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## Compounding and its locus of realization: Evidence from Greek and Turkish

### 1. Questions and premises

- Aspects of compounds present valuable challenges for refining our understanding of word formation and its locus in grammar.
- Compounding as a universal process has been a controversial issue (see, for instance, Greenberg 1963 vs. Štekauer, Valera & Kortvélyessy 2008).
- Bauer (2001: 705): this controversy is nothing but a matter of definition. Languages differ in the ways they realize compounds, and there is no standard approach to encode these differences.

### Defining a compound

The absence of systematic criteria is particularly noticeable in various attempts for defining compounding. There is no standard approach for treating differences or similarities displayed by compounds.

Bauer (2001: 695): a compound is a “lexical unit made up of two or more elements, each of which can function as a lexeme independent of the other(s) in other contexts”.

**Questions arise with respect to the inputs of the process:** constructions like *over-the-fence gossip* or *God-is-dead ideology* are considered to be compounds (Lieber & Scalise 2006: 10).

### Conflicting views on the locus of realization.

Scalise & Vogel (2010: 2-5): there is no agreement on whether compounding is syntactic or morphological. Compounds constitute an ‘anomaly’ among grammatical constructions, since they behave like words but bear a type of ‘internal syntax’ (see theta-role saturation occurring within synthetic compounds, and presence of compound-internal inflection:

- |                                       |   |
|---------------------------------------|---|
| (1)a. Sanskrit (from Bauer 2001: 703) | b. Ancient Greek (from Ralli forthcoming) |
| dhana-m-jaya                          | no:-n-ekhé:s                              |
| wealth-ACC-winning                    | mind-ACC-who.has                          |
| ‘winning wealth                       | ‘prudent’                                 |

### Crucial points: *what is a compound and where a compound is formed.*

Compounds are often confounded with pure metaphors and lexicalized phrases; in many languages, they are superficially similar to syntactic structures and display partial visibility to syntactic operations. Anderson (1992: 253-319) excludes compounding from his a-morphous morphology component. Similarly, Aronoff (1994: 16) asserts that compounding should be rather defined as ‘lexeme-internal syntax’.

**In contrast**, structures involving combinations of lexemes with morphological categories of an unclear status, the so-called ‘affixoids’, render difficult a radical separation of compounding and derivation and they advocate a morphological status of compounding (Booij 2005 and Ralli 2010).

**Proposal:** a proper definition of compounding should be given on formal grounds and an approach relying on pure semantics is misleading. Assuming that compounds are binary structures combining lexemes, the diversity of views for defining compounding and the variety of theoretical approaches are highly dependent on the data which are used for illustrating the various working hypotheses.

On the basis of their structural properties, compounds can be distinguished into two categories, **morphological objects and phrasal units bearing an atomic status**. Assuming that syntax and morphology are separate structure-building modules, the first category includes compounds resulting from morphological templates (or rules) and involves units specific to morphology. As such, compounds may share properties with other morphological objects, e.g. derived words. The second category contains phrasal compounds, which may be invisible or semi-visible to syntax. Their structure should be derived in syntax, in that, it is not based on morphologically-proper units and is not the product of morphological rules or templates.

Phrasal compounds should be distinct from listemes, since their structural pattern could be systematically reproduced for the creation of new items (see also Gaeta & Ricca 2009).

Accepting the view that there are different categories of compounds and that compounding is a process which cuts across two grammatical domains, i.e. morphology and syntax, crucial evidence can be provided for the morphology-syntax interaction and the modularity of grammar.

## 2. Morphologically-based compounds

**Research hypothesis:** what makes a compound morphological should be defined on a language-specific basis, since languages vary with respect to the realization of their morphological features and the use of morphologically-proper units: Compare the English *tablecloth* < *table* + *cloth*), with the Greek *trapezomándilo* ‘tablecloth’ involving the stems of *trapéz(i)* ‘table’ and *mandíl(i)* ‘scarf, cloth’.

Being morphological objects, compounds of a particular language have to obey certain criteria that are applicable to the morphology of this language and distinguish morphology from syntax.

### Application of tests:

#### (a) Lexical integrity/word atomicity

- (2) Compound:  $\alpha\gamma\tau\iota\text{-}\acute{o}\text{-}\gamma\alpha\tau\alpha$   
 wild-CM-cat  
 ‘wild cat’ CM stands for compound marker
- Insertion:  $*\alpha\gamma\tau\iota\text{-}o\text{-}mavri\text{-}\acute{o}\text{-}\gamma\alpha\tau\alpha$   
 wild-CM-black-CM-cat
- Coordination:  $*\alpha\gamma\tau\iota\text{-}o\text{-}ke\text{-}me\gamma\alpha\lambda\text{-}\acute{o}\text{-}\gamma\alpha\tau\alpha$   
 wild-CM-and-big-CM-cat
- Modification:  $*poli\text{-}\alpha\gamma\tau\iota\text{-}\acute{o}\text{-}\gamma\alpha\tau\alpha$   
 very-wild-CM-cat
- Compound-internal inflection:  $\alpha\gamma\tau\iota\text{-}\acute{o}\text{-}\gamma\alpha\tau\text{-}es$  vs  $*\alpha\gamma\tau\iota\text{-}es\text{-}\acute{o}\text{-}\gamma\alpha\tau\text{-}es$   
 wild-CM-cat-INFL vs wild-INFL-CM-cat-INFL INFL=inflection  
 ‘cats’

#### (b) Absence of word-internal inflection

- (3)  $\theta\alpha\lambda\alpha\varsigma\text{-}\acute{o}\text{-}lik\text{-}os$  <  $\theta\acute{\alpha}\lambda\alpha\varsigma(a)$   $líkos$   
 sea-CM-wolf-INFL ‘sea’ ‘wolf’  
 ‘sea wolf’

#### (c) Involvement of morphological categories: stems and a linking vowel (compound marker).

- (4)  $kapn\text{-}o\text{-}x\acute{o}\rho\alpha\phi\text{-}o$  <  $kapn(\acute{o}\varsigma)$   $xor\acute{\alpha}\phi(i)$   
 tobacco-CM-field-INFL ‘tobacco’ ‘field’  
 ‘tobacco field’

(d) **Order of constituents:** with the exception of Adj N compounds, the constituents of the very productive N N or Adv V constructions are placed in a different order than that of corresponding phrases sharing the same meaning and constituents:

- (5)a. N N compound  
 $kras\text{-}o\text{-}p\acute{o}\tau\iota\text{-}r\text{-}o$  <  $kras(i)$   $potír(i)$  vs  $potíri$   $krasi\text{-}\acute{u}$   
 glass-CM-wine-INFL ‘wine’ ‘glass’ vs glass wine-GEN  
 ‘wine glass’ ‘wine glass’
- b. Adv V compound  
 $si\gamma\text{-}o\text{-}tra\gamma\upsilon\delta\text{-}\acute{o}$  <  $si\gamma(\acute{\alpha})$   $tra\gamma\upsilon\delta\acute{o}$  vs  $tra\gamma\upsilon\delta\acute{o}$   $si\gamma\acute{\alpha}$   
 low-CM-sing-INFL ‘low’ ‘sing’ vs ‘sing low’  
 ‘sing in a low voice, hum, croon’

### Greek compounds are also phonological words

- (6)a.  $\theta\alpha\lambda\alpha\varsigma\acute{o}likos$  <  $\theta\acute{\alpha}\lambda\alpha\varsigma(a)$   $líkos$   
 ‘sea dog / jack tar’ ‘sea’ ‘wolf’
- b.  $kapnox\acute{o}\rho\alpha\phi\text{-}o$  <  $kapn(\acute{o}\varsigma)$   $xor\acute{\alpha}\phi(i)$   
 ‘tobacco field’ ‘tobacco’ ‘field’

The presence of only one stress characterizes wordhood in Greek. As shown by Nespor & Ralli (1996), a compound-specific stress rule, falling on the antepenultimate syllable, is related with a particular structure of compounds, that containing two stems ([[stem stem]INFL]).

**In compounds, an unpredictable meaning** is often developed, although it is not always the case:

- (7)a.  $\gamma\alpha\lambda\alpha\zeta\text{-}o\text{-}\acute{e}\mu\alpha\tau\text{-}os$  <  $\gamma\alpha\lambda\acute{\alpha}\zeta(io)$   $\acute{e}\mu\alpha$   
 light.blue-CM-blood-INFL light blue blood  
 ‘noble man, aristocrat’
- b.  $ele\text{-}o\text{-}kali\acute{e}\rho\gamma\iota\alpha$  <  $el\acute{e}(a)$   $kali\acute{e}\rho\gamma\iota\alpha$   
 olive-CM-culture ‘olive’ ‘culture’  
 ‘olive culture’



food and bed room PL-(s)I(n) Turkey and Greece Prime Minister PL-(s)I(n)  
 ‘dining and bed rooms’ ‘the Prime Ministers of Turkey and Greece’

**(d) Appearance of another -(s)I(n) (not for all)**

(14)a. Ali -nin [ayak kab -ı] -sı vs b. \*Ali-nin [ev çatı -sı] -sı  
 Ali -GEN foot cover -(s)I(n) -POSS Ali -GEN house roof -(s)I(n) -POSS  
 ‘Ali’s shoe’ ‘Ali’s house roof’

**(e) Insertion of another suffix (not for all)**

(15)a. ayak kab -ı -lar vs b. ev çatı -lar -ı  
 foot cover -(s)I(n) -PL house roof - PL -(s)I(n)  
 ‘shoes’ ‘house roofs’

**Proposal:** the two categories should be distinguished. Given the full transparency of (10), Bağrıaçık & Ralli (ms) have proposed (following Yüксеker 1998) that they are clearly syntactic formations, comparable to those of 3SG GEN-POSS phrases. In contrast, constructions like those in (8) behave like words, since their structure is invisible to syntactic operations which usually affect phrases.

Since the examples in (8) involve two lexemes, **I consider them to be compounds of a phrasal nature.** Contrary to Greek compounds, the structure of which displays peculiarities proper to morphology, the structure of Turkish compounds does not differ from the syntactic GEN-POSS nominal constructions, at least superficially. Even the suffix -(s)I(n), which has been called a compound marker by Kornfilt (1997), Schaaik (2002) and Ralli (2008), reminds the possessive marker of GEN-POSS phrases (those in 9 and 10).<sup>2</sup>

**Further support from phonology:** both kinds of concatenations share the same structure, since they receive the same type of stress.

Given the structural and phonological similarity of (8) and (10), Turkish compounds have a different locus of realization from Greek compounds. I consider Turkish compounds to be created in syntax, as opposed to Greek compounds which, in several of my works, I have treated as morphologically-built objects (Ralli 2007, 2009, forthcoming). Nevertheless, since compounding is a different process from noun-phrase formation, a phrasal analysis should clearly differentiate the two processes. Similarly, a morphological analysis should make a distinction between morphological compounding and derivation.

#### 4. Comparing Greek and Turkish compounds

##### Advantages:

(a) My analysis accounts for the fact that while Greek compounds display a different structure from corresponding phrases, while Turkish compounds share the same structure with the syntactic formations of 3SG GEN-POSS generic referential constructions, at least superficially.

(b) A phrasal account of Turkish compounds better explains why -(s)I(n) has the same form with that of noun phrases. However, there are two different suffixes synchronically: -(s)I(n) is a possessive marker in 3SG GEN-POSS phrases, while in compounds, it is a semantically empty string (cf. Schaaik 2002, Ralli 2008, Göksel 2009). Interestingly, in Turkish, the marker originates from a functional element, while in Greek (-o-), it comes from a purely morphological segment, the ancient thematic vowel.

(c) A phrasal analysis may also account for compounds containing a phrase, while there is no such possibility in Greek (stem-based language):

(16) burada ne sat-ıl -ıyor -Ø soru -su  
 here what sell-PASS -PROG -3sg question -(s)I(n)  
 the question “what is sold here”

(d) Treating Turkish compounds within syntax could take into consideration the fact that all instances do not behave uniformly with respect to the application of the tests described above. There are cases displaying structural opacity and semi-visibility (17a,b) as well as alternating forms (17c):

(17)a. diş doktor -lar -ı vs \*diş doktor -u -lar  
 tooth doctor -PL -(s)I(n)  
 ‘dentists’  
 b. ayak kab -ı -lar vs \*ayak kab - lar -ı  
 foot cover -(s)I(n) -PL  
 ‘shoes’

<sup>2</sup> For a general syntactic account of all structures examined here, see, among others, Lees (1965), Hankamer (1986), Yüксеker (1998), Arslan-Kechriotis (2006), Karytonova (2009).

- c. kasım pat -lar -ı  
 November boom -PL -(s)I(n) vs kasım pat -ı -lar  
 ‘chrysanthemums’

Again, no partial visibility to syntax is possible in Greek compounds, the structure of which, with no exceptions, is entirely invisible to syntactic operations.

**Continuum:** Examples with a varying degree of structural visibility to syntactic operations pleads in favour of the existence of a *continuum*, as has also been observed for Hebrew by Borer (2009), which ranges from the entirely visible phrases to invisible occurrences like *ayakkabi*. For morphology, another continuum defined on different grounds has already been asserted by Ralli (2010, forthcoming), where formations involving categories of an unclear status render difficult a radical separation between morphological compounding and derivation (see also Booij 2005).

**Compounding vs Lexicalization:** Compounding should be treated differently from lexicalization since in both Greek and Turkish there are massively produced neologisms conforming to their basic patterns:

(18) Greek (Ralli 2007)

a. *stem stem compounds*

neologism karav-o-kátart-o < karáv(i) katárt(i)  
 boat-CM-mast-INFL boat mast  
 ‘boat mast’

according to karav-ó-pan-o < karáv(i) pan(i)  
 boat-CM-cloth-INFL boat cloth  
 ‘sail cloth, canvas’

b. *stem word compounds*

neologism kozm-o-θálasa < kóz(m)os θálasa  
 world-CM-sea world sea  
 ‘world like a sea’

according to la-o-θálasa < la(ós) θálasa  
 people-CM-sea people sea  
 ‘mass of people’

(19) Turkish

a. neologism kaplumbağa bakıcı -sı according to at bakıcı -sı  
 tortoise keeper -sIn ‘horse tamer’  
 ‘tortoise keeper’

b. neologism havuç ağac -ı according to elma ağac -ı  
 carrot tree -sIn ‘apple tree’  
 ‘carrot tree’

Nevertheless, lexicalization may function parallel to compounding, and may also affect it, particularly on the semantic level. Typical examples are the Greek *kal-o-kéri* (good-CM-weather) ‘summer’ as well as the Turkish *kasım-pat-ı* (November-bloom-(s)I(n)) ‘chrysanthemum’.

## 5. Summary

- Compounding cuts across the two grammatical domains, morphology and syntax, depending on the language one deals with.
- Greek compounding is morphological, since its structures involve morphologically-proper categories and properties. Turkish compounding is phrasal, since its outputs do not show any superficial difference with the so-called ‘3SG GEN-POSS generic referential phrases’.
- Wordhood determined only on semantic opacity is not sufficient to delineate compounding, which should be defined on structural criteria and be based on systematic patterns/templates (or rules). Compounds are dynamically produced and should not be confused with entries listed in the lexicon that are not predictable from grammatical principles.

**Further topic for research:** Possibility for a language to have both types of compounds. Some phrasal compounds have emerged in Greek recently, under the influence of English. Most of them are restricted in the domain of scientific terminology (see also Booij 2010).

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