Prosodically constrained non-local doubling

Aslı Göksel, Barış Kabak & Anthi Revithiadou

Boğaziçi University, University of Würzburg & Aristotle University of Thessaloniki


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In this article we discuss non-local doubling in Greek and Turkish, a hitherto unanalysed aspect of these languages, and its implications for the interfaces. In non-local doubling, the reduplicated item is not located next to its base but at some other position in the clause depending on language-specific constraints. Interestingly, the attested type of doubling is not purely sensitive to syntactic nodes as in other languages (e.g. Dutch, Afrikaans), since we show that it targets a prosodic constituent. We argue that both Greek and Turkish employ an empty emphatic morpheme which has a two-legged exponence: One exponent is some phonological phrase in a clause and the other is its clone, placed farther than its source at the right periphery of the clause. We further discuss the variation between Greek and Turkish in terms of the prosodic structure of the two languages, showing that the differences lie in (i) the prosodic status of the copied element, (ii) the relative degree of free word order, and (iii) the properties of the right periphery (postverbal/postsentential). We thus propose that doubling is a general mechanism found across languages, and it is not only morphological or syntactic units, but also prosodic ones that can serve as input to this ubiquitous process.
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In this article we discuss non-local doubling in Greek and Turkish, a hitherto unanalysed aspect of these languages, and its implications for the interfaces. In non-local doubling, the reduplicated item is not located next to its base but at some other position in the clause depending on language-specific constraints. Interestingly, the attested type of doubling is not purely sensitive to syntactic nodes as in other languages (e.g. Dutch, Afrikaans), since we show that it targets a prosodic constituent. We argue that both Greek and Turkish employ an empty emphatic morpheme which has a two-legged exponence: One exponent is some phonological phrase in a clause and the other is its clone, placed farther than its source at the right periphery of the clause. We further discuss the variation between Greek and Turkish in terms of the prosodic structure of the two languages, showing that the differences lie in (i) the prosodic status of the copied element, (ii) the relative degree of free word order, and (iii) the properties of the right periphery (postverbal/postsentential). We thus propose that doubling is a general mechanism found across languages, and it is not only morphological or syntactic units, but also prosodic ones that can serve as input to this ubiquitous process.

1. Introduction

Iteration in linguistics has almost exclusively been associated with reduplication at the lexical level (McCarthy 1979, 1981 et seq.; Inkelas and Zoll 2005; Hurch 2005; Stolz 2004, 2007, and references therein; Frampton 2009) while analogous phenomena at the syntactic level have been underexplored apart from a handful of works (see Gomeishi et al. 2004; Nevins and Vaux 2003; Kimper 2008; Barbiers et al. 2009). In this article, we investigate a hitherto unanalyzed type of iteration, the non-local doubling of constituents selected on the basis of the prosodic properties in two typologically distinct languages, Greek and Turkish. Such non-locally doubled constituents in these languages functionally belong to the family of non-locally doubled constructions in other languages such as English, Dutch and Afrikaans. As in other recorded instances of doubling, the non-local doubling process under exploration is intertwined with an item that either bears focus itself or falls in an area demarcated by focus, the primary function being to accentuate and further intensify its sense. However, while the cases reported in other languages target purely syntactic constituents, we show that non-local doubling in Greek and Turkish is prosodically-based. In particular, doubling solely targets the Phonological Phrase (PPh). As such, the type of doubling examined here provides an instructive example of the fact that processes of duplication can be sensitive to prosodic units that are larger than the syllable, the foot, and the prosodic word, as has traditionally been assumed in the Prosodic Morphology literature (see McCarthy 1979, 1981, McCarthy and Prince 1986, 1990, 1993, i.a.). Importantly, therefore, non-local doubling further establishes the credence of the PPh as a constituent of the Prosodic Hierarchy (Selkirk 1980 [1978] et seq.; Nespor and Vogel 1982, 1986; Hayes 1989 [1984]).

Our data suggest that the phenomenon of non-local doubling cuts across morphology, syntax and prosody proper, both with respect to (i) what it targets across languages, and (ii) the precise realization of the mechanism within a language itself. In particular, we claim that both Greek and Turkish satisfy a certain grammatical feature which we call EMPH (emphasis)
via a copying process that targets a specific prosodic unit in the clause, namely a PPh, and places its clone farther than the base, at the right periphery of the clause. We thus propose that doubling is a ubiquitous process in that it not only targets morphological or syntactic units, as has already been argued in the literature, but also prosodic ones.

We begin by presenting in Section 2 various instances of non-local doubling in Greek and Turkish. In Section 3, we explore the prosodic underpinnings of doubling and discuss the nature of the constructions available for doubling. Section 4 investigates the syntactic position of the clone in the two languages under inspection, which we claim to be reflective of structural differences between Greek and Turkish. In Section 5, we look at the copying process that creates the doubled elements and we provide an exploration of its overall status in grammar. We elaborate on how non-local doubling in Greek and Turkish differ from comparable doubling phenomena attested in several other languages such as English, Dutch, and Afrikaans in Section 6, and conclude in Section 7.

2. Non-local doubling in Greek and Turkish

In spoken registers, Greek and Turkish commonly exhibit instances of non-local doubling, which have remained mostly unexplored.\(^1\)\(^2\) The examples in (1) illustrate the doubling of focused constituents in both languages. Any focused element in the clause, regardless of its position, can be doubled. Unless otherwise is noted, we use underlining to indicate the source and the clone, and \{F\} to indicate narrow focus in the examples throughout the article.\(^3\)\(^4\)

\[(1)\]
\[(1a) \text{ Greek} \quad \{F O \ yjánis\} íde \ tin \ maría \ o \ yjánis.\]
\[\text{DET John-NOM see-PAST.3SG DET Mary-ACC DET John-NOM} \]
\[\text{‘JOHN saw Mary.’} \]

\[(1b) \text{ Turkish} \quad \{F Ayşe\} Ali-yi \ gör-müş Ayşe.\]
\[\text{Ayşe \ Ali-ACC see-EV Ayşe} \]
\[\text{‘AYŞE saw Ali.’} \]

This kind of doubling is a productive process which clones a particular constituent and realizes it non-locally. Its function is to highlight a particular (and sometimes already focused) constituent, with various discursive effects (see Section 5).\(^5\) Henceforth, we refer to the doubled element (i.e. the clone) as the duplicate, and the constituent which is doubled as the base.

Greek and Turkish doubled constructions are similar in some respects but different in others. In both languages, constituents can be doubled regardless of their syntactic role in the sentence. With respect to the base, both languages are sensitive to the constituent which is focused, but in Greek the constituent marked as such is the only one that can be doubled while in Turkish other constituents can act as the base of doubling depending on their position with respect to focus, as we shall see in Section 2.1. Furthermore, in Greek the duplicate which is placed in the right periphery is usually separated from the matrix sentence by an Intonational Phrase (IP) boundary, indicated in the text with a vertical line (|), and it is rendered with either neutral or emphatic intonation (see Section 3.1). Conversely, in Turkish the IP boundary is not necessarily present. These points are exemplified below where the focused constituents are doubled; the subject in (2a-3a), the object in (2b-3b), the adverbial in (2c-3c) and the predicate in (2d-3d).\(^6\)
Further, the sentences in (4) below illustrate the fact that the realization of the duplicate within the clause is ungrammatical (Turkish) or highly marginal (Greek).

(4) Greek
a. ??Eđōse  {f  sti  maría}  |  sti  maría  to  yráma. 
give-PAST.3SG to-DET Mary-ACC to-DET Mary-ACC DET letter-ACC
Int. ‘S/he gave the letter to MARY.’

b. ??I  eléni  {f  ton  a yapá}  |  ton  a yapá  ton  yjáni. 
det Helen  CL.3.MASC.SG love-1SG CL.3.MASC.SG love-3SG DET John-ACC
Int. ‘Helen DOES love John.’

(5) Turkish
gift-ACC Semra-DAT Semra-DAT send-PAST
Int. ‘S/he sent the gift to SEMRA.’
Despite these similarities, there is a crucial aspect in which the two languages differ. While Greek prohibits the doubling of non-focused constituents, in Turkish doubling may target non-focused ones. We turn to this below.

2.1. Non-uniformity of doubling in Greek and Turkish

The doubling of non-focused constituents yields ungrammatical sentences in Greek, as shown in (6). Clitic-doubled DPs in Greek cannot be focal (e.g., Holton et al. 1997) and hence cannot be doubled.

(6) a. *(Tin maría tin íde | tin maría.)
   DET Mary-ACC CL.3.FEM.SG see-PAST.3SG DET John-NOM DET Mary-ACC
   Int. ‘JOHN SAW MARY.’

b. *(To vráma to édose | to vráma.)
   DET letter-ACC CL.3.NEUT.SG give-PAST.3SG to-DET Mary-ACC DET letter-ACC
   Int. ‘S/he gave the LETTER to Mary.’

As evident from the above examples, in Greek the copying process targets only the focused constituent. \(^7\)

In Turkish, on the other hand, non-focused phrases can be doubled, with the proviso that they precede the focus-marked element:

   Ali summer-ADV village-DAT go-FUT-EV summer-ADV

   Ali summer-ADV village-DAT go-FUT-EV Ali
   ‘Ali will go TO THE VILLAGE in the summer.’

(8) a. Semra-ya hediye-yi dün {f gönder-di-m} Semra-ya.
   Semra-DAT gift-ACC yesterday send-PAST.1SG Semra-DAT
   ‘I DID send Semra’s gift yesterday.’

b. Semra-ya hediye-yi {f dün} gönder-di-m hediye-yi.
   Semra-DAT gift-ACC yesterday send-PAST.1SG gift-ACC
   ‘I sent Semra’s gift YESTERDAY.’ \(^8\)

We infer from the above that, although Turkish is less restrictive than Greek in its choice of possible targets for doubling, it nevertheless imposes the following constraint: The focused phrase and/or the constituents occurring to the left of it are the only possible targets for doubling. A constituent to the right of the focused phrase cannot be doubled, as illustrated by the ungrammaticality of the sentences given in (9).

(9) a. *(Ali {f yaz-in} köy-e gid-ecek-miş köy-e.
   Ali summer-ADV village-DAT go-FUT-EV village-DAT
How is this asymmetry between the two languages to be explained? Below, we will claim that a single factor plays a role in this: the prosodic level at which doubling applies. More specifically, in both Greek and Turkish, non-local doubling applies at the IP level and targets the head of the IP. Additionally, it can target all PPhs in Turkish.

3. The prosodic underpinnings of doubling

The common thread in the languages under investigation is that doubling is sensitive to a focused phrase. While in Greek the focused phrase forms the only constituent that doubling targets, the same not only constitutes the target of doubling in Turkish, but also demarcates the point where other constituents may serve as potential bases in doubling. We begin with an analysis of the Greek data.

3.1. Doubling of the phonological phrase in Greek

Let us first begin with the nature of phonological phrasing in Greek. In Greek, PPhs are formed by aligning the right boundary of an XP with the right boundary of a PPh as a result of the relatively high-ranked status of ALIGN-R. This is shown in (10) where a typical S cl=V O sentence can be phrased into two PPhs in normal pace speech. Several sandhi rules which apply in a gradient or optional fashion within the PPh are blocked across PPh boundaries and are enforced within the PPh domain. It should be noted that higher level prominence is rightmost in Greek, i.e., the rightmost Phonological Word (PW) is the head of the PPh and the rightmost PPh is the head of the Intonational Phrase (IP). That is, the nuclear stress rule assigns prominence to the rightmost element within the PW and to the rightmost PPh within the IP.

In the above example, degemination is blocked between the subject and the verb indicating that the two belong to different PPhs. Moreover, the clitic sas is phrased with the verb as a proclitic since encliticization to the Subject-Noun would have triggered the development of secondary stress at the right edge of the noun (Arvaniti 1991), e.g. o ᾀσκαλος sas ᾀβαζετες, and (partial or total) degemination of the consonant would have applied. Importantly, degemination is much more likely to apply between the verb and its complement, /ἵαβαζετες ᾀξας/ than between the subject and the proclitic /o ᾀσκαλος sas ᾀβαζετες.../ suggesting that the former elements belong to the same domain whereas the latter do not.
When a focused constituent, however, is present in a clause, the normal rightmost prominence pattern is disrupted. Regardless of its position in the sentence, the focused element then naturally projects a PPh- and IP-level prominence on the grid, which suggests that the FOCUS-PROMINENCE constraint in (12) is in effect.

(12) FOC(US)-PROM: The output prosodic representation of a Focus constituent in information structure contains an Intonational Phrase-level prominence.

Focus prominence plays a pivotal role in the doubling patterns in Greek, crucially by virtue of the fact that the focused constituent is the only one visible for doubling. This indicates that doubling targets the head PPh, i.e. the most prominent PPh and, by extension, the head of the IP, i.e. the constituent immediately above the PPh in the prosodic hierarchy. The base is rendered with a focus pitch accent^{11} that leads to the deletion of all following accents within the IP. The duplicate comes right after the IP of the clause that hosts its base and forms an IP of its own, as depicted in the grid in (14). It is rendered with either neutral intonation or, occasionally, an intonational contour that denotes confirmation, identification or reassurance.

(14) a. \[
\begin{array}{ccc}
\text{DET} & \text{John-NOM} & \text{see-PAST.3SG} & \text{DET Mary-ACC} & \text{DET John-NOM} \\
\text{\{\{F O \, yi\'nis\}\}PPh} & \text{\{\{F O \, yi\'nis\}\}IP} \\
\text{\{\{F O \, yi\'nis\}\}PPh} & \text{\{\{F O \, yi\'nis\}\}IP} \\
\end{array}
\]
\['JOHN saw Mary.'\]

b. \[
\begin{array}{ccc}
\text{DET} & \text{woman-spider-NOM} & \text{CL.MASC.3SG kiss-PAST.3SG} & \text{DET woman-spider-NOM} \\
\text{\{\{F \, yi\'ka-ar\'axni\}\}PPh} & \text{\{\{F \, yi\'ka-ar\'axni\}\}IP} \\
\text{\{\{F \, yi\'ka-ar\'axni\}\}PPh} & \text{\{\{F \, yi\'ka-ar\'axni\}\}IP} \\
\end{array}
\]
\['THE SPIDER-kissed him.'\]

c. \[
\begin{array}{ccc}
\text{DET} & \text{Mary-ACC} & \text{love-1SG} & \text{DET Mary-ACC} \\
\text{\{\{F \, Tin \, mar\'ia\}\}PPh} & \text{\{\{F \, Tin \, mar\'ia\}\}IP} \\
\text{\{\{F \, Tin \, mar\'ia\}\}PPh} & \text{\{\{F \, Tin \, mar\'ia\}\}IP} \\
\end{array}
\]
\['I love MARY.'\]

d. \[
\begin{array}{ccc}
\text{give-PAST.3SG} & \text{to-DET Mary-ACC} & \text{DET letter-ACC} & \text{to-DET Mary-ACC} \\
\text{\{\{F \, sti \, mar\'ia\}\}PPh} & \text{\{\{F \, sti \, mar\'ia\}\}IP} \\
\text{\{\{F \, sti \, mar\'ia\}\}PPh} & \text{\{\{F \, sti \, mar\'ia\}\}IP} \\
\end{array}
\]
\['S/he gave the letter to MARY.'\]

Based on the discussion so far, the rule of non-local doubling in Greek is straightforward:

(15) Double a head PPh at the IP level.
3.2. Doubling of the phonological phrase in Turkish

In Turkish, where syntactic phrases are right-headed, the left edge of the PPh is aligned with the left edge of an XP (ALIGN-L). As such, each XP in Turkish creates its own PPh which carries leftmost prominence (Kabak and Vogel 2001). The focused element is generally rendered with a (L+)*H pitch accent (e.g., Özge 2003; Kan 2009), and it can occur in any position before the verb (cf. Göksel and Özsoy 2003; Kılıçaslan 2004), but crucially not after it (Erguvanlı 1984; Kural 1994, 1997; Göksel 1998 et seq.). The domain following the focused element, as in other languages (e.g., French: Dohen and Loevenbruck 2004, Greek: Baltazani 2002, etc.), is subject to postfocal deaccentuation (a.k.a. pitch flooring, Özge 2003, Aydiner 2006, Kan 2009, Özge and Bozşahin 2010).

These properties, however, do not account for the differences between Greek and Turkish. After all, the same conditions as those in Greek could apply, and the most prominent phrase at the IP level would then be the only one to be targeted as the input to doubling. What marks the difference is that PPhs, other than the most prominent one, are also visible to this process in Turkish. Since the focused phrase demarcates the area where doubling can search for a base, it must be the case that the grammar of doubling sees the head of the IP and all the properly prosodized constituents that are subsumed under the IP. As noted above, the area following a focused phrase is subject to deaccentuation, and as a result the material hosted there cannot form PPhs (Özge and Bozşahin 2010).

In order to guarantee that focused phrases in addition to non-focused ones in the prefocal area can be doubled, the grammar of doubling must be sensitive to PPhs within the domain of the IP. To illustrate this, we first begin with SOV sentences where the highest prominence can be on any constituent. In (16) below, the NP vazoya ‘in the vase’ is contrastively focused, hence receives prominent stress. More than one contender, however, can be a potential base for doubling, as there is yet another PPh present to the left of the focused phrase within the IP (17a-b), i.e. Ali, the subject. In contrast, constituents to the right of the focused phrase cannot be doubled (17c-d).

(16) 

\[
\begin{align*}
&\text{IP} \\
&\text{PPh} \\
&\text{PW} \\
&\text{[Ali]PPh} \\
&\text{[vazoya]}PPh \\
&\text{ççekler-i koy-du.} \\
&\text{Ali vase-DAT flower-PL-ACC put-PAST} \\
&\text{‘Ali put the flowers in THE VASE.’} \\
\end{align*}
\]

(17)  
b. Ali vazoya ççekleri koydu vazoya.  
c. *Ali vazoya ççekleri koydu ççekleri.  
d. *Ali vazoya ççekleri koydu koydu.

Let us illustrate how phonological phrasing is modulated by the position of the focused phrase. The example in (18) below, the string-identical copy of (16), is contrastively focused on the verb. This allows all PPhs to the left of the focused verb to serve as potential duplicates for the doubling process (18).
Note that as discussed above in the context of Greek, a contrastively focused constituent, *koydu* ‘s/he placed’ in (18), forms an independent PPh on its own and becomes the head of the IP, irrespective of its position in the sentence.

Turkish has a flexible word order (Erguvanlı 1984 i.a.) and the same facts carry over to sentences with word orders other than SOV. The postfocal area is again demarcated by the focused phrase, and if available, all PPhs to the left of this area can be doubled. The sentence in (20) has VSO order and the one in (21) has OSV order.

In conclusion, the rule of doubling in Turkish is:

(24) Double any PPh.
3.3. The heads of phonological phrases as the base of doubling

We showed in the examples above that a PPh can be doubled as a whole. In both languages, however, parts of PPhs, in particular their prosodic heads, can also be doubled:

(25) **Greek**

```
*       *       *       IP
*       *       *       PPh
*       *       *       *       PW

[{{\text{To amáksi tu pétru}}}]_{PPh} a yörase i mína]_{IP} | [ tu pétru]_{IP}
```

DET car-ACC.SG DET-GEN Peter-GEN buy-PAST.3SG the Mina-NOM DET-GEN Peter-GEN

‘Mina bought PETER’S CAR.’

(26) **Turkish**

```
*       IP
*       *       *       PPh
*       *       *       *       PW

[{{\text{Porselen vazo-ya}}} PPh] çiçekler-i koy-du.
porcelain vase-DAT flower-PL-ACC put-PAST
```

‘S/he put the flowers in THE PORCELAIN VASE.’

b. Porselen vazoya çiçekleri koydu porselen vazoya.
c. *Porselen vazoya çiçekleri koydu vazoya.

As can be seen, the head of the PPh (\text{tu pétru} ‘the Peter’ in (25) and \text{porselen} ‘porcelain’ in (26)) can be doubled on its own. The *syntactic* head (\text{to amáksi} ‘the car’ in (25) and \text{vazo(ya)} ‘(into the) vase’ in (26), however, cannot be doubled on its own. It has to be doubled together with the prosodic head of the construction, showing that prosodic units, as opposed to syntactic units, are the targets of this process. Arguably, targeting a constituent automatically renders its prosodic head a target, therefore no additional mechanism needs to be stipulated.

4. The position of the duplicate

So far we have been referring to the location of the doubled constituents as the ‘right periphery’. Closer inspection, however, reveals that the two languages differ with respect to the nature of the right periphery. We mentioned above that duplicates in Greek are arguably separated by an IP boundary, leaving them outside the clause. In Turkish, a prosodic boundary is, however, lacking in some cases. Moreover, a duplicate can be sandwiched between the constituents of the clause, as long as it is postverbal (see (32) below).

Before going into illustrative examples, it is worth noting that for a duplicate to be present at all, the domain that is required as the input to doubling is a structure where the illocutionary force of an utterance and the information structural content of a proposition, i.e. where focus, topic, negation, and modality, etc. have been realized. To discuss the syntactic aspects of these constructions, we will use the term *Complementizer Phrase* (CP) as a shortcut to express the functional type that acts as the input to doubling, without committing ourselves to the syntactic implications associated with this phrase (e.g., Rizzi 1997). We will elaborate on the implications for this in Section 5.

The most clear-cut evidence that doubling takes a CP as input is that in both Greek and Turkish it can apply to questions:
As evidenced by the Greek examples in (28), the duplicate appears outside the matrix clause from which it is usually distinctly separated by an IP boundary. In Turkish, there are also cases where there is an IP boundary, as in (29a). This not surprising given that the position outside of this prosodic boundary is also commonly a position occupied by tag questions (30a, 31a) and various discourse particles (30b, 31b).

(30)  a.  \[
\text{O } \textit{yjánis } \textit{a yapáj } \textit{tin maría } \text{ } | \text{ } \textit{étsi } \textit{dēn } \textit{íne}?
\]
\[
\text{DET John-NOM love-3SG DET Mary-ACC so } \text{ } \text{NEG be-3SG}
\]
‘John does love Mary, doesn’t he?’

b.  \[
\text{O } \textit{yjánis } \textit{iđe } \textit{ti maría } \text{ } | \text{ } ?
\]
\[
\text{DET John-NOM see-PAST.3SG the Mary-ACC DISC.P}
\]
‘John saw Mary yesterday, eh?!’

(31)  a.  \[
\text{İstatistik-lër-i } \textit{bitir-di-n } \textit{di-mi } (\textit{değil } \textit{mi})?
\]
\[
\text{statistics-PL-ACC finish-PAST-2SG not-Q}
\]
‘You finished the statistics, didn’t you?’

b.  \[
\text{Ali dün } \textit{ev-e } \textit{gel-me-di } \textit{ha}?
\]
\[
\text{Ali yesterday house-DAT come-NEG-PAST DISC.P}
\]
‘So, Ali did not come home yesterday, eh?’

But the picture in Turkish is somewhat more complicated. First, the duplicate may not always be prosodically separable from the rest of the clause.\textsuperscript{14}

(32)  \[
\text{Ali bugün } \{\text{f köy-e}\} \textit{gid-ecek-ti } \textit{Ali}.
\]
\[
\text{Ali today village-DAT go-FUT-PAST Ali}
\]
‘Ali was going to the village today.’

Second, the duplicate can even be sandwiched between the main constituents as long as it is in the postverbal position.\textsuperscript{15} The most striking fact that shows this with respect to the data at
hand is that the duplicate can occur before a constituent that belongs to the main proposition such as the subject or the object in Turkish:

(33)  a.  \[ \{ f \text{ köy-e} \} \text{ gid-ecek-miş köy-e Ali.} \]

summer-ADV village-DAT go-FUT-EV village-DAT Ali

‘Ali will apparently go TO THE VILLAGE in the summer.’

b.  \[ \{ f \text{ Ayşeyi} \} \text{ sev-iyor-um Ayşeyi ben.} \]

Ayşeyi-ACC love-IMPF-1SG Ayşeyi-ACC I

‘I love AYŞE.’

The duplicates in (33a) and (33b) (köye ‘to the village’, Ayşeyi (ACC) respectively) occur in the postverbal position before the subject of the clause, even though the constituents at the end (Ali and ben ‘I’ respectively) are not themselves duplicates. The location for the duplicate in Turkish is then the postverbal position, rather than the (pre- or) post-CP area.¹⁶

To summarize, we have shown that: (a) doubling takes as its input higher functional categories (such as questions), (b) the location of the duplicate in Greek shows this transparently whereas in Turkish the location is determined by the general phonological and syntactic properties of the language, (c) focused duplicates are necessarily separated by an IP boundary and retain their prosodic prominence in Greek while the same condition does not hold for Turkish.

5. The function and mechanism of non-local doubling

In both Greek and Turkish, doubling carries various semantic and pragmatic functions, as doubled constructions are used in contexts that are seemingly unrelated to each other. We suggest that the common thread between these functions is emphasis or intensification. When the focused element is reiterated, doubling has an emphatic flavor, enhancing the significance of the focused constituent in both languages. In Greek, additionally, doubling in yes/no questions usually emphasizes the speaker’s amazement about the agent of the event described by the verb. Doubling may also have a further discursive function, that of inviting the hearer to assess the propositional content of the sentence uttered by the speaker, thereby drawing attention to the utterance and intensifying its significance among other utterances. This may be the function, in particular, of the doubling of non-focused constituents in Turkish. Obviously, more work is called for to get a comprehensive picture of the semantics and pragmatics of doubling in Greek and Turkish, ideally by way of corpus and experimental approaches.¹⁷

Turning now to doubling as a grammatical operation, we propose that doubling is the by-product of a copying mechanism that satisfies a certain grammatical function, which corresponds to a feature operating at the CP layer, as the input to doubling is a CP. We argue that this feature, EMPHΣ, which serves an emphatic and intensifying function, as described above, is satisfied via the cloning of a prosodic constituent (i.e. the head PPh in Greek and any PPh in Turkish). When the cloned element is placed in the appropriate location, i.e. the periphery of the clause, the two elements, the base and the duplicate, simultaneously satisfy this grammatical feature:

(34)  EMPHΣ:  \[ [\text{CP} . . . a . . .] a \]

We take this feature to be a reduplicative morpheme, one whose function is to copy for purposes of emphasis. We have shown in the sections above that a is a prosodic constituent
varying according to language-specific constraints, i.e. it is the head PPh in Greek and any PPh in Turkish. Σ is a copying function that yields a two-legged construction that is necessary to satisfy the EMPH grammatical feature. More specifically, it takes as input a CP and targets a prosodic constituent within it. The exact location of the duplicate is determined by language specific properties.\(^\text{18}\)

The most significant aspect of this account is that doubling straddles different components of grammar. It is sensitive to syntactic boundaries and, at the same time, it targets prosodic objects of a higher level, namely PPhs. Interestingly, both the mechanism of doubling and the interface nature of the phenomenon are not unusual in these languages. Greek and Turkish productively employ a doubling mechanism at the word level to create constructions with various functions (e.g. intensification, opposites, etc.; see Müller 2003 for Turkish and Nakas 1996; Kakridi-Ferrari 1998; Kallergi 2009, 2011 for Greek). The examples in (35-36) illustrate this, where italicized words represent locally doubled elements.

(35) **Greek**

a. \(\text{Tì kundéra mundéra mu tsambounás!}\)
   what \(\text{Kundera m-undera CL.GEN.SG talk foolishly-2SG}\)
   ‘What nonsense are you talking about regarding Kundera and the like!’
   (adapted from Kallergi 2011: 5)

b. \(\text{Tróke frékos frékos sto máthma}\)
   come-PAST.3SG fresh fresh to-DET class-ACC
   ‘S/he come very fresh (=rested) to class.’

c. \(\text{Ipá ksípa dén pirázi.}\)
   say-PAST.1SG un-say-PAST.1SG NEG matter-3SG
   ‘I said, I unsaid, it doesn’t matter.’

d. \(\text{Tráva tráva, to ksexilose to pulower.}\)
   pull-3SG.IMP pull-3SG.IMP CL.3SG misshape-PAST.3SG DET sweater
   ‘S/he spoiled the shape of the sweater by stretching it.’
   (Kallergi 2009: 183)

(36) **Turkish**

a. \(\text{sap-sari eriklerle, kap-kara üzümler}\)
   REDUP-yellow plum-PL-CONJ REDUP-black grape-PL
   ‘very yellow plums and very black grapes’

b. \(\text{Bira mira içtı.}\)
   beer m-beer drink-PAST
   ‘S/he drank beer and stuff.’

c. \(\text{Açık açık söyle-di: Ali-ye kız-muş.}\)
   open open say-PAST Ali-DAT be.angry.with-EV
   ‘S/he said it openly: S/he is angry with Ali.’
Undoubtedly, this is a word-formation process which lies in the realm of morphology, and it may target prosodic constituents such as the syllable and the rhyme (35a, 36a-b) or even the whole phonological word (35b-d, 36c-d). It should be noted that prosodic units such as the syllable, the foot and the phonological word are known to constitute the material for various reduplicative formations (see McCarthy and Prince 1993 for an overview and references cited therein). In the case of non-local doubling, the target material is yet another prosodic unit, though one that must naturally be beyond the level of the word, that is, the PPh. This suggests that non-local doubling is a reincarnation of the reduplicative mechanism at a higher level. Furthermore, the process in question provides empirical support for the PPh as an independent constituent of the Prosodic Hierarchy from another area of the interface (see also Fitzpatrick-Cole 1996; Lahiri and Fitzpatrick-Cole 1999 for the role of phonological phrasing in Bengali echo word formation).

As a process that seems to straddle the grammatical components, the doubling phenomenon constitutes an instructive case to evaluate long-standing debates on the architecture of grammar, especially those concerning the interfaces. In terms of the relation between syntax and morphology, the well-known discussions of the last few decades have witnessed various differences in opinion among linguists. One controversy concerns the status of a morphological component separate from syntax (see Anderson 1992; Baker 1985; DiSciullo and Williams 1987; Halle and Marantz 1993, for different views). The other one is, if there are separate components, whether and how they are ordered with respect to each other.

Here we do not wish to advocate a single framework that can characterize these facts. Instead our motive is to highlight features of our analysis that theoretical models need to take into account in order to capture our data. First, it could be assumed that the two types of doubling, word-level and non-local doubling, have recourse to different components: a morphological one where reduplicated constructions are formed, and a syntactic one where doubling has access to syntactic constructs (i.e., CP). However, this would not capture the similarity between the two phenomena. In the spirit of recent views on iteration, we propose that the process that leads to the cases of doubling discussed in this article is a variant of a single mechanism that can also be activated at the word level, as in the case of morphological reduplication. This approach is on a par with the proposals of Stolz (2007) who places instances of morphological iteration in a wider formal realm and, referring to various contributions by Hurch (2005), suggests that it is a subset of ‘repetition’, adding that the other members of the set may be ‘seemingly disparate phenomena such as syntactic and/or semantic parallelism, co-compounds, cognate objects, segmental gemination, morphological agreement, etc.’ (Stolz 2007: 318). Gil (2005) also addresses the issue of the differences between reduplication and repetition, suggesting a continuum from stylistic repetition to grammatical reduplication. In the same vein, Kimper (2008) proposes a unification of copying mechanisms in morphology and in syntax in terms of a derivational reduplicative process involving intensification.

Second, our analysis provides support for frameworks that are designed to have separate morphological and syntactic components (e.g. Ackema and Neeleman 2005), or at least assume a continuum between these components (e.g. Culicover and Jackendoff 2005). More specifically, there is a single mechanism with outputs in separate components where the
items of these components are not ordered with respect to each other, hence rendering simultaneous, multi-dimensional exponence with respect to the objects of morphology and syntax.

Third, our analysis allocates a pivotal role to prosodic structure in non-local doubling. To that end, we will entertain two alternative ways in which the relationship between phonology and other components of grammar can be envisaged. One view is compatible with the separate and multi-dimensional characterization of the sub-components of the grammar. In particular, prosodic structure determines the course of action in this operation: It designates the type of material to be doubled. In other words, phonology precedes or at least runs parallel to morphology and syntax. Parallel exponence of morphological, syntactic and semantic information is familiar in mono-stratal representations of linguistic information (e.g. Van Valin and LaPolla 1997; Kempson et al. 2001; Culicover and Jackendoff 2005, to name but a few). Although the precise mechanism of integrating intonation in this cartography remains a matter for future research, one can envisage a tune inventory for languages (cf. Ladd 1996 and references therein) where the starting point of the investigation would be the sensitivity of designated tunes to segmental information of lexical, phrasal and semantic nature and the alignment patterns among these.

Yet another view would be one where phonology acts as a filter by selecting an element from a chunk of structure to be pronounced (e.g. the base) thus driving to silence the remainder of the string (see Bošković 1995, 2001; Revithiadou 2006, 2008 for the role of prosodic filtering in clitic constructions). In the cases under investigation, the non-silenced constituent would have the size of at least one PPh. Such a model assumes a syntax-first architecture of Grammar, since phonology operates on the output of syntax on the basis of its own terms and conditions (e.g. by selecting chunks of certain prosodic size). Furthermore, the filter-based approach presupposes that, first, an extrapolation or dislocation operation in syntax creates multiple copies of the target constituent, the base, and, second, two copies are allowed to be pronounced when repetition of the copied constituent expresses a specific meaning, such as the emphatic meaning carried by the abstract reduplicative morpheme (see also Kimper 2008 for a similar approach on syntactic doubling phenomena of local flavour). The precise characterization of how these two approaches can be pursued for the non-local doubling phenomena attested in Greek and Turkish is beyond the scope of this paper. So far, the data we provided do not allow us to reach a firm conclusion as to which view is the most parsimonious. However, we maintain the view that non-local doubling is a core case of the syntax-phonology interface phenomenon.

Before concluding, below we will explore instances of non-local doubling in other languages in an attempt to provide some typological implications.

6. Is non-local doubling syntactic? A crosslinguistic perspective

As introduced in Section 1, doubling has been more conspicuous in linguistic research at the word level (see Inkelas and Zoll 2005 and references cited therein) while the doubling of syntactic units and non-local doubling have been brought to light somewhat recently in the context of a small sample of languages: English (see Gomeishi et al. 2004; Nevins and Vaux 2003; Kimper 2008), Dutch (Barbiers et al. 2010), Afrikaans (Biberauer 2009), and various other languages (see Blackings and Fabb 2003 and Biberauer 2009 and references therein). To enrich our understanding on the typological unity and diversity in doubling, here we aim to highlight the similarities and differences between non-local doubling in Turkish and Greek and comparable phenomena previously reported for other languages.

A common thread in non-local doubling seems to be that the items are copied in order to achieve semantic effects such as intensification. In English, for example the reduplicative
morpheme occurs in the position of adverbs/adjectives, i.e., positions where other intensifying constituents typically appear (Kimper 2008). As explained in Section 4, the doubled constituents in Greek and Turkish also seem to occur in a position where discourse particles could convey comparable meanings. However, there are important differences as well. One of these is the locality constraints in the output of doubling (i.e. the position of the duplicate), and the other is the base constituent in doubling.

Regarding the location of the duplicate, in English, what is referred to as syntactic doubling involves an adjacent copy (37).

(37)  

a.  

They're rich, but not rich-rich. (They are rich, but not really rich)

b.  

Do you like-like him? (Do you really like him?)

(Kimper 2008: 7)

The copied element in English is segmentally the same as the original yet argued to be sufficiently ‘different’ from it since the copied element, according to Kimper, has combined with the reduplicative morpheme, which expresses the intensifying function. This ensures that the linearization process does not delete one of the copies under identity.

Unlike English, we have seen that in both Greek and Turkish, syntactic copying is non-local. Second, in Turkish and Greek the duplicate appears at the right edge of the utterance and prominence-wise the duplicate is either identical to the base (as in Greek or Turkish) or it is deaccented (as in Turkish), which is not the case in English where the highest copy bears the prominence. Moreover, in our characterization, the doubled copy does not combine with the morpheme (see Section 5). Rather, it is simply one leg of the adverbial structure.

Moving to other cases of non-local doubling in various languages reported in the literature, these are also structurally different from the cases in Greek and Turkish. Plank (2003: 374-375), for instance, provides a set of examples from the Bavarian dialect of German, where definite articles, first and second person personal pronouns (and to some extent indefinite articles when they are accompanied by an intensifying adjective) can be doubled (e.g., Woher weißt du (alter) Depp du dass? [where know you (old) fool you that!?]). Although restricted to pronouns and articles, the force of this repetition, according to Plank, is to “impart a characteristically emotional flavor to one’s words”. Likewise, in Ma’di, cases of doubling are observed as a means to focus verbs and first and second person pronouns (Blackings and Fabb 2003). Japanese (Kuno 1978 as cited in Tanaka 2001: 554) exhibits what seems to be a similar phenomenon. However, it is unclear whether such types of doubling are prosodically driven.

Non-local doubling has also been reported for Dutch and Afrikaans (Barbiers et al. 2009, Biberauer 2009). Some representative data are given in (38-39) below.

(38)  

Dutch (Flemish Brabant)

a.  

Zij heft zij daar niets met e maken.  

she has she there nothing with to do  

‘She has got nothing to do with it.’

b.  

Ze heft zij daar niets met e maken.  

she.WEAK has she.STRONG there nothing with to do  

‘She has got nothing to do with it.’

(Barbiers et al. 2010: 2)
The doubled constituents do not necessarily have to be identical to the base in these languages. String-identical cases of copying are rather a de facto case of the doubling of a constituent in syntax. In Greek and Turkish, however, the doubled material is necessarily string identical to the base.

This putatively ‘minor’ difference in the data reflects a significant discrepancy in doubling mechanisms. In particular, the process targets constituents of particular syntactic types (e.g. pronouns, predicates etc.) and as such manipulates syntactic nodes in Dutch and Afrikaans, whereas it manipulates prosodic nodes in Greek and Turkish.\(^\text{19}\) As a result, doubling in Dutch and Afrikaans targets syntactic constituents, while doubling in Greek and Turkish targets prosodic constituents. Hence, we come to the conclusion that the analysis proposed for Dutch and Afrikaans, i.e., the syntactic ‘copying’ mechanism, cannot be extended to Greek and Turkish. Rather, the data such as the ones given in (40) below support the idea that the Greek and Turkish cases of non-local doubling are the acts of prosodic morphology.

More specifically, the possibility of the doubling of the prosodic head, as opposed to the syntactic head, of an exocentric compound in Turkish (41a), as well as of a loose N-N\text{Gen} compound in Greek (41b) (Anastassiadis-Symeonidis 1986; Ralli & Stavrou 1998; Ralli 2007; Nikolou 2008)\(^\text{20}\) strongly suggests that non-local doubling in Turkish and Greek is predominantly prosodic in nature. What gives the process a syntactic appearance falls out from the fact that it targets constituents that are larger than the morphological word, and its locus of realization is anchored to syntactic positions (external to CP in Greek, postverbal in Turkish).

7. Conclusion

In this article, we have shown that doubling in Greek and Turkish is a process that straddles different components of grammar. The uniqueness of the phenomenon lies in the fact that non-local doubling is liable to the dictates of phonological phrasing in both languages. It should be remembered that duplication in morphology has been the breeding ground for
Prosodic Morphology since it has been shown to be sensitive to prosodic units such as the syllable, the foot, and the prosodic word. The fresh air our case studies bring into the prosodic morphology literature is that what needs to be filled in with material from the base is yet again a prosodic unit, this time at a higher level, the PPh. Furthermore, the process provides further empirical support for the PPh as an independent constituent of the Prosodic Hierarchy.

Our comparison of Greek and Turkish with other languages with similar constructions reveals that languages differ on the exact nature of the process and on the restrictions involved in the realization of duplicates and their loci. We have shown that doubling in the languages under investigation is neither purely syntactic nor local. This finding underlines the unique interface character of the process and paves the way for addressing urgent new questions regarding the typology of reduplicative effects in grammar as well as the place of prosody in morphosyntactic operations.

Endnotes

1 Demircan (2001: 136-139) documents a few instances of focus doubling in Turkish. Our observations show that the operation of doubling is not restricted to focused constituents in Turkish. We elaborate on this issue in the following sections.

2 We do not focus here on more well-known and well-documented cases of local doubling in the two languages, often discussed under the rubric of reduplication (e.g., Turkish: yavas yavas yürü! ‘walk slowly!’, Greek: siyá siyá perpáta ‘walk slowly!’). We will briefly return to this in Section 5 in order to capture the similarities between local and non-local doubling.

3 In this article, the focused element is the prosodically salient constituent of the clause due to narrow focus, contrastive focus or even emphasis.


5 We leave aside instances of pragmatically and contextually induced doubling in which a part of the proposition is repeated when for example, the speaker aims to make sure that the message is clearly communicated to the listener due to environmental noise and other factors that lead to a communication breakdown, etc (e.g., Ali – noise – Ali ran away or Hello mum, hello mum, OK, do you hear me now?) We believe that this kind of doubling may be observed in any language, and may not necessarily be part of the grammar, unlike the cases discussed here.

6 The focused element is susceptible to doubling regardless of its position within the clause, as suggested by the following examples in Greek:

(i) \{γιά την μαρία\} αγάπαω | την μαρία
DET Mary-ACC love-1SG DET Mary-ACC
‘I love MARY.’

(ii) \{ο γιάνη\} την μαρία | ο γιάνη.
see-PAST.3SG DET John-NOM DET Mary-ACC DET John-NOM
‘JOHN saw Mary.’

(iii) \{ό τόν\} αγάπαω | τόν αγάπαω
DET John-ACC CL.3.MASC.SG love-1SG CL.3.MASC.SG love-1SG
‘I love John, I DO love him.’

(iii) \{έ την πολι\} | πολι.
CL.3.FEM.SG love-1SG very | very
‘I love her DEARLY.’
The reader is referred to the following works for information on Greek intonation and information structure: Ladd (1996); Arvaniti and Baltazani (2005); Arvaniti et al. (2006); Baltazani (2002, 2006, 2007); Baltazani and Jun (1999), and references cited therein.

Notice that the identity of the doubled constituent does not induce differences in interpretation between (7a) and (7b) or in (8). In all of these sentences, non-focused constituents are doubled but the information structural content is identified primarily by the focused phrase in each case, köye 'to the village' in (7), gönderdim 'I sent' in (8a) and dün 'yesterday' in (8b).

In an End-based Theory of mapping (Selkirk 1980 [1978], 1996a, b, 2000, 2002; Selkirk and Tateishi 1988; Selkirk and Shen 1990; Truckenbrodt 1995, 1999, among others), high-ranking of Align-R, stated in (i), guarantees that subjects will be phrased separately from verbs in SVO strings.

(i) Align (XP, R; PPh, R): For each XP, there is a PPh such that the right edge of XP coincides with the right edge of a PPh.

The edgemoat constraints (Prince and Smolensky 1993; Prince 1983) that are at play in Greek phrasing are:

(i) a. RIGHTMOST-PPh: The head PW is rightmost in the PPh.
   b. RIGHTMOST-IP: The head PPhs is rightmost in the IP.

See Arvaniti and Baltazani (2005) and Baltazani (2002, 2006, 2007) for information on the phonetics of focus and intonation contours in Greek.

Note that the regular word stress in Turkish is rightmost. In particular, unless there are accent-affecting morphemes or non-final stress bearing stems, the default stress falls on the rightmost syllable within a PW (Kabak and Vogel 2001).

In fact, more than one constituent can be doubled in the same construction as long as the conditions described above are met in Turkish, unlike in Greek:

(i) a. \[ \text{Ali yaz-} \text{in} \quad (\text{y} \text{ö} \text{v} \text{-} \text{e}) \quad \text{gid-} \text{ecek-mi} \text{s} \quad \text{Ali k} \text{ö} \text{y} \text{-} \text{e}. \]
   \[ \text{Ali summer-ADV village-DAT go-FUT-EV Ali village-DAT} \]
   ‘Ali will go to the village in the summer.’

   b. \[ \text{Ali yaz-} \text{in} \quad \text{köy} \text{-} \text{e} \quad (\text{g} \text{id-} \text{ecek-mi} \text{s}) \quad \text{yaz-} \text{in} \quad \text{Ali k} \text{öy} \text{-} \text{e}. \]
   \[ \text{Ali summer-ADV village-DAT go-FUT-EV summer-ADV Ali village-DAT} \]
   ‘Ali will go to the village in the summer.’

Although this is subject to future experimental research, evidence from absence of pausing, lack of blocking of sandhi rules such as vowel coalescence and resyllabification suggests that the duplicate may be phrased together with the preceding prosodic constituent.

There are other cases where an item associated with the CP layer is sandwiched between the constituents of the clause, such as modals (i), discourse particles (ii) and complementizers (iii):

(i) \[ \text{Fatma kitab} \text{n madem oka-du…} \]
   Fatma book-ACC given that read-PAST
   ‘given that Fatma read the book…’

(ii) \[ \text{Zehra gid-ecek-ti ya ev-e.} \]
   Zehra go-FUT-PAST DISC.P home-DAT
   ‘Remember, Zehra was going to go home.’

(iii) \[ \text{Zehra gid-ecek diye ev-e…} \]
   Zehra go-FUT COMP home-DAT
   ‘Because Zehra was going to go home…’

The syntactic nature of the postverbal position in Turkish is controversial (see Kural 1994, 1997; Göksel and Tsiplakou 1996; Göksel 1998, 2011; Kornfilt 1998, 2005; Takano 2005; Temürçü 2005; Özge and Bozşahin 2010, Öztürk 2011 for various analyses). One hypothesis based on precedence relations of postverbal constituents is that there is no hierarchical structure in this position (Takano 2005; Kornfilt 2005; Göksel 2011). The ordering of duplicates in relation to the core constituents of the clause in our data is also indicative of the flat nature of the postfocal portion of the clause. If this hypothesis is true, constituent order in this area would be
the result of the necessity to utter these elements in a linear order. As for their prosodic properties, we suspect that duplicates also undergo deaccentuation that is argued to affect the postverbal area (e.g., Aydiner 2006; Özge and Bozşahin 2010). According to the first two authors, who are native speakers of Turkish, the focused duplicate may or may not retain its prosodic prominence, although its placement in the deaccented area may result in its having a lower mean pitch than the base. The phonetic properties of the duplicate have to be checked by means of instrumental techniques, a task to be pursued in future research.

In certain contexts, doubled constructions seem to function as turn increments (Ford et al. 2002). The unification of the semantic and pragmatic function of doubling, if at all possible, rests on studies of spoken corpora, which, to date, have not been done.

We are aware that the left periphery can also host ‘cloned’ constituents in both languages:

(i) Greek

a. \( O \, \text{y} \, \text{j} \, \text{án} \, \text{i} \, | \, \{ f \, o \, v \, \text{y} \, \text{j} \, \text{án} \, \text{i} \} \, \text{lo} \, \text{b} \, \text{e} \, \text{t} \, \text{i} \, \text{n} \, \text{m} \, \text{á} \, \text{r} \, \text{í} \, \text{a} \).  \\
  \text{DET} \, \text{John-NOM} \, \text{DET} \, \text{John-NOM} \, \text{see-PAST.3SG} \, \text{DET} \, \text{Mary-ACC}  \\
  \text{‘JOHN saw Mary.’}  \\

(b) \( \text{Pol} \, \text{i} \, | \, \{ f \, \text{pol} \text{l} \} \, \text{ti} \, \text{n} \, \text{a} \, \text{y} \, \text{a} \, \text{p} \, \text{a} \, \text{o} \).  \\
  \text{very} \, \text{very} \, \text{CL.3.FEM.SG} \, \text{love-1SG}  \\
  \text{‘I love her DEADLY.’}  \\

(ii) Turkish

(a) \( \text{D} \, \text{ün} \, | \, \{ f \, \text{di} \, \text{n} \} \, \text{gö} \, \text{nd} \, \text{er} \, \text{di} \, \text{m}.  \\
  \text{gift-ACC} \, \text{Semra-DAT} \, \text{gift-ACC} \, \text{yesterday} \, \text{send-PAST-1SG}  \\
  \text{‘I sent Semra’s gift YESTERDAY.’}  \\

(b) \( \text{Ali} \, | \, \{ f \, \text{Ali} \} \, \text{yaz} \, \text{-} \, \text{m} \, \text{kö} \, \text{y} \, \text{-} \, \text{e} \, \text{gid} \, \text{-} \, \text{ecek} \, \text{-} \, \text{mi} \, \text{ş}.  \\
  \text{Ali} \, \text{Ali} \, \text{summer-ADV} \, \text{village-DAT} \, \text{go-FUT-EV}  \\
  \text{‘ALi will go to the village in the summer.’}  \\

These however, are not identical to cases we investigate in this article. In Greek, the occurrence of ‘cloned’ items in the left is much more restricted; they occur typically when the base is leftmost. This contrasts with the position of the base as a target for duplicates in the right periphery (see endnote 6). In Turkish, copied elements on the left must be focused and they are obligatorily separated by an IP boundary, unlike the duplicates on the right. These contrasts, no doubt, suggest instructive features of the two peripheries that are worthy of study in their own right, which we leave for future work.

One might wish to characterize the similarity in the two language types as an overarching mechanism of echoing whereby some languages (Dutch and Afrikaans) use it to manipulate syntactic constituents while other use it to echo prosodic constituents (Greek and Turkish). We leave the exploration of this issue to future research.

N-N compounds exhibit various degrees of cohesion. The more cohesive and hence the lexicalized ones, e.g., \textit{ikos anoxis} (‘house’, ‘tolerance’) ‘brothel’, do not allow separation.

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22


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