

## Compounding as a Near Universal Phenomenon with Special Reference to Standard Arabic Nominal Compounding

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### Abstract

Compounding has received little attention in linguistic typology and, in particular, in studies on linguistic universals. This paper seeks to study compounding as a universal process with special reference to Arabic nominal compounding. It aims to point out whether compounding is a universal process in light of Standard Arabic nominal compounding. It attempts to extrapolate universal tendencies in compounding with respect to the following features of compounding: the identity of compounding, classification of compounds, headedness of the compounds in the world's languages, relationships between the constituents of compounds, and universality of compounding. It proposes lines of empirical research and methodological suggestions towards the study of universals in compounding. The focus of the study is on nominal compounds consisting of two lexemes.

**Key words:** classification, features, lexeme, nominal compounding, typology, universal

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**Introduction**

Compounding is the most widespread lexeme formation process in the world's languages – and for some languages the only one; for example, Chinese and Vietnamese (Greenberg, 1963; Guevara & Scalise, 2008). Guevara & Scalise (2008) state that compounding is a rather neglected phenomenon in typological studies. Guevara & Scalise (2008) stress that 'there is no trace of compounding even in the best repertoires of universals (see the Universals Archive, F. Plank, Konstanz) and very little attention to compounds is given in typological works (see World Atlas of Linguistic Structures, Haspelmath, Dryer, Gil, & Comrie, 2006)" (p. 2).

Furthermore, Bauer (2006) argues that it is not clear whether or not all languages have compounds. In Arabic and Western literature, it has been pointed out that Arabic compounding is a rare and unproductive lexeme formation process (Al-Jarf, 2004; Haywood & Nahmad, 1976; Holes, 2004; Ryding, 2005; and Wright, 1988, among others). This paper seeks to explore whether compounding is a universal process or not, and whether this phenomenon is a morphological or syntactic process. It examines that compounding, which is generally accepted as a lexeme formation process, is part of syntax rather than part of morphology. Furthermore, it presents a preliminary cross-linguistic overview of the basic features of compounding on the basis of the data collected from compounding taken from dictionaries and grammars on different languages. From a typological point of view, the study addresses important issues on compounding such as the classification of nominal compounds, the notion and position of the head, the implicit grammatical relationships between the constituents of nominal compounds and the universality of nominal compounding.

**The Problem of the Study**

This study attempts to provide a unified account of the following questions: (i) Based on the data cited from different languages and also from Arabic nominal compounding, the question is: Is compounding a universal process? (ii) What are the defining relationships between the constituents of compounds that can be taken into consideration when we study compounding as a universal process? (We are limiting the attention to two constituents of nominal compounds although compounds with more than two constituents can be analyzed as binary formation).

**The Significance of the Study**

Compounding as a universal process is selected for investigation in this study for the following reasons: (i) universal linguistics is one of the major fields of study in linguistic analysis. Pertsova (2009) raises the question of the value of seeking morphological universals by pointing out that "there are few universals in morphology" (p. 204). (ii) To the best of the researchers' knowledge, compounding as a universal process has not been examined in relation to the Arabic nominal compounding in detail. (iii) This study seeks to provide a grounding basis for the study of compounding as a universal process and in turn propose lines of empirical and methodological suggestions towards the study of universals in compounding.

**The Objectives of the Study**

The study focuses on compounding as a universal process with special reference to Arabic nominal compounding. It aims to address the classification of nominal compounds, the notion and position of the head in nominal compounds, the relationships between the constituents of the

nominal compounds and the universality of nominal compounding. The objective of this study is to show that compounding is a universal phenomenon.

### **The Hypothesis of the Study**

It is hypothesized that compounding is a near universal process and compounds can be analyzed in terms of the implicit grammatical relationships between their constituents and in terms of the presence and absence of the head constituents which can trace the universality of compounds in language.

### **The Methodology of the Study**

The methodology we have used in this study is based on an analysis of the data on our topic collected from dictionaries and grammars on morphologically different types of languages. It is, however, supplemented by the data obtained from certain literary work(s) in Arabic and certain literary work(s) in English and other languages as well as the linguistic literature on English.

### **Literature Review**

Much work has been devoted to compounding in theoretical linguistics, especially in the last decades, namely the 1970s, 1980s, 1990s and 2000s. Most of the work has been set to distinguish compounds from phrases. The structuralists (like Bloomfield, 1933) propose several criteria to distinguish compounds from phrases, and some of which are rejected by the late structuralists. However, some of them agree that compounds are similar to phrases, and that it is impossible to differentiate one from the other. The early transformational generativists pay considerable attention to the syntax of compounds. Chomsky (1957) argues that the lexicon contains only simple idiosyncratic words; it contains neither compounds nor derived words. Furthermore, early generative views, typified by Chomsky (1957, 1965) and Lees (1963), assign the arrangements of all items into larger constructions to the syntax. This idea is, then, supported by Chomsky (1982); Fabb (1984); Lieber (1992); Pesetsky (1985); Roeper (1988); and Sproat (1985), among others. Witayasakpan (1990, p. 150) claims that “the noun phrases and nominal compounds are often used interchangeably.” Witayasakpan (1990) argues that “compounds are derived from the same source as phrases and sentences” ( pp. 181-182). Recently, compounding is seen as a morphological process (Di Sciullo & Williams, 1987; Lieber, 1983; Roeper & Siegel, 1978; and Selkirk, 1982, among others). Other analyses, however, attempt to reduce compounding to syntactic principles, as seen in Baker, 1998; Lieber, 1992; and Sproat, 1985).

Moreover, Levi (1978) focuses on the semantic property of compounds. Finin (1980) claims that one of the characteristic features of compounds in English is their semantic compactness. It can be noticed that the debate between formal and semantic properties of compounds has not been settled yet. On the other hand, Spencer (1991) states that the notion ‘compounding’ stands half way between word and phrase. Spencer (1991) observes that “in many respects compounding represents the interface between morphology and syntax par excellence” (p. 309). That is, they share characteristics both with sentences (since they are formed by more than one lexeme), and with words (since they have a unique denotation).

Furthermore, there are many classifications of compounds in linguistic literature. For instance, Bauer (2006) argues that “many more modern classifications of compounds are in effect reinterpretations of the Sanskrit labels” (p. 723). Given this, Bisetto & Scalise (2009)

claim that “the classifications of compounds that appear in current linguistic literature often lack interlinguistic homogeneity” (p. 35). Bisetto & Scalise (2009) propose that classifications of compounds are based on heterogeneous criteria.

Moreover, Lieber & Štekauer (2009, p.145) observe that “compounds are a part of human language. They may include functional elements, such as case markers ... and the order of their constituents, while being rigid within a given language, differs cross-linguistically .... Notwithstanding their diversity, compounds share some basic properties.” Lieber & Štekauer (2009) stress that compounds include more than one constituent and that they are opaque syntactic domains. Lieber & Štekauer (2009) conclude their analysis of compounds by emphasizing that “their semantics is not necessarily compositional” (p. 145). Furthermore, Lieber & Štekauer (2009) indicate that compounding is sometimes suggested as a language universal (Fromkin *et al*, 1996; and Libben, 2006). On the other hand, Clark (1993) states that it is easy for children to acquire languages containing compounds. Plag (2006) states that compounding as a linguistic phenomenon is commonly widespread in pidgins.

Greenberg (1963), Dressler (2006), and Guevara & Scalise (2008) stress that languages may have compounding without affixation but almost no language has affixation without compounding. Bauer (2006) suggests that compounds viewed as a construction type are universal but compounds viewed as lexical entities are not. Bauer (2006) adds that “because the problem has not been recognized in the literature, it is impossible to be sure” (p. 721).

### Analysis of Compounding

In order to simplify the data, the researchers present examples on compounding cited from different languages and illustrated in Table 1. They also classify these languages genealogically and typologically in order to illustrate the point of analysis. It can be observed that there are at least 4000 languages in the world. Such languages are classified on the basis of their supposed genetic relationships into language families, on the one hand, and on morphological grounds, on the other. The language families include Germanic (e.g. English), Romance (e.g. French), Uralic (e.g. Turkish), Austro-Asiatic (e.g. Vietnamese), and Semitic (e.g. Arabic). However, there are some languages which are difficult to be included in the established families and hence they are classified separately as isolates (e.g. Japanese), (Pirkola, 2010).

Moreover, languages are also classified on the basis of their morphological types rather than their origins and relationships (Schlegel, as cited in Lehmann, 1962, p. 51). This traditionally morphological typology dates back to the nineteenth century. It distinguishes three language types: isolating, inflectional and agglutinative languages. This typology is later supplemented by the fourth language type, polysynthetic languages, in particular, to explain the morphological nature of some native American languages (e.g. Eskimo). Isolating or root languages (e.g. Chinese and Vietnamese) are languages with no inflection. The correspondence between morphs and morphemes is one-to-one. For example, the Vietnamese words appear in the same invariable forms independent of their grammatical functions.

(1) Tôi đến nhà, má tôi má cửa ra, tôi vô.

I arrive house, mother I open door exist, I enter.

'I arrived at the house, my mother opened the door, and I went in.'

In inflectional or synthetic languages (such as, Arabic and English), there are no clear-cut boundaries between morphemes in a word. A monomorphemic word may consist of two or more meaningful morphemes. For example, the monomorphemic word 'took' in English denotes two morphemes, that is, the meanings 'to take' and 'past tense', so a word composed of one morpheme may represent more than one morpheme. Agglutinative or affixing languages (such as, Turkish and Finnish) are the type of languages in which clearly identifiable morphs are strung together one after another within a word, and each morph represents one morpheme. In agglutinative languages, the boundaries separating one morph from another in a word are clear-cut, and morphs are easily segmentable. For example, the Turkish word form 'köpekleri' can be analyzed into the following morphs *köpek* (dog), *ler* (plural suffix), *i* (accusative affix).

In polysynthetic languages, a word may consist of a large number of free and bound morphs. A word consisting of several morphs may form an entire sentence. For example, the Standard Arabic word "تكتب" *taktub-u* 'she is writing' can be analyzed into the following morphs: 'ta-' is a prefix which shows that the subject is feminine singular; *taktub-u* illustrates that the verb is in the present form; *ta-...-u* forms an entire sentence 'she is writing'. Thus, the difference between a word and a sentence is sometimes obscure in polysynthetic languages. The Eskimo language is often regarded as a typical polysynthetic language.

The four morphological types are ideal types rather than practical ones. There are languages that are closed to an ideal type; for example, Chinese is an isolating language and Turkish is an agglutinative language, etc. However, most languages are mixed types sharing features of different ideal types. For instance, English grammatical relations are mainly shown by means of prepositions. This resembles the pattern of isolating languages. However, the English derivational and inflectional morphology is in part agglutinative and in part inflectional. Furthermore, the Standard Arabic derivational and inflectional morphology is in part inflectional and in part polysynthetic. The focus of this paper is on the three major types: isolating, inflectional and agglutinative. The following table in (1) classifies languages on the basis of a genealogical and typological background.

**Table 1: Genealogical and typological classification of languages.**

Genealogical Classification of Languages	Typological Classification of Languages	Languages
Germanic	Inflectional	English
Romance	Inflectional	Italian
Romance	Inflectional	French
Uralic	Agglutinative	Turkish
Austro-Asiatic	Isolating	Vietnamese
Japonic	Agglutinative	Japanese
Semitic	Inflectional	Hebrew
Semitic	Inflectional	Arabic
Blato Slavic	Inflectional	Russian

Indic	Inflectional	Hindi
Sino-Tibetan	Isolating	Chinese

The term compound in its most general sense refers to a lexeme formed by the concatenation of at least two existing lexemes. For the sake of simplicity, the researchers consider only two lexeme compound types, in particular Noun + Noun compounds. Let us illustrate the point in (2) and (3).

2. فنجانُ قهوةٍ *finjaan-u qahwat-in*  
 cup-nom coffee-gen-indef  
 'Coffee cup'

3. حرقُ الخيامِ *harq-u al-xyaam-i*  
 fire-nom the-tent-pl-gen-def  
 'The firing of the tents'

More examples taken from genealogically and typologically different languages are presented in Table 2 below which provide examples of nominal compounds.

**Table 2: Nominal Compounds**

Genealogical classification of languages	Typological Classification of Languages	languages	Examples of compounds	Meaning in English
Germanic	Inflectional	English	taxi driver	
Romance	Inflectional	Italian	divano-letto	sofa-bed
Romance	Inflectional	French	tire bouchon	cork-screw
Uralic	Agglutinative	Turkish	yatak oda-si	bedroom
Austro-Asiatic	Isolating	Vietnamese	Bànghè	table chair
Japonic	Agglutinative	Japanese	hai-zara	Ashtray
Semitic	Inflectional	Hebrew	beyt xolim	Hospital
Semitic	Inflectional	Arabic	فنجانُ قهوةٍ finjaan-u qahwat-in	coffee cup
Blato Slavic	Inflectional	Russian	Samolët	Airplane
Indic	Inflectional	Hindi	Màbap	mother father
Sino-Tibetan	Isolating	Chinese	Súsóng	law suit

What can be observed from the examples illustrated in Table 2 above is that nominal compounds are composed of at least two constituents (free morphs/lexemes) which are not interposed by any modifier element, so they are lexically integrated constituents. It can also be noticed that the relationship between these two constituents in most of the examples looks like modifier-modifiee or modifiee-modifier. In the following sections we discuss what compounding is about, the classification of compounds, the notion and position of the head, the relationship between the constituents of compounds, and the universality of compounding.

### What is Compounding?

There are numerous definitions of compounding in linguistic literature. For instance, Bauer (2001) defines a compound as a lexical unit made up of two or more elements, each functioning as a lexeme independent of other lexemes in other contexts and showing "some phonological and/or grammatical isolation from normal syntactic usage" (p. 695). It can be observed that this definition is not adequate because some phonological and/or grammatical isolation from normal syntactic usage is not precisely identified. Furthermore, Bauer (1998) argues that "if there were a distinct line between a compound and a phrase, we would expect prototypical examples of each, but this is not the case" (p. 81).

It can be stated that compounds are the morphological constructions which are closest to syntactic constructions, to the point that it is sometimes difficult to distinguish between compounds and phrases. Therefore, a complete database of syntactic universals should also include compounding. Spencer (forthcoming, p. 25) points out that compounding types derive historically from types of syntactic constructions and adds that "we should not be surprised to find that compounds are often similar in their structure to ordinary syntactic phrases ... like phrases, many compounds have structure in which there is a main word, the head and a non-head usually functioning as a modifier" (p. 25). Let us illustrate this in the following Standard Arabic nominal compounds in (4-8) below.

4. دم الأخوين *dam-u al-?axawwayn-i*

blood-nom the-brother-dual-gen

Literally: 'The blood of the two brothers'

'Dragon's blood'

5. أبو ظبي *abu dhaab-i*

father-nom deer-gen-indef

'Abu Dhabi' (The name of one of the major cities in United Arab Emirates (UAE)).

6. رأس مال *raas-u maal-in*

head-nom money-gen-indef

'Capital'

7. فنجان قهوة *finjaan-u qahwat-in*

cup-nom coffee-gen-indef

'Coffee cup'

8. خير البرية *xayyr-u al-bariyat-i*

best-nom the-people-gen

'The Prophet Mohammad'

These Standard Arabic nominal compounds are syntactically formed, and gradually have become lexically integrated.

Olsen (2000) defines a compound as the composition which is defined by the combining of two existing stems to form a new stem.

Composition has come to be viewed in current linguistic work as the process of concatenating two existing stems from the lexicon of a language to form a new, more complex stem which has the potential to enter the lexicon as a stable morphological unit. (Olsen, 2000, p. 899)

This definition has also a series of problems. For example, it takes for granted that the constituents in a compound are stems but this is only true for some languages and it does not hold for other languages, as in English compounds: 'teeth marks' and 'morphology'. Moreover, not all compounds productively created enter the lexicon: often a compound serves the function of a nonce word, ending its life right after it has been created.

Furthermore, there are two fundamental approaches to the nature of a compound. The first approach sees a compound as a particular construction type, an entity with a formal definition. The second approach views a compound as a lexical type with certain criteria. That is, according to these approaches, 'blackboard' is counted as a compound of English but 'university teaching staff' is not counted as a compound of English by those who view compounds as lexical types on the ground that they arise through the productive use of syntactic rules, but is a compound by those who view compounds as a construction type.

Moreover, the notion of compounding found in the literature is determined by the theoretical choices made by the authors. It can also be pointed out that the notion 'compound' stands halfway between word and phrase.

Bauer (2008) states that "compounds viewed as a construction type are universal, but compounds as lexical entities are not" (p. 721). Thus, compounding can be viewed as a lexeme formation process used to create a new lexeme by the combination of at least two lexemes tightly integrated. This is illustrated in Arabic nominal compounds in (9) and (10):

9. دم الأخوين *dam-u al-?axaween-i*

blood-nom the-brother-dual-gen

Literally: 'The blood of the two brothers'

'Dragon's blood'

10. خير البرية *xayyr-u al-bariyat-i*

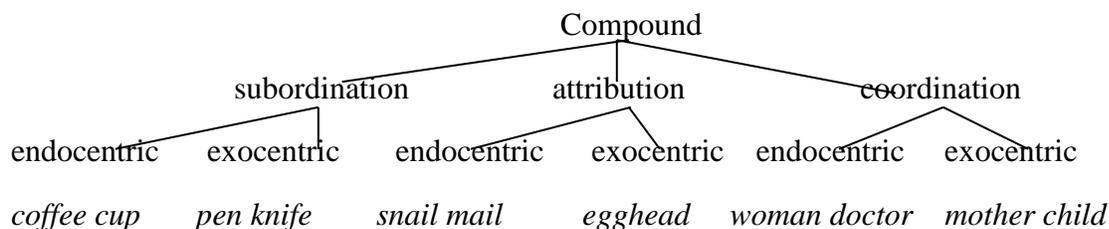
best-nom the-people-gen

'The Prophet Mohammad'

### The Classification of Compounds

The classification of compounds in the world's languages has recently received much attention in linguistic analysis. Traditionally, the classification of compounds was mainly based on the distinction of Sanskrit compounds in at least three fundamental classes: *dvandva*, *tatpuruṣa*, and *bahuvrīhi* which continue to be used, in whole or in part today (Bloomfield, 1933; Benveniste, 1967; Marchand, 1969; Spencer, 1991; and Fabb, 2001, among others). Dvandva compounds denote an entity that is the sum of the entities in the compound, e.g. *Austria-Hungary*. Tatpuruṣa compounds are the type in which there is a clear modifier-head structure, e.g. *raincloud*. Bahuvrīhi compounds refer to an entity which is not designated by any of the constituents, e.g. *sabre tooth*.

On the other hand, Bauer (2006) indicates that compounds can be classified in a number of ways, none of which appears to be totally satisfactory. According to Bisetto & Scalise (2005), the most salient problem in the classification of compounds has to do with the heterogeneous nature of the criteria adopted. They argue that this classification does not clearly distinguish between semantic and grammatical criteria. They propose a new classification of compounds which can be universal. This classification is based mainly on the idea that each level of analysis and classification must be consistently based on a single, homogeneous criterion. They propose that the first level is based only on the implicit grammatical relations between the constituents of the compound. According to Bisetto & Scalise (2005), the constituents of compounds are linked by a grammatical relation that is not overtly expressed. Therefore, they suggest that the grammatical relations holding between the constituents of a compound are basically the relations holding between the constituents of a syntactic construction: subordination (whenever there is a complement relation between the constituents; for example, *taxi driver* in which *taxi* is clearly the complement of the deverbal head or where the non-head is interpreted as the internal argument of the verb that underlies the deverbal head); attribution (which is formed either by an adjective and a noun, where the adjective expresses a property and is in a modifier relation to the noun or by two nouns, where the non-head very often is used somehow metaphorically and expresses an attribute of the head or where the non-head functions as mere property and is neither referential nor semantically complete; for example, in *snail mail* and *sword fish* the *snail* and *sword* function as modifiers); and coordination (whose constituents are tied by the conjunction 'and' for instance 'poet-painter and mother-child). Bisetto & Scalise (2005) also propose that the second level of classification is based on the distinction between endocentric and exocentric compounds and presented these classifications of compound in the following diagram:

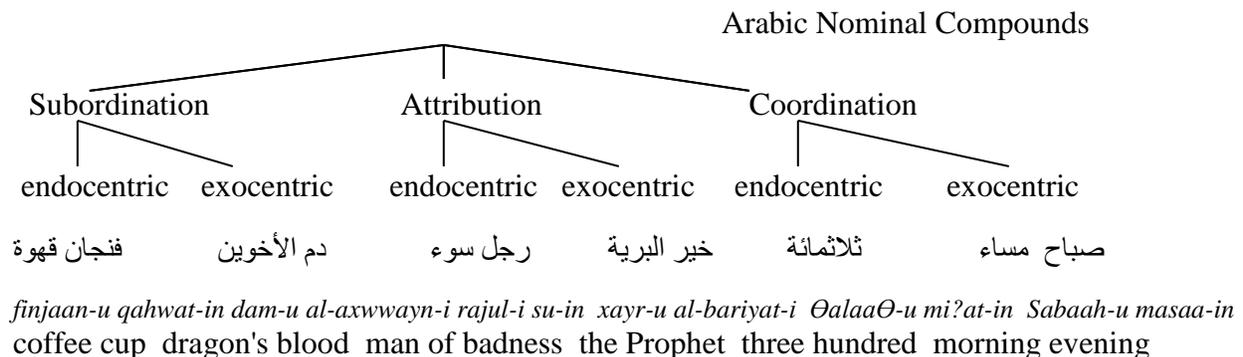


**Figure 1: Bisetto & Scalise's (2005, p. 3) Classification of Compounds**

### The Notion and Position of Head

The identification of the head constituent in a compound has witnessed much considerable research attention in linguistics analyses. In the early nineteenth century, it is assumed that the head in a compound is the right head constituent (Lieber, 1980 and Williams, 1981) whereas in the middle of the nineteenth century it is argued that in some languages the head is left headed constituent (Scalise, 1983 and Corbin, 1987). Moreover, in the late nineteenth century, it is found that Chinese has right headed compound nouns and left headed compound verbs (Li & Thompson, 1981).

The head of a construction is the central part and is of two types: a formal head and a semantic head. It is so important for analyzing any linguistic constructions. The formal head of a compound is the constituent which percolates to the whole compound all of its formal features. The whole compound has the same distributional properties of its formal head. The semantic head of a compound is the constituent which percolates to the whole compound all of its lexical conceptual information. However, the notion of the formal head has a greater value than that of the semantic head (Bisetto & Scalise, 2005). On the basis of the presence and absence of head in compounds, there are two types of compounds: endocentric and exocentric. In endocentric compounds, the formal and semantic heads coincide most of times, e.g., *taxi driver*, فنجان قهوة *finjaan-u qahwat-in* 'coffee cup', etc. However, assigning head status to either constituent is not so easy. For example, in some cases the formal head and semantic head can be assigned to any constituent, e.g., *poet painter*. In exocentric compounds, the formal head and semantic head cannot be assigned to any constituent, e.g., *skinhead*, دم الأخوين *dam-u al-axwwayn-i* 'dragon's blood'. This can also be supported by Standard Arabic nominal compounds as illustrated in Figure 2.



**Figure 2: The Classification of Arabic Nominal Compounds**

From Diagram 2 above, it appears that the classification of Standard Arabic nominal compounds can provide support to Bisetto & Scalise's (2005) universal classification of compounds.

Thus, it can be noticed that the position of head is not a principle but a parameter. Selkirk (1982) argues that "right headedness is a parameter" (p. 21). Selkirk (1982) also points out that the majority of nominal compounds are "endocentric constructions" (p. 19). In Standard Arabic and English the head is on the right side and the majority of nominal compounds of both languages are endocentric. This can be illustrated in the following examples in (11-14) cited from English and Standard Arabic:

11. housewife
12. tea cart
13. كتاب الطالب *kitaab-u al-Taalib-i*  
book-nom the-student-gen  
'The student book'
14. دليل المعلم *dali:l-u al-muʿalim-i*  
guide-nom the-teacher-gen  
'The teacher guide'

### The Implicit Grammatical Relations between the Constituents of Compounds

Compounds are composed of at least two constituents tightly integrated. They have lexical integrity. It can be observed that no modifier can be interposed between them. They are composed of two lexemes functioning as head and non-head, i.e., they have binary structures. Compounding is formally a morphological process with lexical and syntactic implications. The grammatical relationships between the constituents of the compounds are not overtly expressed (Bisetto & Scalise, 2005). It can be pointed out that the possible grammatical relationships hold between the two constituents of compounds: subordination, attribution and coordination. Table 3 illustrates the implicit grammatical relationships between the constituents of compounds cited from different typological languages.

**Table 3: Examples of the implicit grammatical relationships between the constituents of compounds cited from different typological languages**

Languages	Typological Classification	Examples		
		Subordination	Attribution	Coordination
English	Inflectional	taxi driver	Keyword	fighter bomber
Arabic	Inflectional	صانع أحذية saani?-u ?ahđiyat-in maker-nom shoes- gen-indef 'a maker of shoes'	رجل سوء rajul-u suw-in man-nom badness-gen- indef 'a man of badness'	خمسمائة xamasat-u ma?aat- in five-nom hundred- gen-indef 'Five hundred'
Chinese	Isolating	Niúnái cow milk	Zùmû ancestor mother paternal grandmother	Féngyú wind and rain hardship

Turkish	Agglutinative	otobüs bilet-I bus ticket	büyük baba grandfather	kadin doctor woman doctor
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From Table 3 it can be observed that the grammatical relationships between the constituents of compounds in these typologically different languages are similar to those between the constituents of the syntactic units but the relationships between the constituents of compounds are implicit, and not explicit. It can also be observed that subordinate and attributive relations between the constituents of compounds are more common than coordinate compounds. Guevara & Scalise (2008) argue that the endocentric subordinate right head  $[N + N]_N$  construction is the most productive type and "is certainly the canonical instance in compounding in the world's languages" (p. 26).

### The Universality of Compounding

It is not clear whether or not all languages have compounds. In this connection, Bauer (2006) argues that "Claims that [all languages] have compounds can be found in the literature; so can claims in grammars of individual languages that compounds are not found in that language" (p. 721). The objective of this paper is to examine whether compounding is a universal process and whether it is a construction type or a lexical type. Fabb (2001) stresses that the exocentric, endocentric, and appositional types /or the various interpretative types (modifier-modifiee, complement-predicator, etc.) are commonly widespread across languages. Furthermore, Fabb (2001) observes that there are compound types which are language or language family specific, such as the Japanese post syntactic compounds, Hebrew construct state nominals, Mandarin resultative verb compounds. Fabb indicates that other types of compounds are found intermittently; these include synthetic compounds, incorporation compounds, and reduplication compounds.

Besides, there is no exact decision whether or not all languages have compounds. Given this, Greenberg (1963) shows that "There are probably no languages without either compounding, affixing, or both. In other words, there are probably no purely isolating languages" (p. 92). Greenberg stresses that there are also a considerable number of languages without inflection, perhaps none without compounding and derivation. Hence, Greenberg (1963) points out that compounding is a universal process and that it is found in almost all languages.

Furthermore, the question which arises here is: which types of compounds can be universal and which ones can be specific to a particular language? Bauer (2006) states that compounds which are viewed as a construction type are universal but compounds treated as lexical entities are not. Bauer (2006) indicates that "Because the problem has not been recognized in the literature, it is impossible to be sure" (p. 721).

In addition, much work has been devoted to compounding in theoretical linguistics in the last decades (Bloomfield, 1933; Lees, 1963; and Levi, 1978, among others). However, there is no explicit mention of possible universals in compounding. Spencer (2006) points out that "If we think of morphology as the study of word structure, we are greatly hampered by the fact that we

have no really good understanding of what constitute a universal characterization of morphological wordhood” (Spencer, 2006, p. 129).

In this context, Tomasello (2003), as cited in Guevara & Scalise (2008, p. 4), claims that "universals are not to be found in particular linguistic constructions, but rather must be looked for in different, higher order levels of analysis" (p. 5). Tomasello (2003) argues that universals are macro-concepts. Hence, universals can be found in compounding because compounding is a communicative process and its existence is motivated by human communication purposes, therefore, compounding serves the function of effectively compressing the information that is contained in an utterance and also offers a rich source of metaphoricity, for example, *snail mail*, دم الأخوين *dam al-?axwwayn*.

Moreover, the implicit grammatical relationships between the constituents of a compound are not exclusive to compounding: they are shared by syntactic constructions. The grammatical relationships between the constituents of a compound allow a homogeneous grouping of compounds of different languages. All languages equally share the capacity of merging two constituents together. Downing (1977) asserts that "a compound may be highly transparent semantically when it is coined, but once it has been accepted by the community as a conventionalized noun, it may come to be as arbitrary as any mono-morphemic" (p. 820).

### Conclusion

On the basis of the data analyzed, it has been found that universal nominal compounding is a morphological lexeme formation process with lexical and syntactic implications. It is a morphological process which is used to create new lexemes out of the existing lexemes, by concatenating at least two lexemes. There are implicit grammatical relationships between the constituents of the compounds which can gradually become unnoticed by the passage of time, and then they become lexicalized. Most of the productive nominal compounds are endocentric in which the formal and semantic heads coincide. However, the position of the head is parameter and not a principle. That is, a language compound can be left, right or both left and right headed. Furthermore, on the basis of the implicit grammatical relationships between the constituents of compounds in the typologically different languages, it has also been observed that the endocentric subordinate is more productive than other types. This has been supported by Arabic nominal compounds such as:

15. تشريد الأطفال *tashri:d-u al-?aTafaal-i*

expelling-nom the-children-gen

'Expelling the children'

16. حرق الخيام *harq-u al-xiyaam-i*

firing-nom the-tents-gen

'Firing the tents'

17. قطع الطريق *qaT!-u al-Tari:q-i*

cut-nom the-road-gen

'Cutting the road'

18. صانع الأحذية *Saani:ʔ-u al-ʔahḏyat-i*

maker-nom the-shoes-pl-gen

'Shoes Maker '

19. مهندس السيارات *muhandis-u al-syyaarat-i*

repairer-nom the-cars-pl-gen

'Repairer of cars'

It has been found that nominal compounding in Standard Arabic is a productive process of lexeme formation. This process produces compounds having the same features as those of other languages' compounds.

Besides, the study has shown that compounding is a universal formation process used to create new lexemes by concatenating at least two lexemes holding an implicit grammatical relation. It has demonstrated that no modifier can be interposed between the constituents of a compound, since these constituents are lexically integrated. On the basis of the data presented in this paper, it has been illustrated that compounding as universal process is a morphological process with lexical and syntactic properties. Compounding creates more often compounds and constituents holding subordinate relationships, which are endocentric.

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