Why There are Two -ki's in Turkish

Jorge Hankamer
UC Santa Cruz

The work presented in this paper arose out of a problem encountered in the
course of ongoing work on morphological parsing of Turkish (Hankamer 1986, 1989,
Creider, Hankamer, and Wood 1995). In that work, as in other contemporary
approaches to morphological parsing in agglutinating languages (cf. Koskenniemi
been that the morphotactics (i.e., the grammar of the legitimate combinatory
sequences of morphemes) of an agglutinating language can be adequately
represented in terms of a finite state transition network in which the states
represent stem classes and the transitions represent affix classes. In this
paper I address a specific problem in the morphotactic analysis of the
pronominal -ki suffix and argue that the morphotactics of this suffix cannot be
adequately accounted for in terms of a stem-and-affix morphotactics, but rather
requires that this suffix be regarded as combining with a phrase to make a unit
which itself combines with phrases to make larger phrases. Thus the general
question addressed in this paper is that of how morphology interacts with
syntax, particularly from a parsing point of view.

1. The problem of pronominal -ki

1.1 Nominal morphotactics

The part of the morphotactics that is of interest in this paper includes the
part which determines the order of (inflectional) suffixes in the Turkish Noun:

(1)  N0 (PL) (POSS) (CASE)

(2)  uCak-lar-ImIz-da
    plane-PL-POSS1p-LOC
    'in our planes'

N0 can be a Noun root, or a Noun derived by derivational suffix(es) from a Verb,
an Adjective, or another Noun.

The Plural is marked by the suffix

1Ar
There are six Possessive suffixes, corresponding to the six person-number combinations:

(3)  (I)m   (I)mIz
     (I)n   (I)nIz
     (s)I(n)  lAr+(s)I(n)

These are probably best regarded as a kind of agreement system, as their function syntactically is to mark the possessed element in a Genitive-Possessive construction, in agreement with the person and number of the possessor (with the caution that the third person possessive suffix has other uses):

(4)  ben-im  araba-m
     me-GEN  car-POSS1s
     siz-in  araba-nIz
     you-GEN  car-POSS2s

There are five overt Case suffixes:

(5)  (n)In  GEN
     (y)I   ACC
     (y)A   DAT
     DA    LOC
     DAn   ABL

1.2 -ki

There is a suffix -ki, called "pronominal" by Lewis (1967), which can attach to a nominal in the Locative or Genitive case:

(6)  ben-im-ki  (7)  uCak-lar-ImIz-da-ki
     me-GEN-ki  plane-PL-POSS1p-LOC-ki
     'mine'       'in our planes'

The Locative -ki is actually more general, as it attaches to temporal and locational expressions: bugUnkU, Simdiki, evvelki, geCen haftaki, ...

-ki is exceptional in that the vowel does not undergo vowel harmony, except in three forms which do not concern us here. It is a stressable suffix, however, and stress migrates onto and across it.

This is important if anyone wants to suggest that -ki is not a suffix at all. The fact that stress migrates onto and across it is evidence that -ki is not only a suffix but an ordinary suffix, i.e. not a clitic.

When attached to a Genitive-marked nominal, -ki produces the equivalent of a (sometimes complex) genitive pronoun:
Hasan-In araba-sI bUyUk, ben-im-ki kUCUk.
Hasan-GEN car-POSS3s big, me-GEN-ki small
'Hasan's car is big, mine is small'

ben-im araba-m kUCUk, Hasan-In baba-sIn-In-ki bUyUk.
me-GEN car-POSS1s small, Hasan-GEN father-POSS3s-GEN-ki big
'my car is small, Hasan's father's is big'

Note that in this case, -ki is incompatible with the overt expression of the possessee:

ben-im araba-m
me-GEN car-POSS1s
'my car'

*ben-im-ki araba(-m)
me-GEN-ki
'mine'

Hasan-In araba-sI
Hasan-GEN car-POSS1s
'Hasan's car'

*Hasan-In-ki araba(sI)
Hasan-GEN-ki
'Hasan's'

When -ki attaches to a nominal in the Locative case, the syntax is a bit different. Loc-ki is compatible with the overt expression of the possessee:

raf-ta-ki
shelf-LOC-ki
'book'

shelf-LOC-ki
'one'

araba-m-da-ki kiSi-ler
araba-m-da-ki-ler
'people in my car'
'ones in my car'

In this case, the thing produced by -ki appears to function like an adjective; when it is recoverable from context, the noun modified may be omitted. Note that when the modified noun is omitted, a plural and/or case affix that would have attached to it instead attaches to the word formed by -ki:

araba-m-da-ki kiSi-ler-in
araba-m-da-ki-ler-in
'people in my car'
'ones in my car'

This means that -ki can morphotactically not only follow the (PL)(POSS)(CASE) sequence in a nominal, but it can in turn be followed by (PL)(CASE):

araba-lar-ImIz-da-ki-ler-in-ki-ler
car-PL-POSS1p-LOC-ki-PL-GEN-ki-PL
'those belonging to the ones that are in our cars'
It looks like there is a loop in the morphotactics.

2. A morphotactic problem

If we think simply about how to describe the possible sequences of suffixes in Turkish nominals, it is tempting to treat -ki as a suffix which permits a loop back to an earlier position in the suffix sequence, as indicated below:

(16) N0 (PL)(POSS)(CASE) (ki)
    ^_____________________

There is an empirical problem with this, however: if it is something so simple as a morphotactic loop, we would expect the Possessive suffixes to repeat just as easily as the plural and case ones. It is not that simple.

In the Genitive-ki cases, after the -ki a Plural and a Case suffix may follow, but never a Possessive:

(17) siz-in-ki-lер-de
    you-GEN-ki-PL-LOC
    'in yours (pl)'

(18) *siz-in-ki-ler-im
    you-GEN-ki-PL-POSS1s

In the Locative-ki cases, it is possible for a Possessive to follow -ki:

(20) ev-de-ki-lер-imiz
    home-LOC-ki-PL-POSS1p
    'those of us who are at home'

In fact, most (almost all) of the speakers I have consulted find (20) ambiguous. It can mean either "those of us who are at home" or (in the appropriate context) "our books that are in the house". Some further examples:

(21) Ankara'daki evlerimiz
    (our houses that are in Ankara)
    Ankara'dakilerimiz
    (ours that are in Ankara)
    (OR: those of us who are in Ankara)

(22) evimizdeki kitaplarImiz
    (our books that are in our houses)
    evimizdekilerimiz
    (ours that are in our houses)
    (OR: those of us who are in our houses)

(23) evinizdeki kitaplarImiz
    (our books that are in your houses)
    evinizdekilerimiz
    (ours that are in your houses)
To contextualize this, consider the exchange of populations that occurred at the end of the war that resulted in the establishment of the existing state of Turkey, in which ethnic Turks who were living on the islands of the Aegean were moved to mainland Turkey, and ethnic Greeks who were living on the mainland were moved to the islands. In that context, imagine a Turkish official speaking to his Greek counterpart:

(24) ada-lar-In Iz-da-ki-ler-imiz biz-e gel-sin-ler.

island-PL-POSS2p-LOC-ki-PL-POSS1p us-DAT come-OPT-PL

'let those of ours that are on your islands come to us'

As noted above, most of the speakers I have consulted agree that this example is grammatical and ambiguous in the indicated way.

In contrast, after Gen+ki a following Possessive suffix is never grammatical:

(25) *evimizinkilerimiz
    *evinizinkilerimiz

There are thus two problems arising from the attempt to treat -ki as initiating a morphotactic loop. First, the morphotactic behavior diverges: the possible morpheme sequences following Gen-ki are not the same as those following Loc-ki; second, the sequence following Gen-ki has a mysterious gap: Plural and Case suffixes may follow, but not the intervening Possessive suffixes.

3. The Morphosyntax of It

Now let's look at the syntactic constructions in which these morphological constructs figure.

I will assume a by now standard (conservative, by present-day standards) view of the structure of nominal phrases. In a Genitive-Possessive construction, the possessor is represented by a KP (Case Phrase) in the Genitive case, sitting in SPEC position of a DP headed by the Possessive morpheme:

(26)  

```
    DP
       |
      KP
         |
        D'
          |
         [GEN]
        NP   D
          |
         baba -sI
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Syntactically, the -ki morpheme in the GEN-ki construction can be seen as replacing D' in this structure. In other words, KP[GEN] + ki == DP.
A straightforward treatment in the currently accepted framework would be to assume that the -ki in this construction is simply an intransitive determiner, thus occupying D, projecting a DP, and permitting no complement NP. As we shall see below, the -ki in the Loc-ki construction is quite different.

(27)  
\[ \text{DP} \rvert \text{KP} \text{D'} \rightarrow \text{Hasan-In-ki} \]  
\[ \text{Hasan-In} \rvert \text{[GEN]} \text{D} \text{-ki} \]

Let us provisionally assume that the Loc-ki construction produces an Adjectival, which adjoins to NP:

(28)  
\[ \text{DP} \rvert \text{D'} \text{NP} \text{D} \text{AP} \text{NP} \text{KP} \text{-ki} \text{kitap} \]  
\[ \text{raf-ta} \text{[LOC]} \]

Given these assumptions, the primary differences between the Gen-ki and Loc-ki constructions follow from their different syntax: Gen-ki is incompatible with an overt head noun because -ki replaces D', which contains the noun. In (27), -ki is an intransitive Determiner and it is for this reason that it is incompatible with a Noun heading a complement NP. The Loc-ki construction is compatible with an overt head noun because in this case the syntactic thing produced by -ki is an adjectival, and cooccurs with its head noun unless that noun (more accurately, its NP) is elided (optionally) due to discourse recoverability.

The secondary differences are also explained. The absolute impossibility of a POSS suffix following Gen-ki follows from the impossibility of a higher Genitive-marked KP for the second POSS to agree with. There is no place in this structure (27) for another possessor phrase, hence no place for a controller of the agreement that is expressed by the Possessive suffix. Put another way, the ungrammaticality of a POSS morpheme following a Gen-ki sequence is a reflection of the same principle that prevents '*my his car' from being grammatical in English.
It is, of course, possible for a DP such as that in (27) to combine with a case suffix to form a KP (case phrase), and if the case of that KP is Genitive or Locative, the KP can enter into a higher -ki construction:

(29) sizinkininki

(30) benimkindeki

The morphotactic loop, on this analysis, turns out to be nothing more than the natural and expected consequence of recursion in the syntax.

The situation with the Loc-ki construction is somewhat different. Here -ki is not replacing a D', but rather creating an adjectival phrase which then combines in a modifying relation with an NP (see (28)).

It should be possible for such a DP to enter into a construction in which it represents the possessed in a GEN-POSS structure:

(32)
(biz-im) raf-ta-ki kitap-lar-Imiz
us-GEN shelf-LOC-ki book-PL-POSS1p
'our books that are on the shelf'

And for this to be reduced by ellipsis to

(33) raf-ta-ki-ler-imiz
shelf-LOC-ki-PL-POSS1p
'ours that are on the shelf'

As seen in section 2, this is correct. Furthermore, just as in the case of the Gen+ki construction, a DP containing a Loc+ki phrase can combine with a Case suffix to form a KP, which can then combine further to form a nested -ki construction:

(34) rafakilerimizin
rafakilerimizinki
rafakilerimizinkinde

Thus not only the apparent morphotactic loop but also the puzzling complication described in section 2 are accounted for in terms of the assumption that there are two distinct versions of -ki and that each combines syntactically with phrase-sized entities to produce other phrase-sized entities.

4. An Alternative View of LOC-ki and the Structure of the Nominal Phrase

Despite the apparent success of the analysis presented in section 3, the analysis suggested there for the Loc-ki construction does not stand up under closer scrutiny. The story that I told in section 4 was built on the assumption that Loc-ki forms an adjectival of some sort and that cases with missing Nouns are due to a general ellipsis process which allows redundant Nouns to be omitted, leaving an adjective behind:

(35) sarI kitaplar "the yellow books"
(36) sarIlar "the yellow ones"

The adjectival analysis produces some syntactic predictions that don't hold up under close empirical scrutiny. First, without something else being said, we might expect regular adjectives to cooccur with a Loc-ki adjectival, and for the two to occur in either order:

(37) raf-ta-ki sarI kitap-lar
shelf-LOC-ki yellow book-PL
Indeed, both are grammatical, but in the second example it is the shelf that is yellow, not the books. When a Loc-ki construction and an adjective cooccur, the Loc-ki always precedes.

The account of the differences between the Gen-ki and the Loc-ki constructions, as outlined in section 3, depended on the Loc-ki phrase being located outside of NP. There are two obvious ways to arrange that within current assumptions about phrase structure: either the Loc-ki phrase is left-joined or it occupies a specifier position within DP. Since the adjunction hypothesis leads to difficulties, let us consider a specifier hypothesis.

Giusti (1997, p. 100) suggests that demonstratives sit in SPEC DP. It looks at first like they do in Turkish:

(39) bu/Su/o sarI kitap
    this/that/yonder yellow book

If Loc-ki expressions occupy the same place, the facts immediately above would be accounted for. Adjectives presumably adjoin to NP, and would thus always be between the Loc-ki phrase and the head Noun.

Unfortunately, this analysis too makes some wrong predictions. If Demonstratives, Genitive phrases, and LOC-ki phrases all occupy SPEC DP, they should be mutually incompatible. This is not true:

(41) raftaki o kitap (that book on the shelf)
(42) benim raftaki kitabIm (my book on the shelf)
(43) AySe'nin raftaki o kitabi (that book of AySe's on the shelf)
(44) senin raftaki o bUyUk kitabi (that big book of yours on the shelf)

All three types of phrases can cooccur, so they cannot occupy the same specifier position. The order is quite rigidly fixed, however:
These observations indicate that an investigation of the structure of the nominal phrase is in order. A quick first attempt follows.

Loc-ki can cooccur with the Indefinite Article 'bir':

(48) Istanbul'daki bir meyhane
    Almanya'daki bir turism Sirketi
    benim durumumdaki bir kadın
    duvardaki bir halıya baktıydı ...

It can cooccur with demonstratives:

(49) duvardaki o eski halı
    elimdeki bu gümüş cep saati

But the order is fixed:

(50) o duvardaki eski halı
    bu elimdeki gümüş cep saati

("that wall")
("this hand")

It can cooccur with Genitive phrases:

(51) AySe'nin Antalya'daki yalısı
    bizim Amerika'daki arkadaşlarımız

The order is again fixed:

(52) Antalya'daki AySe'nin yalısı
     (the yalı that belongs to the AySe who is in Antalya)

Putting this all together, the permissible order is

(53) (GEN-phrase) (ki-phrase) (Demonstrative) (Adjectives) (bir) N

AySe'nin o yüksek raftaki o büyük kitabı

For semantic reasons, 'bir' cannot cooccur with demonstratives, but it can cooccur with ki-phrases, as seen above. These observations lead to a proposal for the structure of the nominal phrase in which the Genitive phrase, the ki-phrase, and the demonstratives occupy specifier positions in various functional projections, and the indefinite article 'bir' occupies the specifier position of NP.
We have thus arrived at the usual kind of conclusion within current mainstream syntactic theory: each of these three types of phrase must be a specifier in a distinct functional projection. Roughly:

\[(54)\]

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DP
  \|-- D'
    \|-- KP
      \|-- LocP D
        \|-- AySe’nin raftaki o sarI kitabI
          \|-- -I
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Notes:

1. The presence of any of these specifiers makes the ACC suffix obligatory when the DP is a direct object.
2. A plausible location for the indefinite article 'bir' would be in Spec NP.
3. It seems plausible that indefinite direct objects might be bare NPs.
4. Numerals probably require yet another projection.
5. I have made no attempt to deal formally with the Plural affix.

5. A Conclusion

I conclude that the morphotactics of the suffix -ki can best be understood in terms of its syntactic functions. Since it has two syntactic functions, one equivalent to a Determiner and the other as head of a demonstrative-like phrase occupying a specifier position within the DP, there are really two ki's with different morphosyntactic properties.
The apparent loop in the morphotactics is no morphological oddity at all, but the natural consequence of recursion in the syntax together with the (limited) possibility of elision of redundant heads.

It is crucial to the analysis presented here that the suffix -ki is regarded as a term that combines with syntactic units (i.e. it is a phrasal affix) but combines morphologically with the final word of the phrase.

If it is accepted that -ki is a phrasal affix, as argued here, the morphological description which drives all the contemporary morphological parsers is based on a fundamentally flawed assumption. In particular, morphological and syntactic parsing cannot be separated.

REFERENCES


I would like to thank AsII GÖksel, AySe GÜrel, and the audiences at presentations at Konstanz, Essex, SOAS, UCSC, BoGaziCi University, and the 11th International Conference on Turkish Linguistics for comments and judgments.

There is a problem with this title, which is that there are more than two ki’s in Turkish; but I will keep the title, for sentimental reasons. My point in this paper is that the suffix called “pronominal ki” by Lewis (1965) is morphosyntactically not one suffix but two.

As is customary, I will cite suffixes in a base form employing archiphonemic notation: $A = \{e|a\}$, $I = \{i|u\}$, etc.

See Schroeder (2000) for some discussion of the distributional properties of this suffix.

Johan Vandewalle suggested (p.c.) that the locative –ki can also attach to expressions formed with the suffix –(y)ken. Textual examples of this collocation are not easy to find, but Google did turn up one occurrence [Public Housing Bilgilenendirmesi Belgesi, New South Wales, Mart 2001. URL: www.housing.nsw.gov.au/apply_turkish.pdf]:

Mulk Durum Raporu, KiracIImk AnlaSmasl’nlN bir parCasIdlr. MulkUn kiracIIGa baSladIGInIzdaki durumuunu kaydeder ve mUlkUn siz boSaltIrkenki durumuyla karSIIaStIrIIr …

Marcel Erdal (1994) has pointed out that the stress migration only occurs in Loc-ki cases, not in Gen-ki cases. I have no explanation for this difference at present, but it supports the claim that the two ki’s are distinct. Erdal also notes that Loc-ki sometimes has the form –kU, harmonizing in rounding with the preceding vowel, while Gen-ki never does.

Thanks to AsII GÖksel for pointing out this kind of example to me.

An apparent exception to this claim is the existence, at least in casual speech, of forms like ‘benimkisi’ (meaning exactly the same thing as ‘benimki’). This appears to be one of the odd uses of the third person possessive to mark definiteness; the third person possessive here is clearly not part of the Genitive-Possessive agreement system.

This is, for example, the structure proposed in Kornfilt (1985).

As noted above, almost all of my informants consider examples like (33) ambiguous. One informant insisted that (33) could only mean “those of us who are on the shelf”.