

# **An obstacle to the morphologization of postpositions**

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To appear in *Studies in Language* 30: 1 (2006). John Benjamins.

## **Abstract**

This article investigates the morphologization of postpositions and presents structural properties of Turkish postpositions and their frequency of occurrence. Turkish postpositional phrases provide chunks comprised of a frequently co-occurring case suffix on the complement followed by a postposition. According to the Linear Fusion Hypothesis (Bybee 2002), such chunks provide ideal conditions for phonological fusion. In contrast to this view, this paper shows that there is no fusion between the frequently co-occurring case suffixes and postpositions. Instead, postpositions following an uninflected form of complement have a greater chance of turning into case suffixes or clitics than those following a case-inflected form. Case suffixes serve as constant indicators of a word boundary before postpositions, thereby blocking the bonding between the postposition and the complement. Simple frequency and linearity, therefore, cannot be the sole conditions in the morphologization of postpositions.

## **1. Introduction**

This article attempts to sort out various factors that contribute to the morphologization of postpositions with special attention to Turkish. It discusses structural, historical, and distributional properties of Turkish postpositions and correlates their frequency of occurrence with their morphosyntactic behavior. Although the example of Turkish postpositions is among those typically cited in the grammaticalization literature, the precise conditions underlying their morphologization have not been explored. This article aims to explore such conditions in the context of various assumptions and claims made in grammaticalization theory.

Grammaticalization theory (e.g., Hopper & Traugott 1993; Lehmann 1995) asserts, though not always explicitly, that language change is manifested by gradual reduction processes as lexical forms turn into grammatical forms, and grammatical to even more grammatical forms. The diachronic development of nouns to adpositions and eventually to case suffixes is one common example that illustrates the direction of the grammaticalization cline. While there is no clear-cut stand on the prime factor that motivates change and evolution in grammar, several researchers have strongly argued for the role of frequency in grammaticalization (e.g., Bybee 2002; Haiman 1994). Bybee's (2002) Linear Fusion Hypothesis explicitly argues for the role of sequentiality and frequency in the development of various constructions that may be difficult to explain in traditional terms. The basic premise of the hypothesis is: "Items that are used together fuse together". According to Bybee, this phenomenon stems from the automation of production and predictability, which allows the speaker to apply reductive processes in

order to increase fluency. In support of this, Bybee provides several examples that involve combinations of extremely high frequency. For instance, determiners fuse with the nouns they precede in various languages (e.g., French: *le + ami* → *l'ami* ‘the friend’). English auxiliaries contract with subject pronouns that they frequently co-occur with (*I am* → *I'm*). In some of the relevant Romance languages (i.e., all those which have articles preceding nouns) and German, prepositions and definite articles are contracted (e.g., German: *für + das* → *fürs*; French: *a + le* → *au*); and, finally, postpositions tend to fuse with the nouns they operate on to become case suffixes. Turkish comitative *–(y)la* (the clitic form of the co-existing full form *ile*)<sup>1</sup> and various Hungarian case suffixes originating from once independent postpositions are perhaps the most commonly cited examples.

My primary aim here is to explore the potential forces that motivate or block the morphologization of postpositions. In an attempt to capture cross-linguistic generalizations about the phenomenon and its consequences for the Linear Fusion Hypothesis, I will investigate various morphophonological and distributional properties of Turkish free and bound postpositions, and compare them to other postpositional languages such as Hungarian, Estonian, Georgian, and Urdu/Hindi. From the viewpoint of morphologization, postpositions constitute an instructive case not only because they provide new sources for augmenting nominal morphology, but also they typically form instances of frequently co-occurring ‘chunks’ with the case they govern. For the Linear

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<sup>1</sup> Bybee (2002: 113) gives the *değın* → *dek* alternation as an example of the reduction of a Turkish postposition, which then fuses with the noun it governs. She gives an erroneous example *köy-dek* (village-PostP) ‘as far as the village’, which lacks the obligatory Dative case suffix on *köy*. For Bybee’s purposes, the correct form should be *köy-e-dek*. As will be shown in Section 2.3, however, assuming *dek* as the suffix form of *değın* is unmotivated and, furthermore, such an assumption makes incorrect predictions. Perhaps more importantly, if the *değın* → *dek* cline were true, this case would indeed speak against Bybee’s main claim about frequency of co-occurrence since both forms constitute some of the least frequent postpositions in Turkish (see Section 3 below).

Fusion Hypothesis, such chunks should ideally satisfy the necessary conditions for phonological fusion. Indeed, though not very commonly, such combinations have created new case suffixes and clitics in some languages, as we will discuss below. Therefore, postpositions becoming case appendages provide several grounds on which we can evaluate the validity of various claims about the role of frequency and linearity. Primarily drawing on examples from Turkish, I will present evidence against the Linear Fusion Hypothesis. First, despite their phonological and morphosyntactic cohesion with their complements, very few postpositions have developed bound behavior. Second, we observe not only the grammaticalization of postpositions but also their de-grammaticalization. Third, although we observe chunks that frequently co-occur in postpositional phrases, these chunks show no sign of phonological fusion.

Methodologically, the present study employs a corpus-based approach to investigate the frequency and distribution of postpositions in Modern Turkish. I will show that although the probability of having a case marker before a given postposition is extremely high in Turkish, the case affix and the postposition have never shown any sign of fusion. Quite to the contrary, those postpositions that mostly assign a phonologically null case show or have shown bound behavior. Following Kahr's (1976) linearity hypothesis, which holds that the word order within the noun phrase (NP) plays a role in facilitating or blocking the development of new case forms, I will suggest that case affixes regularly occurring before postpositions preclude postpositions developing into bound morphemes. Indeed, it will be shown that postpositions fusing with preceding case markers are rare cross-linguistically. Furthermore, case suffix + postposition sequences provide evidence against the Linear Fusion Hypothesis in that although they obligatorily

occur together in several languages, they never fuse together. Rather, it will be suggested that postpositions following an uninflected form of their nominal complements are more likely to turn into a case suffix or clitic than postpositions following a regularly case-inflected form. Thus, the inhibiting role of case markers should be considered as yet another factor that determines the morphologization of postpositions along with linearity and frequency.

The article is organized in the following way. I will first examine phonological, morphological, and syntactic properties of Turkish postpositions. I will argue that the observations on the *-dek < değin* ‘as far as’ cline in the literature (e.g., Kahr 1976; Bybee 2002, which are primarily based on Lewis 1967) are implausible on phonological, morphosyntactic, and historical grounds. Second, I will present results from a corpus study, which will provide the token frequency of postpositions and the probability of co-occurrence in [Case affix + Postposition] complexes. The second half of the paper will present examples drawn from other postpositional languages such as Hungarian, Finnic languages, Georgian, and Urdu/Hindi, which also exhibit case clitics and affixes that originated from free postpositions. It will be shown that most such case markers share one systematic property: the absence of a case affix that regularly intervenes between the postposition and its complement. Finally, the possible role of analogy in the cliticization of Turkish postpositions will be highlighted.

## **2. Turkish postpositions**

Turkish is a head-final language, where, as in the case of adpositions, syntactic heads follow their complements (e.g., *ben-im için* ‘for me’; *doktor-a göre* ‘according to the

doctor’, etc.). A distinction between primary (genuine) and secondary postpositions is assumed in the Turkish linguistics literature (e.g., Lewis 1967; Kornfilt 1997). Genuine postpositions govern the (phonologically overt or null) case of their complements. Secondary (fake) postpositions, however, bear possessive agreement morphology with their objects, and can, therefore, be analyzed as nouns (Kornfilt 1997: 423). These typically express location and other spatial relations with the addition of syntactically or semantically assigned case markers (e.g., *bina-nın alt-ın-da* (building-GEN.3SG underside-POSS.3SG-LOC) ‘under the building’). At first sight, with the presence of several inflectional morphemes on such postpositions, Turkish can be said to have inflected postpositions. Closer inspection of such postpositions, however, reveals that these “fake” postpositions originate from nouns. Consequently, they may inherit any possible category Turkish nouns may be inflected for. Furthermore, the genitive-possessive agreement morphology on such constructions makes them structurally inseparable from some Noun Phrases (NP) (e.g., *bina-nın çatı-sın-da* (building-GEN.3SG roof-POSS.3SG-LOC) ‘on the roof of the building’). Having distinguished genuine postpositions from other kinds of NPs with locative functions, the focus of this paper will be on genuine postpositions, namely those that govern the case of their complements.

## **2.1. Morphosyntactic properties of Turkish postpositions**

Turkish (primary) postpositions are usually distinguished with respect to the case they assign to their complements. These cases are not restricted to postpositions since they can be used elsewhere to express other grammatical relations. Accordingly, there are three types of postpositions: (i) those assigning the genitive / nominative, (ii) those assigning the dative, and (iii) those assigning the ablative. Examples (1), (2), and (3) below

illustrate some postpositions belonging to these categories.<sup>2</sup> It should be noted that the genitive and nominative distinction in the first category is lexically conditioned such that the genitive is only assigned to a certain set of pronominals such as *bu* ‘this’, *şu* ‘that’, *kim* ‘who’, etc. (1 a-d); otherwise the complement obligatorily bears no overt case marker, which can be assumed to be the phonologically null nominative (1 e-h).

- (1) *Genitive / nominative assigning postpositions:*
- |                                |                        |
|--------------------------------|------------------------|
| a. bu- <u>nun</u> <b>gibi</b>  | ‘like this’            |
| b. kim- <u>in</u> <b>ile</b>   | ‘with who’             |
| c. şu- <u>nun</u> <b>kadar</b> | ‘as much as that’      |
| d. biz- <u>im</u> <b>için</b>  | ‘for us’               |
| e. su <b>gibi</b>              | ‘like water’           |
| f. Ali <b>ile</b>              | ‘with Ali’             |
| g. dünya <b>kadar</b>          | ‘as much as the world’ |
| h. çocuk <b>için</b>           | ‘for the child’        |
- (2) *Dative assigning postpositions:*
- |   |                                |
|---|--------------------------------|
| a. Mert- <u>e</u> <b>göre / nazaran</b> | ‘according / compared to Mert’ |
| b. Antalya- <u>ya</u> <b>doğru</b>      | ‘towards Antalya’              |
| c. parti- <u>ye</u> <b>karşı</b>        | ‘against the party’            |
| d. şehir- <u>e</u> <b>kadar</b>         | ‘as far as the city’           |
| e. Hikmet- <u>e</u> <b>dair</b>         | ‘concerning Hikmet’            |
| f. itiraz-lar- <u>a</u> <b>rağmen</b>   | ‘in spite of objections’       |
| g. Ali- <u>ye</u> <b>inat</b>           | ‘in despite of Ali’            |
| h. İstanbul- <u>a</u> <b>nispeten</b>   | ‘in comparison to Istanbul’    |
| i. Ali- <u>ye</u> <b>ait</b>            | ‘belonging to Ali’             |
| j. köy- <u>e</u> <b>dek/ değin</b>      | ‘as far as the village’        |
- (3) *Ablative assigning postpositions:*
- |   |                            |
|---|----------------------------|
| a. yetmiş-ler- <u>den</u> <b>önce</b>     | ‘before the seventies’     |
| b. okul- <u>dan</u> <b>sonra</b>          | ‘after school’             |
| c. dün- <u>den</u> <b>beri</b>            | ‘since yesterday’          |
| d. olay- <u>dan</u> <b>dolayı / ötürü</b> | ‘because of the incident’  |
| e. sen- <u>den</u> <b>başka</b>           | ‘besides / apart from you’ |

<sup>2</sup> In this paper, I adhere to the conventions of Turkish orthography. Accordingly, *i* and *ı* represent the high front unrounded and high back unrounded vowel, respectively. The symbol *ü* indicates the high front rounded vowel, *ö* the non-high front rounded vowel. The symbol *ş* represents the voiceless palato-alveolar fricative; *ç* and *c* indicate voiceless and voiced palatal affricates, respectively. Capital letters are used to indicate phonemes that undergo assimilation processes. Both /A/ and /I/ undergo backness harmony while /I/ also undergoes rounding harmony.

f. kapı- <u>dan</u> <b>içeri</b>	‘through the door’
g. devlet- <u>ten</u> <b>yana</b>	‘in favor of the government’
h. yılbaşı- <u>dan</u> <b>itibaren</b>	‘with effect from the New Year’s day’

The presence of case affixes on complements is obligatory, hence their omission renders postpositional phrases (PostP) ungrammatical (4a-c). In some cases, however, the genitive, which is assigned to a certain set of pronominals, may be dropped (4 d-f).<sup>3</sup>

- |     |                  |                               |                     |
|-----|------------------|-------------------------------|---------------------|
| (4) | a. * Mert göre   | (vs. Mert- <u>e</u> göre)     | ‘according to Mert’ |
|     | b. * İzmir doğru | (vs. İzmir- <u>e</u> doğru)   | ‘towards İzmir’     |
|     | c. * yağmur önce | (vs. yağmur- <u>dan</u> önce) | ‘before the rain’   |
|     | d. bu kadar      | (vs. bu- <u>nun</u> kadar)    | ‘as much as this’   |
|     | e. siz gibi      | (vs. siz- <u>in</u> gibi)     | ‘like you (PL)’     |
|     | f. kim için      | (vs. kim- <u>in</u> için)     | ‘for who’           |

Postpositions can also take clausal complements, serving as adjunct clauses (5).

These complements show nominal properties in at least two respects: (i) the agreement marker on the predicate comes from the nominal paradigm, and (ii) a case marker, which is a nominal category assigned by the postposition, follows the whole clause. It should be noted that some postpositions may acquire clause-adjoining functions that are equivalent to that of *because* and *for* in English when they serve as the head of subordinate adjunct clauses (5c, d; cf. 1d, 2a).

- |     |  |                                       |
|-----|--|---------------------------------------|
| (5) | a. [[Ali-nin ev al-dı-ğ-ın]-a                        | <u>dair</u>                           |
|     | Ali-GEN house buy-FN-POSS.3SG-DAT                    | <u>about</u>                          |
|     | hiçbirşey duy-ma-dı-m.                               |                                       |
|     | nothing hear-NEG-PAST-1SG                            |                                       |
|     | ‘I haven’t heard anything about Ali buying a house.’ |                                       |
|     | b. [[Ben okul-dan gel-di-ğ-im]-den                   | <u>beri</u> ] televizyon izli-yor-um. |
|     | I school-ABL come-FN-POSS.1SG-ABL                    | <u>since</u> TV watch-PROG-1SG        |

<sup>3</sup> It should be noted that the omission of the genitive with certain demonstrative pro-forms is obligatory in particular exclamative type constructions (e.g., *o kadar bekledim!* vs. *\*o-nun kadar bekledim!* ‘I have waited a lot!’; *ne kadar güzel* vs. *\*ne-yin kadar güzel* ‘how beautiful!’). The discussion and analysis of possible semantic differences between pronominals with the genitive and those without in PostPs are, however, beyond the scope of this paper.



‘Since I came from school, I have been watching TV.’

- c. [[Ayşe git-tiğ-i] için] herşey değiş-ti.  
Ayşe go-FN-POSS.3SG for everything change-PAST  
‘Everything changed because Ayşe went (away).’
- d. [[Sen git-tiğ-in]-e göre] herşey değiş-meli.  
you go-FN-POSS.2SG-DAT because everything change-NEC  
‘Everything must change because you went (away).’

Finally, postpositions cannot be preposed (6a), nor can they be stranded through the movement of their complements (6b), or the ellipsis of its complement by deletion (e.g., Kornfilt 1997: 100-102). This suggests that postpositions form a tight morphosyntactic bond with their complements.

- (6) a. \*Bu elbise [[için] Ayşe]].  
This dress for Ayşe  
‘This dress is for Ayşe.’
- b. \* [Beri] Ahmet [dün-den] konuş-mu-yor.  
since Ahmet yesterday-ABL speak-NEG-PROG  
‘Ahmet isn’t talking since yesterday.’

The tight morphosyntactic bonding between the postposition and its complement can be further demonstrated by the rarity, if not impossibility, of the insertion of clitics (indicated with an underscore) such as the question particle =*mI* or the connector / topic marker =*dA*. However, there seems to be some variation among speakers regarding the legitimacy of this process, as the examples in (7) receive relatively good acceptability rates from some native speakers.<sup>4</sup>

- (7) a. Kanun yılbaşın-dan=mI itibaren geçerli ol-acak?  
law New Year’s day-ABL=QUE POSTP valid be-FUT

<sup>4</sup> The grammaticality judgements for (7a-e) reflect the intuitions of four native speakers of Standard Turkish among the seven native speakers I consulted with (average age 29; all reside in Istanbul). Accordingly, it can be said that there are two groups of speakers, one that rejects most of the instances of postpositions preceded by particles, and another that has reasonably positive judgments about them.

‘Will the law be in effect from the New Year’s day?’

- b. Bütün bunlar-ı Bora-ya=mı inat yap-tı?  
all these.ACC Bora-DAT-QUE POSTP do-PAST  
‘Did he do all of that in despite of Bora?’
- c. Kim-in=mi için yap-tı-m? Elbette sen-in için!  
who-GEN=QUE PostP do-PAST-1SG. Of.course you.GEN POSTP  
‘For whom did I do this? Of course, for you!’
- d. Bavul-u kapı-ya=mı kadar götür-sün?  
suitcase.ACC door-DAT=QUE POSTP bring-IMP.3SG  
‘Shall s/he bring the suitcase up to the door?’
- e. Yoksa kendi-si=mi ile ilgili bir sorun var?  
or self-POSS.3SG=QUE POSTP related a problem exists.  
‘Or, is there a problem with himself/herself?’
- f. Bu parti laiklik-ten=de yana.  
This party secularism-ABL=CONN POSTP  
‘This party is also in favor of secularism’

The apparent morphosyntactic liaison between the postposition and its complement is further strengthened by the special phonological link that exists between them. I will discuss various phonological properties of Turkish postpositional phrases in the following section.

## 2.2. The phonology and prosody of Turkish postpositions

All postpositions exhibit a number of phonological patterns that are typical of content words in Turkish. First, they are at least bisyllabic. Thus, they satisfy the bi-moraic word minimality requirement (Inkelas & Orgun 1995). Another similarity between postpositions and content words is related to their stress properties. Turkish stress assignment is predictable with the exception of some place names and other types of

borrowings. Regular word stress falls on the final syllable of a Phonological Word (PW), which consists of a stem plus (a set of) affixes (Kabak & Vogel 2001). Turkish postpositions follow the same word-stress pattern, as they are all stressed on the final syllable (e.g., [gö're], [gi'bi], [i'le], [ka'dar], etc.). Accordingly, Turkish postpositions can be said to constitute independent PWs. The prosody of postpositional phrases (i.e., [[NOUN+AFFIX] + POSTP]) has the same properties as those of regular compounds in Turkish. Both constructions are arguably subsumed under the same prosodic domain above the level of the PW, namely the Clitic Group (Kabak & Vogel 2001). The Clitic Group (CG) is the domain for compound stress, where the first PW stress is promoted, indicated by bold-face characters, while the prominence of any other stresses is reduced, as nominal compounds in (8 a-b) show. Likewise, we observe the same stress properties in postpositional phrases (8c-d), where word-stress on the postposition is reduced as the stress on the complement receives the most prominent stress.

- (8) a. [ki'tap]<sub>PW</sub> [ev-'i]<sub>PW</sub> → [[**kitap**]<sub>PW</sub> [ev-i]<sub>PW</sub>]<sub>CG</sub>  
           book     house-CMPMKR  
           ‘bookstore’
- b. ['kırk]<sub>PW</sub> [a'yak]<sub>PW</sub> → [[**kırk**]<sub>PW</sub> [ayak]<sub>PW</sub>]<sub>CG</sub>  
           forty     foot  
           ‘caterpillar’
- c. [Ben-'im]<sub>PW</sub> [i'çin]<sub>PW</sub> → [[Ben-**im**]<sub>PW</sub> [için]<sub>PW</sub>]<sub>CG</sub>  
           I-GEN     for  
           ‘for me’
- d. [Ali-'ye]<sub>PW</sub> [gö're]<sub>PW</sub> → [[Ali-**ye**]<sub>PW</sub> [göre]<sub>PW</sub>]<sub>CG</sub>  
           Ali-DAT   according.to  
           ‘according to Ali’

Another piece of evidence for the compound-like behavior of Turkish postpositional phrases comes from their behavior under emphasis. Both contrastive emphasis and non-contrastive emphasis are usually accompanied by a strong stress and high pitch. In addition to stress and pitch, non-contrastive emphasis is marked also by the placement of the emphasized constituent in immediate pre-verbal position (e.g., *Ayşe sabah* [e've] *geldi* vs. *Ayşe eve* [sa'bah] *geldi* ‘Ayşe came home in the morning’).

Contrastive emphasis, however, does not need to be pre-verbal (Kornfilt 1997: 190).

When a postpositional phrase undergoes pre-verbal placement for non-contrastive emphasis, the first PW of the postpositional phrase bears the most prominent stress rather than the postposition that immediately precedes the verb (e.g., *Bu elbiseyi* [Ay'şe için] *aldım* vs. *Bu elbiseyi* \*[Ayşe i'çin] *aldım* ‘I bought this dress for Ayşe’). The same rule applies to compounds as well (e.g., *Bahçede bir* [ 'kırk+ayak] *gördüm* vs. *Bahçede bir* \*[kırk+a'yak] *gördüm*. ‘I saw a caterpillar in the garden’). This suggests that

postpositions form a prosodic unit with their complements, where the constituent as a whole, rather than each individual member of it, undergoes further stress assignment processes (e.g., for phrasal stress or emphatic stress, etc.). Postpositions, therefore, almost always remain unstressed in postpositional phrases.<sup>5</sup> Thus, in the spirit of Nevis (1988), Turkish postpositions arguably have bound word status since they must prosodically be adjoined to a host. The weak prosodic status of postpositions can then be said to make them more vulnerable to reductions that are typical of unstressed syllables, motivating

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<sup>5</sup> Under contrastive readings, it is possible, though unusual, to place contrastive stress on certain postpositions that have antonyms (e.g., *yemek-ten* [son'ra], *önce değil!* ‘after the meal, not before!’).

their bound behavior. Interestingly, however, only a very small number of postpositions in Turkish exhibit or have exhibited bound behavior.

### 2.3. Bound Turkish postpositions

One widely mentioned postposition that co-exists with a clitic form is the comitative/instrumental postposition *ile*. Unlike its full form, the bound form (=y $\ell$ A) undergoes vowel harmony with the PW to its left, which suggests that the clitic form shows true signs of bonding with the preceding stem, resembling genuine suffixes. The glide *y* ([j]) in the bound form appears after vowel-final stems (9a, b), elsewhere it deletes (9c, d).

- (9) a. sirke=y $\ell$ e (full form: sirke ile)  
      ‘with vinegar’
- b. araba=y $\ell$ a (full form: araba ile)  
      ‘by car’
- c. Kevin= $\ell$ e (full form: Kevin ile)  
      ‘with Kevin’
- d. Can= $\ell$ a (full form: Can ile)  
      ‘with Can’

The initial glide that appears in the postvocalic allomorph (=y $\ell$ A) has no relation to the *y*-insertion phenomenon observed in other morphophonological alternations in Turkish.

This is primarily because the combination of consonant-initial suffixes with vowel-final or consonant-final stems does not violate any syllable structure conditions of Turkish (e.g., *elma-lar* (apple-PL) ‘apples’ vs. *kitap-lar* (book-PL) ‘books’; *atla-dı* (jump-PAST) ‘(s)he jumped’ vs. *yaz-dı* (write-PAST) ‘(s)he wrote’). Instead, it could be suggested that the bound form, which must not be identical to the full form, is maximally faithful to the

featural content of the full form unless a syllable structure violation is incurred.

Accordingly,  $\text{=y}lA$  is maximally similar to *ile*. Hence, the deletion of the glide in post-consonantal contexts finds a plausible explanation: the presence of *y* creates a complex onset following consonants, creating a syllable structure violation ( $*Ke.vin.yle$ ); thus, it must be deleted. As we will see below, the bound form of *için* ‘for’ also begins with *y* in postvocalic contexts. In Section 5, I will offer an alternative explanation for the appearance of *y* in the bound forms of postpositions by highlighting the role of analogy.

While the bound form falls within the vowel harmony<sup>6</sup> domain of the first PW to its left, it does not receive final stress. That is, primary stress typically falls on the syllable preceding  $\text{=}(y)lA$ . It should be noted that the so-called “stress shifting” behavior of this bound form is not an isolated example in Turkish: there are several other suffixes that stay outside the PW, and are thus incorporated into the prosodic structure of a word by adjunction to the PW, rather than by inclusion within it. Kabak & Vogel (2001) propose that morphemes that are obligatorily excluded from the PW are lexically specified as Phonological Word Adjoiners (PWA).<sup>7</sup> The PWA and all following suffixes constitute sisters of the PW, and such material that is not grouped within a PW is subsumed under the immediately higher phonological constituent, which is presumably

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<sup>6</sup> Turkish vowel harmony requires that the vowels of a particular string should all be either front or back, and only in the case of high vowels, also share the same value for rounding.

<sup>7</sup> Inkelas (1999) refers to such affixes as pre-stressing / stress-affecting suffixes, carrying an underlying trochee. Such an analysis, however, misses an important observation in so far as clitics such as  $\text{=y}lA$  impose the same stress effect on the preceding word as its full form *ile*. That is, the word retains its regular final stress. For Kabak & Vogel, the seemingly pre-stressing effect of the bound form on the preceding syllable is predicted by the clitic adjunction of *ile* to a PW to its left, which has regular stress on its final syllable. One reviewer suggests that since words with irregular non-final stress retain this irregular stress even when clitics attach to them (e.g.,  $/^{\text{A}}\text{Ankara}/\text{+/-y}lA/ \rightarrow [^{\text{A}}\text{Ankara-y}la]$  ‘with Ankara’), this would constitute a further argument against Inkelas (1999) and in favor of Kabak & Vogel (2001). Indeed, Inkelas’ analysis needs to pose an additional mechanism that favors the left-most occurring stress on the surface to account for such cases.

the Clitic Group. The examples in (10) illustrate the full and the cliticized forms of *ile*, where the full form, being an independent PW, initiates its own PW and a new harmony domain.

- (10) a. [[şarkı-'lar]<sub>PW</sub> [ile]<sub>PW</sub>]<sub>CG</sub>  
           song-PL           with  
           ‘with songs’
- b. [[şarkı-'lar]<sub>PW</sub>=la]<sub>CG</sub>  
           song-PL=with  
           ‘with songs’
- c. [[kalem-ler-im'iz]           [ile]<sub>PW</sub>]<sub>CG</sub>  
           pencil-PL-POSS.1PL with  
           ‘with our pencils’
- d. [[kalem-ler-im'iz]=yle]<sub>CG</sub>  
           pencil-PL-POSS.1PL=with  
           ‘with our pencils’

Another postposition that has shown bound behavior in the history of Turkish is *için* ‘for’, the prodeessive marker. The clitic form of this postposition is attested in two variants: *-(y)çin* / *-(y)çün* in Ottoman Turkish. As in the case of the bound form of *ile*, the *y* surfaced only with postvocalic contexts. Furthermore, in parallel to other clitic forms, we can say that *-(y)çin* / *-(y)çün* were accentless. Although there was some indication of vowel harmony in terms of rounding, this bound form did not abide by Turkish vowel harmony to the fullest, failing to undergo palatal harmony.

- (11) a. se'n-in=çin  
           you-GEN=for  
           ‘for you’
- b. o-'nun=çün  
           he/she-GEN=for  
           ‘for him/her/it’

- c. muhabbe't-i=yçin  
love-POSS.3SG=for  
'for love of him/her'
- d. kom'şu=yçün  
neighbor=for  
'for the neighbor' (adapted from Lewis 1967: 87)

The suffix form of *için* is no longer productive in Modern Turkish; instead, the full form is used. In poetic language, both variants of the suffix forms may occasionally be used for stylistic reasons. The apparent de-grammaticalization of the suffix forms in Turkish raises questions with respect to the current status of *için* in Modern Standard Turkish, a point we will come back to in Section 3.<sup>8</sup>

Finally, *dek* has been claimed to be the suffixed form of the postposition *değin* 'as far as / until' (e.g., Lewis 1967; Kahr 1976; Bybee 2002). Both co-occur in the language, and to my knowledge, the potential differences between the two postpositions have not received any systematic treatment in the literature. It should be noted that, unlike other bound postpositions we have seen above, *dek* does not undergo vowel harmony with a host. Furthermore, it is not stressed. According to Kahr (1976), *dek* is in transition to

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<sup>8</sup> One reviewer suggests that the *yçin/yçün* > *için* would be de-grammaticalization only if there was a stage of the language at which *için* had to be a suffix. Rather, the disappearance of the bound variant of *için* shows that case suffixes can be lost just as in Old Lithuanian locative case suffixes, which are no longer used in the modern language. This argument is, however, implausible for two reasons. First, the bound variant of *için* was never a case suffix, as evinced by the fact that it assigned case (the genitive) to its pronominal complements (11a, b). Therefore, it would be wrong to attribute the disappearance of the bound variant to the fact that case markers can be lost. Second, if we adopt the same line of reasoning, it could also be argued that the *ile* > *=yla* cline is not an instance of grammaticalization since there is no evidence that *ile* has to be a case suffix in Modern Turkish. In fact, neither the bound variant nor the free postposition serves as a case marker since they assign case to pronominal complements. Instead, I use the term grammaticalization to refer to an ongoing change where a full form is gradually becoming bound, which will arguably turn into a case affix at some point. The term de-grammaticalization then refers to the opposite of such a process where an ongoing change is reversed. Logically, in order for an event to be reversed, it first needs to be discontinued. In our case, the cline is interrupted by the disappearance of the bound form.



becoming an affix, but is not yet a case suffix because it obligatorily follows another case affix, the dative assigned by the postposition itself (12).

- (12) a. kö'y-e            değin  
         village-DAT POSTP  
         ‘as far as the village’
- b. kö'y-e-dek  
         village-DAT-POSTP  
         ‘as far as the village’
- c. akşa'm-a        değin  
         evening-DAT POSTP  
         ‘until the evening’
- d. akşa'm-a-dek  
         evening-DAT-POSTP  
         ‘until the evening’

Based on etymological evidence and several structural reasons, however, I claim that *dek* is just another form of the postposition, and the *değin* > *dek* cline is not plausible on phonological grounds either. Furthermore, at least for some speakers, there is morphosyntactic evidence suggesting that it cannot be bound.

First, closer inspection of the origin of *değin* reveals that it may be related to the archaic postposition *\*teg-i*, which is the gerund form of the verb *\*teg / deg* ‘to reach/ to attack’. The postposition has been claimed to have acquired a final *-n* in the medieval period for no obvious reason (Clauson 1972: 477; see also Hacıeminoğlu 1971: 31, who reports that *değin* originated from *deg-in*). It should be noted that *ğ* in *değin* is a uvular fricative (IPA: /ɣ/), which is deleted in most dialects, leaving an empty slot and thereby causing compensatory lengthening of the preceding vowel in certain syllable contexts (Sezer 1986). The shift from a velar stop /g/ to a uvular fricative can be attributed to the

spirantization of intervocalic velar stops in Turkish (Sezer 1981). As *değın* is related to the form *\*teg / deg*, and the so-called suffixed form *dek* closely corresponds to the root of the postposition, it is instructive to evaluate the validity of the assumed reduction from *değın* to *dek* in the context of spirantization in Turkish. Closer examination of (13) reveals that the spirantization of velar stops must crucially be in a derived environment (13 a, b), since the same process within morphemes is not possible (13 c, d).

- (13) a. /tabak/-(y)I/ → [tabağ-ı]  
plate-ACC
- b. /börek/-(y)A/ → [böreğ-e]  
pastry-DAT
- c. /bakır/ → \*[bağır]  
'copper'
- d. /şeker/ → \*[şeğır]  
'sugar'

Given the derived environment condition on velar spirantization, it is not possible to derive /k/ from /ğ/ without reference to the morphological structure of the form. This renders the cline from *değın* > *dek* implausible because speakers, presumably, do not know whether *değın* contains a derived environment (i.e., the fact that [ğ] can underlyingly be a /k/). Deriving *değın* from the shorter form (*teg*), however, correctly predicts the velar stop → uvular fricative alteration since the velar stop is stem final. Consequently, based on historical evidence and the phonological implausibility of *değın* > *dek*, it is more likely that *değın* developed from the same form that *dek* also

originated from.<sup>9</sup> Thus, both forms have arguably co-existed ever since, as evinced in texts dating back to the beginning of the fifteenth century where both are attested (Timurtaş 1994:104).

Second, although this is only valid for a certain group of Turkish speakers, morphosyntactically, *dek* behaves like any other free postposition, since the insertion of particles before *dek* is also possible (14a, b, c). This, however, does not hold for *-(y)la*, the bound form of *ile* (14d), for the same group of speakers.

- (14) a. Ben-i [[sonsuz-a]=mi dek] sev-ecek-sin?  
 I-ACC eternity-DAT=QUE POSTP love-FUT-2SG  
 ‘Will you love me until eternity?’
- b. Başvuru-lar [[gelecek sene-ye]=de dek] geçerli.  
 Application-PL next year-DAT-CONN POSTP valid  
 ‘The applications are valid until also next year.’
- c. Yoksa [[çocuğ-u]=mu ile] ilgili bir sorun?  
 Or child-POSS.3SG=QUE POSTP concerning a problem  
 ‘Or is the problem about his/her child?’
- d. \*Yoksa [[çocuğ-u]=mu=yla] ilgili bir sorun?  
 or child-POSS.3SG=QUE=POSTP concerning a problem.  
 ‘Or is the problem about his/her child?’

In sum, the *değın* > *dek* cline is unmotivated on several grounds in Turkish. I will therefore exclude *dek* from the discussion of bound postpositions. There is at least one property that the remaining two postpositions that have shown convincing bound behavior have in common: they are both genitive assigning postpositions. As discussed above, genitive assignment is lexically conditioned in Turkish and restricted to certain

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<sup>9</sup> Alternatively, *değın* could have developed from *değ-* ‘to reach/ touch’, which is an existing verb in Modern Turkish, instead of the archaic verb *\*teg*. However, arriving at a [k] is again impossible because /ğ/ → [k] (the opposite of /k/ → [ğ]) is unattested in Turkish.

pronominals. Elsewhere, no overt case marker is present. Table 1 summarizes relevant structural properties of bound morphemes in Turkish.

---INSERT TABLE 1 ABOUT HERE---

According to Johanson (1998), the accentability of a suffix shows its great historical age more clearly than vowel harmony, as several non-accentable suffixes in Turkish can be traced back to compositional structures. It is not clear, however, whether a non-accentable suffixed postposition will ever develop into accentable suffixes such as the ablative, dative, or other core cases. Furthermore, it is impossible to determine whether the core case suffixes had developed from postpositions, or whether they were already suffixes in Proto-Turkic.

The above discussion reveals that Turkish is perhaps not a prime example for the morphologization of postpositions since there is only one example in the modern language that can constitute relevant evidence. As we will see, this is also true for postpositional clitics in Estonian, which have also been extensively described as an example case for the development of bound morphology out of formerly independent words. The phenomenon under investigation is still interesting in the context of Turkish, however, because here we are observing a language that lost a bound form and uses the full form instead. Perhaps more importantly, despite the close phonological and syntactic coherence with their complements, Turkish postpositions provide a structural property that can explain why the migration of postpositions into morphology is not always possible: the presence of regularly occurring invariant case affixes preceding postpositions. Several questions arise at this point with regard to the role of linearity and frequency in fusion. Can the intervening case suffix be a factor that disturbs linearity?

How can frequency-based analyses explain the de-grammaticalization of =(y)*çin* /(y)*çün*?

What is the frequency of bound forms in comparison to their full forms? The following section presents results from a corpus study in an attempt to answer these questions.

### **3. Corpus study**

#### **3.1. The frequency of Turkish postpositions**

The corpus employed in the study, “Morphologically Disambiguated Turkish Texts”<sup>10</sup>, is comprised of written texts obtained from online Turkish newspapers, and it consists of about 800,000 words. The present study has looked at the token frequency of a large number of free postpositions in Turkish (Table 2). The numbers were obtained by conducting a search with a given postposition plus the relevant code for Postposition (+postp.) since there could be words that are homophonous to some of the postpositions (e.g., *ile*: *il-e* (city-DAT) ‘to the city’; *ilişkin* (*ilîşki-n* (relationship-2SG.POSS ‘your relationship’; *için*: *iç-in* (drink-IMP) ‘drink!’, or *iç-in* (inside-2SG.POSS) ‘the inside of you’, etc.). In certain cases, it was necessary to do the search also with categories such as conjunction or noun since certain postpositions were sometimes erroneously analyzed as nouns or conjunctions. The figures in Table 2 give the corrected frequencies after excluding homophonous cases, and including those postpositions that were erroneously coded as other categories. Since the error rate in the disambiguation of the corpus is

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<sup>10</sup> These annotated texts were developed as part of Hakkani-Tür’s (2000) doctoral dissertation at Bilkent University, Ankara, Turkey. I would like to thank Kemal Oflazer for providing me the corpus. The texts were pre-analyzed by the Turkish morphological analyzer (Oflazer 1994), and disambiguated by using the techniques described in “Statistical Morphological Disambiguation for Agglutinative Languages” (Hakkani-Tür, Oflazer & Tür 2002).

reported to be around 5% (Hakkani-Tür, Oflazer & Tür 2002), the figures in Table 2 should only be taken as approximate values.

---INSERT TABLE 2 ABOUT HERE---

As can be seen from Table 2, both *için* and *ile* are very frequent postpositions in the corpus. The bound form of *ile* (=yla) is extremely frequent and, more importantly, it is used much more often than the full form, and together with its full form, it constitutes the most frequently occurring postposition in Turkish. The high frequency of this postposition is perhaps not surprising given that it conveys two crucial syntagmatic relations, namely instrumental and comitative. This can then be taken as an explanation for its bound behavior, thereby supporting the Linear Fusion Hypothesis. However, frequency falls short in explaining why the bound form of *için* is lost in Modern Turkish although it is the most frequent free postposition in the language, as the corpus study has revealed.

Could it be the case that *için* occurred more frequently and conveyed many more functions than it does today? The frequency counts of postpositions in Vaughan's (1709/1968) Turkish Grammar (Gilson 1987: 104-106) reveals that *içün*, as transcribed by Vaughan, was one of the most frequent postpositions in Ottoman Turkish at the beginning of the eighteenth century. Table (3) provides the frequency counts of some of the postpositions attested in Vaughan's texts, which arguably reflects a similar pattern to what we have observed in Modern Turkish.

---INSERT TABLE 3 ABOUT HERE---

A survey of a pre-thirteenth century etymological dictionary (Clauson 1997) further reveals that *için*, as one of the four primeval Turkish postpositions, contained all the possible meanings that it carries today. Thus, the same postposition in Ottoman Turkish was arguably no more or less functional or frequent than it is in Modern Turkish.

### 3.2. The probabilities of co-occurrence in [[Case suffix] Postposition] chunks

As mentioned above, both *ile* and *için* are among the few postpositions that assign the genitive case, which appears only on a certain set of pronominals in postpositional phrases. The question remains as to how frequent the presence of the genitive case is before postpositions. The probability calculations for each genitive assigning postposition are given in Table 4, where  $p$  refers to the probability of finding the genitive suffix before the postposition. In the table, the number of genitive suffixes encountered before a genitive assigning postposition should be compared to the number of pronouns that precede the same postpositions. While the number of pronouns should be expected to equal the total number of the genitive suffix, we see that there are postpositions where the case suffix is not used on some pronominal complements. These are listed under the “exceptions” column.

---INSERT TABLE 4 ABOUT HERE---

As the table shows, the probability of finding a genitive suffix before a postposition that assigns the genitive is extremely low overall. Another important finding from this study is related to the use of the genitive marker with the full form *ile*. Strikingly, there is no single instance of *ile* following a genitive-marked or bare pronoun in the entire corpus

although both options are theoretically possible (*ben-im ile; sen-in ile; ben ile, siz ile*, etc.). This suggests that there is a very strong tendency in Modern Turkish to use the bound form of the postposition *ile* with pronouns. That is, both variants are not necessarily in free variation. Rather, they show a split behavior with respect to part-of-speech. Accordingly, when syntax demands the occurrence of a pronoun followed by the postposition *ile*, the bound variant of the postposition must be used. It should be noted that such a tendency is not related to the relative frequency of the genitive suffix in the corpus. In fact, the suffix is by far the most frequent case suffix in the database, with a total token frequency of 41,249. Furthermore, the present study reveals that the use of the bound variant of *ile* as well as the omission of the genitive from some pronominals are not necessarily spoken-language phenomena, but they can also be observed in written varieties.

When the figures from the genitive assigning postpositions are compared to those of the postpositions that assign the dative or ablative (Tables 5 and 6), we see that the probabilities are at a ceiling.<sup>11</sup>

---INSERT TABLE 5 ABOUT HERE---

---INSERT TABLE 6 ABOUT HERE---

In sum, in contrast to the genitive assigning postpositions, we observe that the dative and the ablative assigning postpositions almost always co-occur with these case suffixes.

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<sup>11</sup> Some postpositions have adverbial functions in Turkish. For example, *önce* ‘before’ can be used as an adverb. Thus, the lower probability of the co-occurrence of *önce* with the Ablative can be attributed to the consistent miscoding of its adverbial use as a postpositional use in the corpus.



From the viewpoint of Linear Fusion Hypothesis, these cases provide extremely frequently co-occurring chunks in the Turkish grammar. The question remains as to whether this situation facilitates or hinders the morphologization of postpositions, which we will address in the following section.

#### **4. Case affix: a facilitator for fusion or an obstacle to destroy linearity?**

##### **4.1. [[Case suffix] Postposition] chunks**

The present study revealed that the probability of finding a dative or ablative case before a dative or an ablative assigning postposition, respectively, is extremely high in Turkish. Consequently, in terms of the general premises of the Linear Fusion Hypothesis, we observe that the [[Dative suffix] Postposition] and [[Ablative suffix] Postposition] sequences form a ‘chunk’ (e.g., *-A+göre* (DAT+ ‘according to’ ); *-Dan+beri* (ABL+ ‘since’), etc.). These are indeed comparable to Bybee’s (2002: 112-114) examples of chunking in order to motivate her Linear Fusion Hypothesis: the fusion of pronouns with auxiliary verbs in English (e.g., *I’m, you’re*, etc.), and Preposition+Determiner contractions in German (e.g., *in das → ins*, etc.), etc. The [[Case suffix] Postposition] sequences in Turkish, thus, constitute a suitable example for chunking not only because they satisfy sequentiality but also they involve combinations of high frequency. However, we find no instances where postpositions have fused with the case markers they assign in the history of Turkish.

It could be argued that fusion may not be likely here because the (progressive) transitional probability from the case affix to the postposition, rather than from the postposition to the case affix, is lower in Turkish. After all, given a case suffix, it is not

entirely possible to predict that a particular type of postposition will follow. This explanation, however, reflects a potential bias for head-initial languages. Moreover, it assumes that the mechanisms that underlie language production proceed in a left-to-right fashion rather than in a hierarchical way. For Turkish, a head-final language, however, morphosyntactic elements are typically governed or commanded by those elements that linearly follow them. This is essentially the case with postpositional phrases, where case is assigned by the following postposition. Furthermore, knowing a postposition obligatorily requires knowing what case suffix it co-occurs with, thus [case suffix+postposition] sequences are likely to be memorized as chunks. Indeed, postpositions are typically cited and taught as [case suffix+postposition] chunks (e.g., -*DAn beri*, -*A göre*, etc.).

Analogous to the Turkish cases under discussion, the oblique form of the genitive *ke* invariably appears with most postpositions in Urdu/Hindi (e.g., *ke pic<sup>h</sup>e* ‘behind’, *ke liye* ‘for’, *ke bad* ‘after’, *ke sat<sup>h</sup>* ‘for’, etc.; see Butt and King (in press) for further examples). According to Miriam Butt (personal communication), *ke*+postposition sequences are prosodically similar to other genitive constructions (15). In both cases, *ke* encliticizes to the preceding word. This suggests that *ke* undergoes phonological fusion with the preceding material rather than with the postposition that follows it.

- (15) a.        [[un=ke]    abu            ‘their father’  
                 3PL=GEN father
- b.        [[us=ke]    piche        ‘behind this’  
                 this=GEN behind

Although very rare and mostly speculative, there are examples in the literature where we see the formation of new case affixes from the fusion of case desinences with postpositions. For instance, the Georgian postposition *gan* ‘from’ has fused with the case ending *-it* (INS) to yield *-idan* (< *\*id-gan* < *\*it-gan*) (e.g., Hewitt 1995; Bossong 2004). In Votic, a Finnic language, the comitative *-nke* includes the Genitive *n* plus an archaic independent *ka*-type postposition (Grünthal 2003). Several case markers are claimed to have come about by the fusion of a case desinence with a postposition in Old Lithuanian (Stang 1966) although it is difficult to observe the development. The Ossetic commutative suffix *-i:m* has been claimed to have developed from an oblique case suffix *-i:*, followed by a postposition *-\*ma* (Iranian: *\*smat* ‘with’) (Kahr 1976). In the context of such fusions, the Linear Fusion Hypothesis gains a valid ground: a case suffix plus a postposition constitutes a combination of high-frequency, forming chunks where fusion takes place. Consequently, with respect to Turkish postpositions, the Linear Fusion Hypothesis predicts that those postpositions that obligatorily follow a regularly occurring case affix are more likely to exhibit fusion in comparison to those that mostly assign a phonologically null case because in the former case the probability of co-occurrence is almost a hundred percent. What we observe in Turkish is however the opposite: postpositions that show bound behavior are the ones that follow the least frequently co-occurring case affix, namely the genitive.

The above discussion brings up the role of linearity for fusion and subsequent grammaticalization. According to Kahr (1976: 110), the development of new case forms through the suffixation of postpositions is possible only if the unmarked order in the noun phrase is the constituent order schematically given in (16).

(16) (D) N P (Hungarian, Turkish, Georgian, etc.)

As the essential condition for the development of new case markers is the immediate adjacency of postpositions with nouns they govern, the NP order in prepositional languages, which is schematically given in (17), separates adpositions from nouns by determiners (numerals or adjectives) and, thereby, precludes the development of true case affixes (i.e., as prefixes). In these languages, adpositions may cliticize onto numerals or modifiers, but they do not give rise to nominal case prefixes.

(17) P (D) N (Hebrew, Persian, etc.)

In light of the above observations on the morphosyntactic properties of Turkish postpositions, I propose that there is at least one more obstacle that may destroy linearity: the case suffix that intervenes between the N and POSTP, as shown in (18)

(18) a. [[N+CASE] Postposition]

In the following, I will present some cross-linguistic tendencies that are in line with this proposal.

#### **4.2. Hungarian Postpositions**

Just like Turkish, all of Hungarian inflectional morphology seems to be suffixal (with the possible exception of verbal prefixes). Some Hungarian postpositions, as in the case of Turkish postpositions, also govern the case of the preceding nominal (Rounds 2001;

Moravcsik 2003). The examples in (19) illustrate some possible postpositional phrases in Hungarian and the cases they assign to their complements.<sup>12</sup>

- (19) a. a ház-on túl  
           the house-SPE beyond  
           ‘beyond the house’
- b. Január-tól kezdve  
           January-ABL starting.from  
           ‘starting from January’
- c. a ház-zal szemben  
           the house-INS opposite  
           ‘across from the house’

Several other morphosyntactic similarities with Turkish postpositions exist. First, the case is transparently realized as a suffix on the governed noun. Second, all the case affixes that co-occur with postpositions also function as case affixes on their own. Third, there are postpositions that do not assign any overt case. Fourth, given a Hungarian postposition, both the presence and the choice of the co-occurring case suffix are predictable (Moravcsik 2003). Table 7 lists some Hungarian postpositions and the case affixes they assign (for a more exhaustive list, see Moravcsik 2003: 152).

---INSERT TABLE 7 ABOUT HERE---

Several phonological similarities also need to be noted. Most Hungarian postpositions are at least bisyllabic, as opposed to the predominantly monosyllabic case affixes. Unlike most case affixes, these postpositions do not undergo vowel harmony.

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<sup>12</sup> Accent marks indicate vowel length in Hungarian, not stress.

Finally, word stress is regularly word-initial and phrasal stress falls on the first PW. Thus, postpositions remain unstressed in postpositional phrases (20).

- (20)    [[<sup>1</sup>háʒ] <sub>PW</sub> [alatt] <sub>PW</sub>]  
          house    under  
          ‘under (the) house’

The weak prosodic status of postpositions in Hungarian can be said to have triggered the emergence of their bound postpositions. Moreover, Hungarian satisfies the linearity condition such that there is no determiner category that intervenes between the postposition and the noun. Indeed, many of the Hungarian case morphemes (at least 10) are claimed to have developed through agglutination of postpositions (e.g., Kahr 1976 and the references therein). The examples in (21) from Korhonen (1996: 200) illustrate the gradual phonological reduction and fusion of the postposition forms. These forms have developed from the old local case forms of the noun *bél* ‘inner, internal, bowels, etc.’, which consequently became bound.

- (21)    a. Inessive Singular: *kéz-ben* < *-beln* < *\*belV-n* < *\*pälV-nä* (*\*käte pälVnä*)  
          b. Illative Singular: *kéz-be* < *-bele* < *-belé* < *\*belV-i* < *\*pälV-k/j*  
          c. Elative Singular: *kéz-ből* < *-belöl* < *\*bele-ül* < *?\*pälV-l(V)*

According to Korhonen (1996), during the fusion of the postposition onto the head, some semantic and morphosyntactic alterations took place, which shifted the function of the postposition to indicate an adverbial relation. The sign of fusion is especially clear when the postposition undergoes vowel harmony (*kéz-ben* ‘in the hand’ vs. *ház-ban* ‘in the house’). Strikingly, all case suffixes that were developed out of postpositions had once assigned no overt case suffix. Just as in the case of Turkish, no case affix showed any

signs of chunking or phonological fusion with the postpositions that later became case-marking bound elements in Hungarian.

So far, we have observed two languages that employ postpositions with similar morphosyntactic and phonological properties, where bound postpositions develop only with those that mostly assign a phonologically null case. Thus, the similarity between Turkish and Hungarian postpositions yields sufficient motivation to investigate the patterning of postpositions with case affixes in other postpositional languages in an attempt to form cross-linguistic generalizations.

#### **4.3. Postpositions in Finnic, Georgian, and Urdu/Hindi**

In Finnic languages (the Finno-Permian group), the development of cases by the combination of simple suffixes into suffix complexes has been more popular than by the fusion of postpositions. However, there are a few case suffixes that can be traced to a postposition in the Finnic group. The best-known example of a suffixing postposition comes from Finnish, Estonian, and Livonian comitative, which developed from the grammaticalization of an independent postposition.

Why do Ugric languages such as Hungarian prefer postpositions while Finno-Permian employs suffix combinations for new additions into the case system? Korhonen (1996: 205-206) attempts to answer this question based on the presence of case markers preceding postpositions, precisely the same point that was made above with respect to Turkish bound postpositions. In particular, Korhonen states that the postpositions in Ugric languages are always preceded by the nominative, whereas in the Finno-Permian languages they are preceded by both the nominative, genitive, and occasionally some

other case forms. It is most probable, according to Korhonen, that in Proto-Finno-Permian, postpositions were usually preceded by the genitive, which signaled a relatively strong word boundary, and thereby precluded the development of case affixes from postpositions.

In Estonian, among the four clitic postpositions the comitative is the only one that indicates a straightforward cliticization from a former free postposition (Nevis 1988). According to Nevis, essive *-na* existed in an earlier form of the language, presumably as a suffix, but became obsolete in the sixteenth century, and later on it was borrowed and re-introduced into the literary language from the North-Eastern dialect when Estonian was undergoing language planning around the turn of the twentieth century. The other two clitic postpositions, namely abessive *-ta* and terminative *-ni*, exhibit de-affixation. That is, they had actually been suffixes for several thousand years before they became clitic postpositions. Nevis convincingly argues that these two clitic postpositions that were once affixes shifted into the clitic postposition category due to their lack of adjective-noun agreement, possibly with an additional effect of the availability of a new clitic postposition category established by the comitative *-ga*.

The comitative clitic postposition *-ga* in Estonian developed from the full postpositions *\*kansak*, *\*kansassa*, *?\*kansahen* between the sixteenth and seventeenth century in dialects of Estonian, which later reduced the form of the postposition. Rätsep (1979: 78, as cited in Nevis 1988) provides the following grammaticalization cline for the agglutination of the postposition into its clitic form: *\*kansak* > *\*kaasak* > *kaas* > *kaa* > *ka* > *-Ga*. The examples in (22) are from Nevis (1988: 175), which were originally taken from Rätsep (1979).



- (22) a. Isa-n                kaas  
           father-GEN with  
           ‘with father’
- b. hobboste            ka  
           horse.PL.GEN with  
           ‘with horses’

At first sight, the examples in (22), which contain the genitive preceding the postposition, seem to provide counterevidence to what I have argued above with respect to the potential preventive role of case suffixes preceding postpositions in the morphologization of postpositions in Turkish and Hungarian. Closer inspection of the nature of the genitive marking in Estonian as well as several other Finnic languages, however, reveals that the marking is not always transparent. For instance, the genitive may be marked by some stem alternation in Estonian (e.g., *poeg* ‘son’ → *poja* ‘son+GEN.’; *poja-ga* ‘with the son’; see also (22b) above). Moreover, the genitive form is the base for the nominative plural, and it is also the base for all singular forms other than the nominative and partitive. In the case of Livonian, which also has a *ka*-type postposition, the genitive is completely lost, which caused the nominative and the genitive to merge. In sum, we again observe that the suffixing of postpositions is more typical when complements do not regularly end with a particular set of invariant markers, as such markers systematically signal a word boundary and make the connection between the postposition and its complement rather loose, and thereby, its fusion less likely.

Georgian constitutes another postpositional language with primary and secondary cases (e.g., Vogt, 1971). The cases that are most frequently governed by postpositions are the genitive and dative. Secondary cases in this language are cliticized forms of

independently occurring postpositions attaching to oblique cases such as dative, genitive, and instrumental case affixes, which are governed by these postpositions. Table 8 lists bound postpositions with their respective case suffixes.

--- INSERT TABLE 8 ABOUT HERE---

Closer inspection reveals that the overt presence of these case suffixes is subject to various restrictions. For instance, the dative case suffix usually disappears in certain morphological and phonological contexts. According to Hewitt (1995), with both *-ši* ‘in’ and *-ze* ‘on’, the ending only appears in the 3<sup>rd</sup> person singular personal pronoun, and in the interrogative word *vin* ‘who?’ (e.g., *vi-s-ši* ‘in whom’ (cf.. *saxl-ši* ‘in the house’). In the case of *-tan* ‘by/at/with’, the dative only appears with vowel-final nouns, as well as with the singular of both the 3<sup>rd</sup> person personal and the demonstrative pronouns. Otherwise, it is lost (e.g., *Zurab-tan* ‘by Zurab’ vs. *Vova-s-tan* ‘by Vova’). Another phonological conditioning occurs with the nominative, but this time the case suffix only appears after consonant final stems (e.g., *xar-i-vit* ‘like a bull’). The same postposition can be used with the dative suffix alternatively with consonant final stems, and obligatorily with vowel final stems. However, the long form of the dative (*-sa*) is used in these cases (e.g., *xar-sa-vit* ‘like a bull’, *xbo-sa-vit* ‘like a calf’). The conditioning of the long form of the dative may actually question the bound status of the postposition *vit* since the long vs. short variants of case suffixes are positionally conditioned in Georgian. In essence, long forms are used either before monosyllabic particles such as the conjunctive *da* (e.g., *k’ac-sa da kal-s* (= man-DAT and woman-DAT) ‘to the man and the woman’; *tibilis-isa da kutais-is si+lamaz+e* (= Tbilisi-GEN and Kutaisi-GEN beauty) ‘the

beauty of Tbilisi and Kutaisi’), or when heads are preposed to their complements (e.g., *kutais-is si+lamaz+e* vs. *si+lamaz+e kutais-isa* ‘the beauty of Kutaisi’). The use of the long form of the dative before *vit* may, therefore, indicate that the postposition still preserves its independent form, which then suggests that it is not a true example for a suffixing postposition. Finally, the genitive suffix is deleted with interrogative pronouns, *ra* ‘what’, *vin* ‘who’, and with personal pronouns in the plural (e.g., *čven-gan* ‘from us’ vs. *rk’in-is(a)-gan* ‘from iron’). In all of the above instances, none of the bound postpositions follow a case ending that regularly intervenes between the complement and the postposition. Instead, the case marking on the complement noun phrase shows lack of regularity and invariance.<sup>13</sup> Since there is no invariable material that regularly intervenes between the complement and the postposition, the fusion between the two becomes more likely.

As Georgian, Hindi/Urdu employs case marking postpositions that have clitic status based on their phonological behavior and distribution (e.g., *=ko* (ACC), *=se* (INS), *=par* (LOC), see Butt and King in press for details). Hindi/Urdu also has at least thirty postpositions that have free status. Unlike clitic postpositions, these are always separated from their complements by *ke*, the oblique form of the genitive (e.g., *ke satʰ* ‘with’, *ke bad* ‘after’, *ke pεhle* ‘before’, etc.; see Shukla 2001: 327-328 for a complete list). As such, free postpositions in Urdu/Hindi can be said to form chunks with the frequently co-

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<sup>13</sup> One reviewer suggests that case suffixes in Georgian seem to have become victims of erosion only after the attachment of the erstwhile postpositions. That is, there does not seem to be evidence showing that the case suffixes were variable at the stage when the morphologization was beginning. Likewise, it could also be argued that the gradual erosion of such case markers may have motivated the bound status of these postpositions. Whether postpositions caused the erosion of case markers or vice a versa, the fact remains the same: postpositions have attained a bound status in the absence of case markers.

occurring clitic *ke*. However, as discussed in Section 4.1, *ke* is an enclitic on the preceding noun, therefore, it has no phonological affinity with following postpositions, providing yet another piece of evidence against Linear Fusion Hypothesis. As for clitic postpositions, however, no such invariant appendage separates the complement from the case marker.<sup>14</sup> Therefore, we can conclude that, the regular and frequent occurrence of the clitic *ke* before postpositions prevents postpositions from cliticizing to their complements.

#### 4.4. Discussion

I have demonstrated that postpositions that follow regularly co-occurring case markers are less likely to develop bound variants. It could be argued that this is in line with the Linear Fusion Hypothesis. After all, the more frequently a complement comes in contact with a postposition, the more likely it is that they will fuse. However, I would like to argue that the strong form of the Linear Fusion Hypothesis, which considers frequently co-occurring chunks a precondition for fusion, cannot be maintained in its current form. This is because the Linear Fusion Hypothesis, which is based on adjacency and frequency ignoring any other structural property, incorrectly predicts the fusion of case markers and postpositions in those languages where these frequently co-occur.

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<sup>14</sup> It should be noted that clitic case markers in Urdu/Hindi follow the oblique form of their complements. It could, therefore, be argued that the oblique marking on nouns may also prevent case markers becoming cliticized to their complements. However, depending on their function, nouns must be either in the direct, oblique, or vocative form in order to be morphologically independent, and the endings that mark these forms also cumulate number and gender (e.g., *gad<sup>h</sup>-e* (donkey-OBL.SG.MASC) ‘he-donkey’, *gad<sup>h</sup>-i* (donkey-OBL.SG.FEM) ‘she-donkey’ vs. *gad<sup>h</sup>-o* (donkey-OBL.PL.MASC) ‘he-donkeys’, *gad<sup>h</sup>-i* (donkey-OBL.PL.FEM) ‘she-donkeys’; examples from Shukla 2001: 25). Furthermore, most nouns (with the exception of a-stem nouns in the oblique) remain unmarked in the singular (e.g., *mun-i* (hermit.OBL/DIR/VOC.SG.MASC) ‘hermit’; *yukt-i* (stratagem-OBL/DIR/VOC.SG.FEM ‘stratagem’)). That is, the oblique marking, carrying number and gender information, is internal to the noun phrase governed by clitic postpositions. It would, therefore, be a mistake to consider that it has the same morphosyntactic status as *ke*, which is external to the noun stem.

However, examples drawn from several languages discussed above suggest the opposite: postpositions that mostly follow noun phrases carrying irregular or phonologically null case marking develop bound behavior.

Alternatively, it could be argued that all postpositions that became bound in the languages illustrated above are the most frequent ones. In fact, I have demonstrated this with respect to *ile* and *için*, which show or have shown bound behavior in Turkish.

However, the same line of reasoning does not explain why *kadar* ‘as much as’ and *gibi* ‘like’ are not bound although they also have very high frequency. Furthermore, it does not explain why the fate of *için* has been reversed in the grammaticalization cline, as the bound variant is no longer available in Modern Turkish. If frequency is again to be blamed here such that the bound form of *için* was not frequent enough to be maintained in the language, we then do not know what the exact constraints on frequency are and at what stage they affect grammaticalization. As a result, the Linear Fusion Hypothesis cannot be maintained in its current form since it employs frequency and linearity in an unconstrained fashion, which renders the hypothesis too powerful.

In sum, the morphologization of postpositions is more likely when postpositions follow case markers that regularly block the necessary adjacency conditions for phonological bonding with the preceding host. Frequency and linearity are certainly beneficial factors but not the sole predictors of bound behavior since not all genuine chunks actually show fusion.

In the remaining part of this article, I will address the following question: why have only very few postpositions in Turkish gained bound variants although all the

necessary conditions are also satisfied for others (e.g., *kadar* ‘as much as’, *gibi* ‘like’)? I will approach this question by highlighting the potential role of analogy.

## 5. The role of analogy in the morphologization of *ile* and *için*

Among all the genitive assigning postpositions (*ile*, *için*, *kadar*, *gibi*), only two, namely *ile* and *için*, have shown bound behavior. One possible reason for this is the role of analogy. Analogy has a crucial restoring power in both synchronic and diachronic processes and it strives for regularity, simplicity and uniformity (Anttila 1977). With the assumption that analogical change is motivated by the preservation of the link between phonology, grammatical structure, and semantic structure, I suggest that *için* and *ile* were allowed to change in order to keep up with an apparent regularity in the grammatical system of Turkish. The regularity in question concerns the presence of several free morphemes, other than postpositions, which co-occur with their bound forms in Turkish (23). Strikingly, they all begin with the vowel /i/.

(23) (i) *idi* → =(y)dI : past form of the copula

(a)	kuru idi dry PAST ‘it was dry’	Bound form: ku'ru=ydu
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(b)	çocuk idi child PAST ‘(s)he was a child’	Bound form: ço'cuk=tu
-----	--	-----------------------

(ii) *ise* → =(y)sA: conditional

(a)	kuru ise dry COND ‘if it is dry’	Bound form: ku'ru=ysa
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- (b) çocuk ise Bound form: ço'cuk=sa  
child COND  
'if it/(s)he is a child / as for the child'
- (iii) *imiş* → *=(y)mış*: perfective form of the copula
- (a) kuru imiş Bound form: ku'ru=ymuş  
dry PERF/EVID  
'it was dry (evidential)'
- (b) çocuk imiş Bound form: ço'cuk=muş  
child PERF/EVID  
'it/ (s)he was a child (evidential)'
- (iv) *iken* → *=(y)ken*: 'while / when'
- (a) kuru iken Bound form: ku'ru=yken  
dry while  
'when (it is) dry'
- (b) çocuk iken Bound form: ço'cuk=ken  
child while  
'when / while (s)he was a child'

All the above cases are said to have the copula *i-* (Kornfilt 1996; see also Göksel (2001), Lees (1962) for similar observations.). According to Kornfilt (1996), the copula appears as [-y] in the segmental context V\_\_C (as in the (a) examples in 23), otherwise it is null (as in the (b) examples in 23). The very same rule also applies to the bound form of *ile* and *için* (24).

- (24) (a) kuzu ile                                      Bound form: ku'zu=yła  
lamb with  
'with (the) lamb'
- (b) kız ile    Bound form: [ˈkɪz=la]  
girl with  
'with (the) girl'

- |  |                          |
|--|--------------------------|
| (c)    kuzu için<br>lamb for<br>‘for (the) lamb’ | Bound form: [ku'zu=yçün] |
| (d)    kız için<br>girl for<br>‘for (the) girl’  | Bound form: ['kız=çin]   |

We are here observing a particular morphophonological rule that applies to special types of morphemes, namely the derived forms of the copula. Neither *ile* nor *için*, however, have any relationship to the copula /i/. Etymologically, *için* goes back to the forms \**üçün* < \**uçun*, which are derived from the instrumental form of the noun *uç* ‘reason’ (i.e., *uç-un* ‘with the reason’). The postposition, *ile*, on the other hand, is hypothesized to originate from the gerundive form of the verb *il* ‘to tie’ (i.e., *il-e* ‘by tying’) (Korkmaz 2003: 1056-57).<sup>15</sup> This suggest that both *ile* and *için* have undergone morphological change by analogy to another free form that uniformly and regularly became bound in the language. This suggests that analogy has unleashed the reductive processes precisely in those cases where other structural factors are also met.

## 6. Summary and conclusions

In this paper, I have suggested possible structural, distributional, and frequency-related factors that may provide the motivation for postpositions to become bound.

Turkish postpositions constituted an instructive case since the language currently shows the morphologization of postpositions in a restricted sense, and at the same time, it

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<sup>15</sup> Several other alternative analyses are possible. The ultimate choice between them, naturally, is beyond the scope of the present research. The crux of the matter is that *ile* and *için* have nothing to do with the copula *i*.



exhibits the de-morphologization of a postposition in its recent history. I have demonstrated that despite the prosodic structure and morphosyntax of Turkish that potentially enable postpositions to form tight bonds with their complements, only two postpositions support a morphologization process. I have argued that the *-dek < değin* cline is disprovable on phonological, morphosyntactic, and historical grounds. Furthermore, the extension of *değin* to verbal usage as well as the de-grammaticalization of *-(y)çin / -(y)çün* back to *için*, suggest that language change is not necessarily unidirectional and reductive in Turkish.

The corpus study has provided another angle to the current investigation in the context of frequency, yielding the following findings: (1) *ile* and its bound variant constitute the most frequent postposition, (2) the probability of co-occurrence of a case affix with a postposition is low in the case of genitive assigning postpositions, (3) the full form *ile* never co-occurs with the genitive suffix although it is, in most cases, theoretically obligatory. In addition, the case of Turkish postpositions has motivated us to make cross-linguistic observations with respect to the correlation between the absence of a predominantly regular and invariant case suffix before the postposition and its likelihood of morphologization. Following Kahr (1976), I have suggested that the consistent presence of a case suffix is likely to preclude the development of case marking clitics and suffixes out of postpositions, and this tendency can find support in a number of languages. This, however, should not be taken to imply that the presence of a case suffix absolutely prevents the grammaticalization of postpositions as case markers, as some counter-examples could be found in different languages. Finally, I have suggested that the bound behavior of postpositions in Turkish shows striking phonological similarities to

other clitics, which suggests the potential role of analogy in the morphologization of postpositions in Turkish.

The following question remains open: why do postpositions and preceding case suffixes resist fusion? To be more specific, why do agglutinating languages such as Turkish not commonly employ phonological fusion? The answer may lie in the nature of phonological processes in these languages. It could be that when phonological processes strictly respect morpheme boundaries, the fusion of exponents expressing grammatical terms in a separative fashion becomes unlikely. Future studies should compare the phonological systems of agglutinative languages with flexive ones in an attempt to understand the potential role of phonology and its interaction with morphology in determining the direction of language change.

### **Acknowledgements**

This research was carried out within the SFB 471 (project A20), supported by the German Science Foundation (DFG). I am especially grateful to Frans Plank for his valuable suggestions and comments which greatly helped improve this article. Michael Beckert patiently helped me carry out the corpus search. I am also thankful to Kemal Oflazer for his help in answering my several questions about the corpus used in this study, and to Irina Nikolaeva and René Schiering, as well as the audience at the 11<sup>th</sup> International Morphology Meeting in Vienna, for helpful comments and suggestions.

### **List of Abbreviations**

ABL	Ablative	PAST	Past Tense
ACC	Accusative	POSTP	Postposition
CMPMRK	Compound Marker	PERF	Perfective
COND	Conditional	OBL	Oblique
CONN	Connector	NEG	Negative
DAT	Dative	NEC	Necessitative
DIM	Diminutive	MASC	Masculine
DIR	Direct	INS	Instrumental
EVID	Evidential	GEN	Genitive
FEM	Feminine	FUT	Future
FN	Factive Nominalizer		
PL	Plural		
POSS	Possessive		

PROG	Progressive
SG	Singular
SPE	Superessive
QUE	Question Particle
VOC	Vocative

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## TABLES

**Table 1: Structural properties of bound postpositions in Turkish**

Bound Postposition	Harmony	Stress	Occurs after an overt Case	Co-exists with a full form?
-(y)lE	+	-	+/-	+
-(y)çin/(y)çün	+	-	+/-	expired

**Table 2: Token frequency of Turkish postpositions**

Postposition	Total	Postposition	Total
-(y)lA	11,133	<i>dek</i>	253
<i>için</i>	4,229	<i>ilişkin</i>	245
<i>ile</i>	2,769	<i>ait</i>	199
<i>gibi</i>	2,174	<i>beri</i>	174
<i>kadar</i>	1,743	<i>itibaren</i>	137
<i>sonra</i>	1,149	<i>yana</i>	132
<i>göre</i>	955	<i>dair</i>	96
<i>karşı/karşın</i>	400	<i>dolayı</i>	35
<i>önce</i>	366	<i>doğru</i>	31
<i>rağmen</i>	310	<i>ötürü</i>	17
<i>yönelik</i>	260	<i>others (nazaran, değin)</i>	11

**Table 3: Frequency of Postpositions in Vaughan's 1709 Turkish Grammar (Gilson 1987: 104-106).**

POSTPOSITION	Total
<i>ile</i> /-y(lA)	18
<i>içün</i>	8
<i>gibi</i>	5
<i>dek</i>	2
<i>others (e.g., evel, gairi, sungra, beri, etc.)</i>	2 or less

**Table 4: Proforms and the genitive case before genitive assigning postpositions.**

Pro: *ben* ‘I’; *sen* ‘you’; *o* ‘(s)he/it’; *biz* ‘we’; *siz* ‘you (pl.)’; *bu* ‘this’; *şu* ‘that’; *kim* ‘who’.

POSTPOSITION	Total	Pro	+Gen	p	Exceptions
(y)la	11,133	140	134	.01	<i>biz, siz, kim</i>
için	4229	225	220	.05	<i>siz</i>
ile	2769	0	0	0	
gibi	2174	83	68	.03	<i>bu</i>
kadar <sup>16</sup>	1743	277	3	.001	<i>bu, şu, o</i>

**Table 5: Dative case before dative assigning postpositions**

(Dative suffix: token frequency = 40,776)

POSTPOSITION	Total	DAT #	p
göre	955	948	.99
doğru	31	27	.87
karşı/karşın	400	393	.98
dek	253	253	1
rağmen	310	307	.99
dair	96	94	.98
ait	199	191	.96
yönelik	260	257	.99
ilişkin	245	245	1
kadar	1743	896	.51
others (nazaran, değin)	11	11	1

**Table 6: Ablative suffix before ablative assigning postpositions**

(Ablative suffix: token frequency = 15,731)

POSTPOSITION	Total	ABL #	p
önce	366	252	.69
sonra	1149	1078	.94
beri	174	172	.99
dolayı	35	35	1
ötürü	17	17	1
itibaren	137	136	.99

<sup>16</sup> *kadar* has a dual status in Turkish in that it also occurs as a Dative assigning postposition, possibly half of the time; thus the probabilities in Tables 4 and 5 are much lower than those of other postpositions.

**Table 7: Hungarian case assigning postpositions (not exhaustive).**

	<b>Case</b>	<b>Postposition</b>	<b>Meaning</b>
Noun	-(o/e/ö)n (Superessive)	<i>alul</i> <i>át</i> <i>belül</i>	‘below’ ‘across’/ ‘through’ ‘inside’
Noun	-tól/t’öl (Ablative)	<i>fogva</i> <i>kezdve</i>	‘since’/ ‘from’ ‘starting from’
Noun	-val/-vel (Instrumental)	<i>együtt</i> <i>szemben</i>	‘together’ ‘opposite to’/ ‘facing’
Noun	-ra/-re (Sublative)	<i>nézve</i>	‘with respect to’
Noun	-hoz/-hez/-höz (Allative)	<i>képest</i> <i>közel</i>	‘compared to’ ‘near’
Noun	No suffixal case	<i>alól</i> <i>felé</i> <i>által</i>	‘from under’ ‘towards’ ‘by’

**Table 8: Georgian clitic postpositions**

	<b>Case</b>	<b>Clitic Postposition</b>	<b>Meaning</b>
Noun	-s (Dative)	<i>ši</i> <i>ze</i> <i>tan</i>	<i>in</i> <i>on/than</i> <i>by/with/at</i>
Noun	-i (Nom.) -sa (Dat.; Long form)	<i>vit</i>	<i>like/as</i>
Noun	-is(a) (Genitive)	<i>tvis</i> <i>gan</i> <i>k’en</i> <i>tanave</i>	<i>for</i> <i>from</i> <i>towards</i> <i>as soon as</i>