languages. He mentions that some researchers have found that "in Romance languages, the verb itself undergoes head movement, breaking the adjacency between the verb and the object, even if the object is a bare NP." "As a result, bare singulars can be separated from the verb by an adverb on the edge of the VP"

He gives the following example from Spanish.

Juan tiene todavía casa en su ciudad natal. (Spanish)

Juan has still house in his village home

'Juan still has [a] house in his home village.'

Another most promising study in this direction is conducted by the Spanish researcher Jose Luis Gonzalez Escribano from the Catedratico de Filologia Inglesa, Universidad de Oviedo, España which is entitled" English compounds and the theory of abstract case". This study may be the most explicit study that call for the involvement of syntax in accounting for English compounds.(Escribano 2004)

These clear cases supported by concrete examples prove that morphological adjacency in English has become "old-fashioned" and "outdated". These cases may be verified even further by the fact that what was raised by Williams (Williams 1981a) is considered to be a replacement for Siegel's Condition(Siegel1977) which is renamed by Williams as Atom Condition. This terminological "confusion" is not in favour of promulgating any theory or principle.

I am suggesting therefore that a "rich" adjacency should be searched for in inflectional languages where cases are attached to words in a way different from when attached to words in a "lifeless" word order system as in English. "

Conclusion

The research has dealt with a very rare linguistic phenomenon which has been totally absent from the analysis of English grammarians, generativists and non-generativists alike. Adjacency principle ,or whatever term one gives to it, remains incomplete as long as it deals with an indeclinable systems such as that in English. Arabic has given the most comprehensive evidence that adjacency is multi-dimensional and accounts for rare linguistic phenomena. Some studies have revealed such a multi-dimensionality with evidence from other languages such as Turkish and Spanish which were one day part of the Arabic writing system at least.

REFERENCES

Al-BaghdadĪ, abdul Qadir Ibn umar(1976). *Khazant al-adab*. Ed. by abdul Salam Harun. Al-hay'ah al-Misriyah 'al-camma lilkitab:.Cairo

Al-cukbarl, Muhib 'al-Dln Ibn 'al-Husain Abul Baqa'(1976). Al-Tibyan fl 'icrab 'al-Qur'an. Ed by Muhammad 'al-Bajjawl. Matba^cat ^clsa 'al-Halabl wa shuraka'ih.:Cairo.

Al-^cukbarl, Muhib 'al-Dln Ibn 'al-Husain Abul Baqa'(1986). 'al-Tabyln can Mathahib 'al-Nahwiyln 'al-Kufiyln wal-Basriyi In. Ed. by cabdul Rahman 'al-cuthaimin. Dar 'al-Gharb 'al-'Islam I: Beirut.

Al-Fara', Abu Zakaria Yahya (1983). Macan I 'al-Our'an . Ed. by Ahmed Yusif Najat I and Muhammad cal I 'a-Najjar.3rd Edition.^calam 'al-Kutub: Beirut

Al-Sabban, Ahmed Ibn Muhammad Ibn call.(1974). Hashiyat 'al-Sabban ala Sharh 'a-'ashmunl. Matbacat 'a-Istigamah:Cairo

Allen, M.R. (1978). *Morphological Investigations*. University of Connecticut doctoral dissertation.

Baker, M (2011) "On the Syntax of Surface-Adjacency: The Case of Pseudo Noun Incorporation". Manuscript Rutgers University. Retrieved from https://www.rci.rutgers.edu/~mabaker/PNI-adjacency.pdf Chomsky, Noam (2002). *Syntactic Structures*. 2nd Edition. Mouton de Gruyter: Berlin. New York

Escribano, Jose L.G(2004). "English compounds and the theory of abstract case." Retrieved from. telecable . es/ personales / escri / index... / Compounds %20%20Case.pdf

Ibn Jinni, Abul Fath 'cuthman(1990). 'al-Khasa'is. Edi. By Muhammad 'cali 'al-Najjar. Dar 'al-Shu'un 'althaqafiyah 'al-cammah:Baghdad.

Ibn JinnĪ, , Abul Fath cuthman(1966).'al.Muhtasib fī tibyan wujuh shawath 'al-Qira'at.Ed. by cali 'al-Najdi and others.N.P.:Cairo

Ibn Manzūr, Abū al-Fadl Jamāl al-Dīn(1956). *Lisān al-carab* Beirut: Dār Sādir& Dār Beirūt lilţibāca walnashr.



Öztürk, Balkiz. 2005. *Case, referentiality and phrase structure*. Amsterdam: John Benjamins

Sibawayh, Abu Bishr ^cumar Ibn ^cuthman(n.d.). 'a-Kitab. Ed.by ^cabdul Salam Harun. ^calam 'al-Kutub: Beirut Siegel, D.(1977). " The Adjacency Condition and the Theory of Morphology," in Proceedings of NELS. University of Massachusetts. Amherst. .

Siegel ,D.(1978)."The Adjacency Constraint and the Theory of Morphology .In M. Stein(Ed.), *Proceedings of the Eighth Annual Meeting of the North Eastern Linguistic Society*. Amherst: University of Massachusetts, 189-197

Siegel ,D(1979). Topics in English Morphology .Garland: New York.

Vehr, Hans(1974). A dictionary of Modern Written Arabic. Librarie du Liban :Beirut and Macdonald &vans Ltd.: London

Williams ,E.(1981).' On the notion' lexically related' and' head of a word' .' *Linguistic Inquiry* 12 :245-274. ABSTRACT

يتناول البحث الحمل على الجوار كظاهرة يتميز بها النحو العربي ولا نكاد نجد لها نظيرا في اللغة الانكليزية بل لافي غيرها ن لغات الارض. وكون العربية لغة اشتقاقية بمعنى أن تراكيبها النحوية يتحكم بها ما يلحقها من حركات في آخر الكلمة فإننا نقف باندهاش أمام هذه الظاهرة العفوية المستمدة من السليقة حيث يتم خرق القواعد التقليدية للنحو وتتقمص الكلمة حركة الكلمة المجاورة مهما كان موقعها الاعرابي ولكن في الخفض فقط. وهي تقع في الاسماء حصرا. وليس هناك من حمل على الجوار لغير الخفض إلا في حالة نادرة بل في بيت شعر واحد فقط جاء به الأصمعي وابن قتيبة لإثبات وقوع الرفع في حال الحمل على الجوار. وفي ضوء ندرة الشاهد وكونه الوحيد فإنه يكاد يكون مهملا. يؤكد ذلك خلو القرآن الكريم من مثل هذا اللون الذي اتفق النحاة الأوائل على شذوذه وندرته. بغالبيتهم العظمى.

عرض البحث أوجه الحمل على الجوار من النواحي الصوتية والصرفية والنحوية المتوافرة في اللغة العربية غير أنه في مجال اللغة الانكليزية لم يكن هناك إلا جانب واحد وهو الجانب الصرفي وتدور عليه الابحاث بل ويلغي بعضها بعضا فهذه مؤسسته سيجل ويضيف عليه آلن ثم يأتي ويليمز ويقوم بإحلال محله شرطا آخر وهكذا دواليك.

وظل البحث يتعقب أي إشارة تُخرج المجاورة الانكليزية من باب الصرف لتنحو بها باتجاه النحو وغيره حتى تهيأت له بعض الأدلة من اللغة التركية والاسبانية بل وحتى غيرها كالتاميلية تفترض بدرجة ما أن لا بد من جانب نحوي بعد أن تعدت عدم قدرة نظرية المجاورة الصرفية على تفسير الكثير من الظواهر وخروج تلك الظواهر عن "بيت الطاعة" للمجاورة الصرفية الانكليزية. وقد أورد البحث ثلاث دراسات متميزة في هذا المجال

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage: http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library, NewJour, Google Scholar

























