WORD SYNTAX OF NOMINAL COMPOUNDS: INTERNAL AND
APHASIOLOGICAL EVIDENCE FROM TURKISH

by

Deniz Tat

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SIGNED: Deniz Tat
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DEDICATION

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LIST OF ABBREVIATIONS

\( \sqrt{P} \) = Root Phrase
1PL = first person plural
1SG = first person singular
2PL = second person plural
2SG = second person singular
3 = third person
\( a \) = adjective
ABS = absolutive case
ACC = accusative case
AgrOP = object agreement phrase
AgrP = Agreement Phrase
AgrSP = subject agreement phrase
AN%N = nominal adjective-noun compound
AOR = aorist
\( aP \) = adjective phrase
CAUS = causative
CausP = cause phrase
Co = conjunction
CoP = conjunction phrase
COP = copular
DAT = dative case
DM = Distributed Morphology
D = determiner
DP = determiner phrase
EPIS = epistemological marker
EPP = Extended Projection Principle
ERG = ergative case
EXST = existential
EXST = existential particle
FEM = feminine
FN = factive nominalization
FP = functional projection
FUT = future
GAT-2 = Gülhane Aphasia Test 2
GEN = genitive case
IM = nominalizer -(İ)m
KI = nominalizer -Kİ
LE = linking element
LOC = locative
M-RED = m-reduplication
<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>MASC</td>
<td>masculine</td>
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<tr>
<td>ME</td>
<td>nominalizer -mE</td>
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<td>n</td>
<td>nominalizing head</td>
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<td>NEG</td>
<td>negative marker</td>
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<td>NN%N</td>
<td>nominal noun-noun compound</td>
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<td>NOM</td>
<td>nominative case</td>
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<td>NOMIN</td>
<td>nominalizer</td>
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<td>nP</td>
<td>little n phrase</td>
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<td>N</td>
<td>noun</td>
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<td>NP</td>
<td>noun phrase</td>
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<td>numP</td>
<td>number phrase</td>
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<td>NV%N</td>
<td>nominal noun-verb compound</td>
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<td>Ø</td>
<td>phonologically null VI</td>
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<td>postpositional phrase</td>
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<td>PRES</td>
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<td>PROG</td>
<td>progressive</td>
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<td>past tense</td>
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<td>SIN</td>
<td>compound marker -(s)I(n)</td>
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<td>specifier</td>
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<td>TAM</td>
<td>tense, aspect and modality</td>
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<td>Top</td>
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<td>TopP</td>
<td>topic phrase</td>
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<td>TP</td>
<td>tense phrase</td>
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<tr>
<td>VPBECOME</td>
<td>little v with a BECOME flavor</td>
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<tr>
<td>VCAUS</td>
<td>little v with a CAUSE flavor</td>
</tr>
<tr>
<td>VDO</td>
<td>little v with a DO flavor</td>
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<tr>
<td>VER</td>
<td>verbalizer</td>
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<td>Vocabulary Item</td>
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<td>phrase headed by a verbalizer</td>
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<td>V</td>
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ABSTRACT

This dissertation is an analysis of two types of nominal compounds in Turkish, primary compounds and synthetic compounds within the framework of Distributed Morphology. A nominal primary compound is formed by two nouns, and its meaning is largely determined by world knowledge. A synthetic compound, on the other hand, is formed by a noun and a deverbal noun, such that the former is a true argument of the latter. The meaning of such compounds is always compositional. In many languages, the structural difference between these two types of compounds is not immediately observable. However, in Turkish, a primary compound would be obligatorily marked with the compound marker, -(s)\(l(n)\) while a synthetic compound would never be marked as such. In this dissertation, I claim that primary compounds in Turkish are underlyingly possessive phrases, a claim that has been previously made by several others. My analysis differs from those previous analyses in that it maintains that -(s)\(l(n)\) figures in a morphological component that follows syntax but precedes PF. Such a post-syntactic analysis has a number of advantages as it can account for a wide range of descriptive observations about the behavior of -(s)\(l(n)\). I claim that -(s)\(l(n)\) and an agreement marker never form a sequence at any stage in the grammar. I test this claim in an experiment conducted with Turkish-speaking individuals with aphasia, and show that only a vanishingly rare number of -(s)\(l(n)\)-agreement sequences are attested in aphasic speech.

My analysis of synthetic compounds in Turkish is based on three types of nominalizers and the types of categories they can select. I show that only event-denoting
nominals can form true synthetic compounds. I also show that nominals that are derived directly from roots can never form true synthetic compounds, which casts doubts on roots as projecting categories. I also consider a third group of seemingly synthetic compounds, which have an overt complex verbal stem, and yet, fail to derive true synthetic compounds. Following Marantz (2013), I claim that such pseudo-synthetic compounds, in fact, have semantically null verbalizing morphemes, and therefore, the root and the nominalizing head are semantically adjacent at LF.
CHAPTER 1
INTRODUCTION

1.1 Goals of the dissertation

The goal of this dissertation is to provide an analysis of two types of N+N compounds in Turkish. In the first type, the semantic relation between the head and the non-head noun is determined by pragmatic information. Compound nouns of this type are known as primary compounds (Scalise and Bisetto 2009). This type in Turkish bears a compound marker that appears compound-finally as in (1). The second type consists of a head noun that is derived from a verb, such that the first noun acts as an argument to it as in (2). Compound nouns of this type are known as synthetic compounds (Scalise and Bisetto 2009).

(1) öğretmen maaş-ı
teacher salary-SIN
‘teacher salary’

(2) öğretmen yet-ış-tir-me
teacher √suffice-VER-CAUS-ME
‘teacher training’

I claim that examples like (1) are underlyingly possessive DPs. The first noun bears a phonologically null genitive case and the compound-final marker is a possessive agreement marker. I claim that the genitive case is responsible for triggering agreement in a local domain (the DP). I propose that this happens post-syntactically, which is in line with hypotheses put forward by Marantz (1991) and Bobaljik (2006), such that case and
agreement do not figure in syntax but are rather realized after all syntactic operations (Move, Merge, etc.) are completed.

Following Borer (2003, 2012), I also claim that for true synthetic compounds like (2) to be possible, certain conditions need to be met. (i) There must be a vP layer in their derivation; (ii) this vP as well as other elements that make up the verbal stem must be semantically compositional; (iii) the derived noun in the head position must entail an event, inherit the argument structure from its verbal stem, and thus allow adverbial and aspectual modification.

The data used in this dissertation are mostly internal data, data collected through native speaker grammaticality/acceptability judgments\(^1\). There is also some external data collected through a phrase/sentence completion task conducted with Turkish-speaking individuals with Broca’s and Conduction aphasia. This latter data collection procedure was conducted in order to confirm a specific hypothesis regarding the compound marker exemplified in (1) as well as to have a better understanding of what part of agreement systems (whole system, paradigms, features) are in fact subject to impairment in aphasic speech.

1.2 Assumptions and key terms

The theoretical framework assumed in this dissertation is Distributed Morphology (DM), a theory developed by Morris Halle and Alec Marantz in the 1990s (Halle and Marantz, 1993, 1994). DM was developed within the Minimalist Program (Chomsky 1995), and

\(^1\) *Internal evidence* here refers to evidence collected through language-internal tests, such coordination, modification, argument selection, etc. and is therefore ‘internal to language or competence.’ *External evidence* is everything else; evidence based on data from speech errors, historical change, reaction time studies, etc.
therefore, assumes that syntactic derivations involve Move and Merge as the two possible ways to derive phrases. However, it fundamentally differs from many of the theories developed in this program. Most importantly, it assumes that there is nothing lexical in the nature of terminal nodes, which can only be occupied by $f$-morphemes and $l$-morphemes or Roots. The former includes both category-defining heads, such as $v$ for deriving verbs and an $n$ for deriving nouns, as well as inflectional heads, such as Tense and Aspect. The latter constitute acategorial elements, which have some semantic and phonological information, but lack grammatical category. These are represented with a symbol. For instance, the Root $\sqrt{YEŞ}$ in Turkish has the semantics of producing leaves or the color green. It is realized as $yüşer$- ‘to grow foliage’ in the context of a $vP$, $yüşil$ ‘green’ in the context of an $aP$, and $yüşim$ ‘jade’ in the context of an $nP$. Morphemes in DM, thus, do not refer to the actual words or affixes with phonological expression, but to the syntactic terminal nodes, which only later in the derivation receive phonological forms, called Vocabulary Items (Harley and Noyer 1999). DM thus rejects the Lexicalist Hypothesis (e.g. Di Sciullo and Williams 1987); in DM there is no element that enters a syntactic derivation as a “word.”

The three main tenets of DM are Late Insertion, Underspecification and Syntactic Hierarchical Structure All the Way Down (Harley and Noyer 1999).

(3) **Late Insertion**

Vocabulary Items (VIs) are inserted at Spell-out only after syntactic operations are completed.

(4) **Underspecification**

VIs do not have to be fully specified in order to get inserted into a position. Where there is no more specific form available, a VI that only bears a subset of the features in the terminal node, can be inserted into this position.
Syntactic Hierarchical Structure All the Way Down
The same generative system is responsible for the derivation of words, phrases and sentences.
The grammar architecture assumed in DM, adapted from Harley and Noyer (1999), is represented in (6).

The grammar architecture in DM

Access to syntactic terminals

Syntactic operations
(Move, Merge, Copy)

Access to VIs
(VI insertion, readjustment rules)

Access to the Encyclopedia  interpretation

In this architecture, syntax is the component where all internal and external Merge operations take place. The output of this component is sent to Morphology before PF; this is where the output of syntax is linearized and where certain morphological operations take place, including dissociated morpheme insertion (Embick 1997), such as case and agreement.

Marantz (1991) dispenses with abstract Case theory from syntax on grounds that EPP on its own is sufficient to account for the nominative subject case in nominative-accusative languages (or other environment-sensitive cases, such as absolutive in ergative-absolutive languages). The remaining types of cases either depend on the presence of an NP/DP in the subject position (including non-thematic ones), or are lexical, specified by individual lexical items in a given language. He therefore claims that
all types of case can boil down to m-case (morphological case). In his proposal, case markers, such as NOM, ACC, ERG, etc. are morphological features that the CASE affix on N is looking for, the realization of which follows a disjunctive hierarchy, a hierarchy going down the list until the CASE affix finds a case feature:

(7) case realization disjunctive hierarchy (Marantz 1991: 24)
   - lexically governed case
   - “dependent” case (accusative and ergative)
   - unmarked case (environment-sensitive)
   - default case

Examples of lexically governed case are those types of cases determined by individual verbs in a given language. For example, psych verbs in Icelandic assigning dative to their objects preserve this case even when the NP moves to the subject position (quirky case). ACC, being a dependent case in nominative-accusative languages, is assigned within a verbal domain downward to an NP position governed by V+I when the subject position has EPP properties. Unmarked case is environment-sensitive, such that it is assigned when a syntactic environment requires its presence. (In Turkish, this would be NOM for finite clauses and GEN for non-finite clauses or DPs.) Default case is the general case, which is language-specific, realized when no other case is realized.

Marantz (1991) extends his case realization disjunctive hierarchy to agreement, too. Just as there is a disjunctive order of case morphemes, there is also an order of agreement morphology: dependent agreement, unmarked agreement and default agreement. In a nominative-accusative language, dependent agreement occurs with the accusative-marked object while unmarked agreement occurs with any NP governed by
V+I. This explains why nominative-accusative languages with object agreement must also have subject agreement.

Bobaljik (2006) extends Marantz’s (1991) work on disjunctive hierarchy of case and agreement to what he calls *accessibility for agreement* and further shows that agreement is generated in a post-syntactic component. The main argument comes from observations from a variety of languages, which show that agreement is sensitive to morphological case. In other words, certain case-marked NPs (e.g. NOM-marked NPs) trigger agreement morphology. An order-of-operations argument, thus, results, such that if case is post-syntactic as Marantz claims, then agreement must be post-syntactic, too. (The most convincing piece of evidence that shows that case does not figure in syntax comes from Icelandic, a language in which NPs can get morphological case without being licensed (Marantz 1991).)

Bobaljik’s (2006) argument about accessibility for agreement is based on his revised version of the Moravcsik Hierarchy (Moravcsik 1978), which states that agreement follows from a hierarchy of grammatical functions:

\[(8) \quad \text{subject} > \text{object} > \text{indirect object} > \text{adverb}\]

This hierarchy states that if a language has its verb agree with anything, it must be the subject. If a language has object agreement, then it must have subject agreement, too, and so on. Following Marantz (1991), Bobaljik claims that the hierarchy must rather be stated as (9), and that “when case and GF [grammatical function] diverge, it is m-case, not GF, that defines accessibility for agreement” (2006: 12).
(9) unmarked case > dependent case > lexical/oblique case

Icelandic quirky case examples, in this respect, provide one of the strongest arguments. Verbal agreement in this language always looks for the NP that is marked with NOM, rather than the grammatical subject:

(10) *Morgum studentum líka verkið
   many students.DAT like-PL job.NOM
   ‘Many students like the job.’ (Harley 1995: 208)

Bobaljik (2006) claims that accessibility is defined in terms of locality, which is both relative (highest) and absolute (domains). In other words, an NP, marked with an accessible case for agreement, must be in a local domain for agreement, and if there is more than one accessible NP for agreement, it is the highest one that triggers agreement. To give an example for the highest-accessible-NP argument, let us have a look at the Hindi examples, cited in Bobaljik (2006). Hindi is a split-ergative language, which has an ERG-NOM pattern in the perfective and a NOM-NOM pattern in the imperfective. Like Icelandic, the verb also looks for the NOM for agreement in this language. In the perfective example in (11), the verb and the auxiliary are marked with FEM because the accessible NP (with NOM) is a feminine noun. In the imperfective example in (12), on the other hand, the verb and the auxiliary have two potential triggers for agreement because there are two NPs marked with NOM: the feminine subject and the masculine object. In this case, the verb agrees with the highest accessible NP, the subject, and is thus marked with FEM.

(11) Raam-ne RoTii khaayii thii
    Ram-ERG(MASC) bread-O(FEM) eat.PERF.FEM be.PST.FEM
    ‘Ram had eaten bread.’
As for the “close-enough” argument, Bobaljik (2006) provides examples from Tsez, an ergative-absolutive Dagestani language, whose long-distance agreement facts have been extensively studied by Polinsky and Potsdam (2001). In Tsez, there is only unmarked agreement, i.e. direct objects of transitives and subjects of intransitives agree with their corresponding verbs. However, if a matrix clause has a clausal object, which itself has a transitive verb, then the matrix verb can agree with the ABS-marked object of the embedded clause as shown in (13), which shows that agreement does not figure in syntax. If it did, such optionality would not occur, and the most local NP would trigger agreement. In this example, the matrix verb know may agree with the entire clausal object, hence the class IV agreement r-. It can also agree with the object of the embedded clause, hence the class III agreement marker b-.

(13) enir [užā magalu b-āc’ruåli] r-/b-iyxo
     mother boy  bread.ABS(III) III-ate IV/III-know
‘The mother knows (that) the boy ate the bread.’

If there is an overt complementizer or a wh- word heading the embedded clause, then the long-distance agreement is not available. Polinsky and Potsdam (2001) explain examples like (13) of the hypothesis that the object of the embedded clause moves to the specifier position of a Topic Phrase, which then becomes accessible to a higher clause, as represented in (14a), while the presence of a CP prevents this object from being accessible to the higher clause, as shown in (14b):
The example in (14) clearly shows that a matrix verb agrees with a syntactically unrelated NP in the embedded clause because it is ABS-marked, thus accessible, and it is in a local domain, thus close enough. Bobaljik (2006: 25) states that such constructions demonstrate “that the choice of agreement controller is determined by morphological accessibility and locality not by any other designated syntactic relationship.”
1.3 Organization of the dissertation

This dissertation consists of six chapters including this introductory chapter. In Chapter 2, I present a set of observations regarding NN%Ns in Turkish and the behavior of the compound marker that is uniquely marked compound-finally. This compound marker is the same affix that appears as 3rd person possessive agreement in possessive phrases, and it is therefore analyzed as such in compounds by a number of linguists (Lewis 1967, Dede 1978, Kornfilt 1984, Yükseler 1987). Some others analyze it as a linking element - claiming that this marker has lost its possessive meaning or relation - which is synchronically specified to derive NN%Ns in Turkish (Göksel and Haznedar 2007, Göksel 2009, Kharytonava 2011). The observations I present in Chapter 2 indicate that this compound marker is sensitive to possessive markers in its environment. For instance, when a NN%N acts as a possessee in a possessive phrase, it cannot co-occur with the possessive marker that is realized by the possessive DP. In other cases, as shown in Chapter 2, the lack of a possessive marker in cases where it does not get realized, e.g. when the possessee is a topic, or when the possessive affix undergoes suspended affixation (appears only on the final conjunct in a coordinate construction), the compound marker has to appear. These observations suggest that the compound marker is of the same type of affix as possessive markers. In Chapter 2, I also present some observations about the NN%N in general, such as its productivity and listedness, stress, recursivity and behavior in a type of reduplication that can target either of its constituents, which all

\footnote{Nominal compounds derived by two nouns.}
indicate that these compounds have internal structure just like phrases, and an analysis of them as terminal nodes in syntax is likely to run into serious challenges.

In Chapter 3, I provide an analysis of NN%Ns in Turkish considering the observations I present in Chapter 2. First, I show why analyzing such compounds as products of a grammar component that precedes syntax has significant problems. One of the challenges faced by a lexicalist/pre-syntactic analysis of the derivation of such compounds is that their internal structure, specifically the compound marker, is visible to syntax. Furthermore, the first and the second elements can be modified by adjectives, and are potential targets for reduplication. Next, I consider a syntactic analysis of NN%Ns in Turkish, assuming AgrP projections headed by possessive markers as well as the compound marker. I show that such an analysis also runs into certain challenges. One of the greatest challenges for a syntactic analysis of NN%Ns is the fact that the possessive marker and the compound marker cannot co-occur. If these were both Agr heads, then there would be nothing in syntax that would disallow the derivation of both of these because a NN%N can well be the possessee in a possessive phrase headed by an Agr head, which would derive both a possessive marker and a compound marker as individual heads. Finally, I consider the last logical option: If the compound marker is not derived pre-syntactically or syntactically, then it must be derived in a grammar component that follows syntax. I therefore present a post-syntactic analysis and show that it can indeed account for all the observations outlined in Chapter 2. I conclude in Chapter 3 that the compound marker as well as any other markers that can be identified as agreement morphology belongs to a post-syntactic component in the grammar architecture.
Distributed Morphology (Halle and Marantz 1993, 1994) already assumes such a component, which is responsible for several readjustment rules, such as fusion, fission and impoverishment (Harley and Noyer 1999), which is also likely to explain cases where a certain morpheme cannot co-occur in the presence of another of the same type. Kornfilt (1986) refers to these cases as the results of a “Stuttering Prohibiton” which applies to similar other cases in Turkish. In Chapter 3, I revisit this rule that holds in Turkish, and claim that it must hold in a post-syntactic morphological component.

In Chapter 4, I look at three types of nominal compounds in Turkish, which all consist of a noun in the first position and a deverbal noun in the second position that has a verbal root or stem: (i) compound heads derived directly from Roots, (ii) compound heads derived from verbal stems and marked with the compound marker, (iii) and compound heads derived from verbal stems and not marked with the compound marker. I show that only compounds with the property in (iii) are a true synthetic compounds, such that the first elements in these act as internal arguments of the verbal stem of the second elements. I use a number of diagnostic tests following Borer (2012), such as agent-oriented modifiers, by-phrases, event entailment, adverbial and aspectual modification, and show that true synthetic compounds are always compositional and they denote events, providing further evidence for claims put forward by Borer (2003, 2009, 2012) regarding the nature of A(rgument)-S(tructure) nominals (nominals that denote events). In Chapter 4, I also show that Roots cannot project complements as internal arguments because if they did so, they would be able to derive true synthetic compounds, too, which, as it appears, is not the case. I therefore claim that an analysis of Roots as
non-projecting syntactic objects provides a better account of the status of Roots in grammar.

In Chapter 5, I take a different approach. In previous chapters, I consider evidence internal to the language, which is based on data collected through native-speaker judgments regarding grammaticality of phrases and sentences. In Chapter 5, I consider external evidence, which is based on speech errors produced by speakers of Turkish with aphasia. Even though I assume that individuals with aphasia have internal grammar and that their judgments should be considered as internal evidence, in Chapter 5, I look at data collected though a phrase/sentence completion task, in which participants with Broca’s and Conduction aphasia are instructed to find out the missing piece, which were agreement markers across the items. As the participants completed this task, they produced a number of errors, most of which they were aware of - especially participants with Conduction aphasia. The main goal of this experiment was to find out if individuals with aphasia produce errors in which both the agreement marker and the compound marker appear together, which would be a violation of the Stuttering Prohibition. However, before I could make any strong claims about the presence or absence of such errors, I decided to include items in the experiment to investigate the status of agreement systems in the speech of Turkish speakers with aphasia, and thus, looked at whether it is the agreement system as a whole, or individual paradigms, or a combination of certain feature specifications that are subject to impairment. I found out that paradigms, in fact, played no role whatsoever in the mental representation of agreement morphology since there was not a single case in which a given paradigm was impaired as a whole.
Furthermore, a closer look at error typology indicated that errors in which both single-feature (e.g. number) as well as double-feature (e.g. number and person) were attested, suggesting that speakers with aphasia are not restricted to individual paradigms that would act as mental windows into inflectional morphemes. As for the mental status of the compound marker, I found out that individuals with Broca’s aphasia never and individuals with Conduction aphasia only very rarely produce the compound marker along with the agreement marker in a possessive phrase. This suggests that these two never get realized simultaneously at any stage in the grammar; otherwise, errors in which they are both pronounced would be attested more frequently in aphasic speech.

And finally, in Chapter 6, I outline the contributions of this dissertation to our understanding of word formation in general and compound formation in Turkish in specific. I also point out some directions to further research.

1.4 Some notes about notations

Turkish is a language with two types of vowel harmony, one involving frontness/backness features, and the other, roundedness. Some affixes are subject to both while some others are only subject to the former. (There is no affix that is subject to roundedness harmony only.) For instance, the plural affix, which is subject to frontness/backness harmony, can have two forms depending on whether the preceding syllable bears a front or a back vowel.

(15) a. \textit{kedi-ler}  
cat-PL  
‘cats’  
b. \textit{aslan-lar}  
lion-PL  
‘lions’
It is common practice in Turkish linguistics to represent the vowel that varies according to vowel harmony rules in capitals. (e.g. -IEr).

The compound marker -(s)İ(n) that is extensively discussed in this dissertation is subject to both vowel harmony rules. The first segment is dropped following a consonant; the final segment appears only before case markers. The compound marker therefore has 16 surface forms: -sin, -sin, -sün, -sun, -si, -st, -sü, -su, -in, -in, -ün, -un, -ı, -İ, -ü and -u.

The orthographic system is largely straightforward to the English speaker except for the following cases. The letter ı or its capital form İ (a dotless i) represents the unrounded high back vowel [u]. (The letter i is capitalized as İ.) The letters ü and ö represent the rounded high front vowel [y] and the rounded mid front vowel [œ], respectively. The letter ç represents the voiceless affricate [ʧ] while the letter ş represents the voiceless fricative [ʃ]. The letter c always represents the voiced affricate [ʤ]. Finally, ğ, which historically represents the voiced velar fricative, is no longer pronounced as such. Instead, in most cases, the vowel preceding it undergoes compensatory lengthening.
CHAPTER 2
A DESCRIPTION OF TURKISH N+N PRIMARY COMPOUNDS

2.1 Introduction

In this chapter, I discuss a set of Turkish compounds, which have the form of N+N and derive nominals (henceforth, NN%N) from a descriptive perspective and identify a series of properties that need to be accounted for. Turkish NN%N provides us with an interesting case even at a glance. Consider the following examples:

(1) masa-örtü-*(<ül)
   table-cloth-SIN
   ‘table cloth’
(2) akşam-sefa-*(<št)
   evening-joy-SIN
   ‘four-o’clock’ (a type of plant)

The examples in (1) and (2) reveal that there is a suffix at the right-hand edge of the second constituent, an unusual position for compound markers\(^1\). This marker is found only in primary compounds that have the form of NN%N. Furthermore, it is obligatory regardless of whether the nominal is a semantically compositional, endocentric compound, as in (1), or a semantically idiosyncratic, exocentric compound, as in (2).

Because this marker is also the 3\(^{rd}\) person possessive marker, it has often been compared

\(^1\) Compound markers, or linkers, as the latter name suggests, are mostly found between the two constituents of the compound: If a language has a linker, it is almost always an interfix in many of the world’s languages: Germanic (e.g. Afrikaans, West Frisian, German, Swedish, Norwegian, Icelandic), Hellenic (e.g. Modern Greek), North Caucasian (e.g. Kabardian), Slavic (e.g. Russian, Polish, Serbo-Croatian), Austronesian (e.g. Yapese, Kusaien, Tagalog), Austro-Asiatic (e.g. Cambodian), Mixe-Zoque (e.g. Zoque) and Niger-Kongo (e.g. Yoruba) (Krott, 1999). In some other languages, there is some kind of a phonological change either affecting the last segment of the first constituent (e.g. lenition of the first consonant of the second constituent in Scottish Gaelic, or an “unsilencing” of a previously deleted vowel in word final positions of loan words in Thai), or the first segment of the second constituent (e.g. voicing of the initial consonant of the second constituent in Japanese) (Krott, 1999).
to agreement morphology, which I do as well. However, for the sake of clarity, in the rest of this dissertation, I call it the ‘compound marker.’

In this chapter, I present a series of observations regarding the NN%Ns in Turkish in general and the behavior of the compound marker in particular. The scope of this chapter is thus limited to descriptive data. An analysis of such compounds is constructed in Chapter 3, in which I approach these compounds from a lexicalist, syntactic and post-syntactic point of view, and claim that only the last one provides us with an account that can predict the observations made in this chapter.

This chapter is organized as follows: In section 2.2, I present a series of properties of NN%N in Turkish. These include a discussion of listedness, stress and recursivity. In section 2.3, I present a series of cases, which show that the compound marker is sensitive to both morphological and syntactic operations. The cases include the plural, possessive phrases, suspended affixation (coordinated structures where a shared suffix is suspended to the final conjunct), possessive-free genitives (possessive phrases that lack agreement morphology) and m-reduplication, a type of reduplication that replaces the onset with [m]. In section 2.4, I provide a brief summary of the literature on NN%N in Turkish, which analyzes the compound marker as either an instance of agreement or as an instance of compound linker. In section 2.5, I summarize the observations all of which need to be accounted for if our goal is to provide a thorough analysis of the Turkish NN%N and its peculiar marker, -(s)İ(n). These descriptive observations make the foundation for the analysis presented in Chapter 3.
2.2 Properties of Turkish NN%Ns

2.2.1 Listedness

When a person knows language X, this entails the knowledge of a list of linguistic units in that language. Di Sciullo and Williams (1987), among others, consider this property of language to be ‘listedness,’ which refers to both words and idioms. For example, the word *transmission*, (Di Sciullo and Williams 1987: 3) refers to a part of a car’s engine, which is not immediately available in the word’s composition (*transmit*+*tion*). Such word-meaning relationships, therefore, need to be learned or memorized. These are thus listed in one’s lexicon. Certain syntactic objects can also be memorized, such as the idiom, *take to task*, referring to the action of criticizing someone severely. Di Sciullo and Williams (1987) call the former type of linguistic units, such as *transmission*, “listed morphological objects” while the latter type, such as *take to task*, “listed syntactic objects”.

In Distributed Morphology, there is no theoretical difference between a listed word and a listed unit larger than a word. In this theory, both *transmission* and *take to task* are idioms. In fact, elements smaller than word-size may also be idiomatized (Harley and Noyer 1999). To give an example, the agentive -*er* suffix in English, which normally derives agents (e.g. *teacher, killer*, etc) can receive a patient role in the context of *keep*, such that *keeper* does not necessarily denote “someone who keeps,” but rather, “someone/something that should be kept.” In this dissertation, ‘listedness’ refers to the knowledge of sound-meaning correspondences at all levels, including those for phonological words, compound words and idioms.
2.2.2 Stress

One of the commonly used tests to determine compoundhood across languages, especially in English, is to observe whether a given sequence bears phrasal stress or compound stress. In the following examples, for instance, those with stress on both constituents are considered to be phrases while those with stress on the first constituent only are considered to be compounds, including AN%Ns (nominal compounds headed by a noun that is modified by an adjective), such as the one in (3b) and NN%Ns, such as the one in (4b):

(3) a. *the white house*  
   ‘a house which is white’  
   b. *the White House*  
   ‘presidential residence in US’

(4) a. *the wómen’s rights*  
   ‘the rights of a specific group of women, e.g. in a game’  
   b. *wómen’s rights*  
   ‘rights to promote women equal position to that of men’

In Turkish, such a distinction in stress patterns, at least for the type of compounds discussed in this chapter, does not exist. The following pairs of phrases and compounds have similar stress patterns:

(5) a. *beyáz saray*  
   white palace  
   ‘a/the white palace’  
   b. *Beyáz Saray*  
   white palace  
   ‘the White House’

(6) a. *Kuş burn-u diye bir-şey yok, kuş gaga-si var.*  
   Bird nose-SIN like one-thing NEG.EXST bird beak-SIN EXST  
   ‘There is no such thing as a bird-nose; there is a bird-beak.’

   b. *Kuş-burn-u topla-di-k.*  
   Bird-nose-SIN collect-PST-1PL  
   ‘We picked rose-hips.’

In the AN phrase and compound pair in (5), the only determinant of the difference in the interpretation is the context because stress does not provide us with any clue as to
whether we are referring to “a white palace” or to “the White House”. The pair in (6) show a similar pattern. Kuş-burnu in (6b) is interpreted as a type of plant because it is listed. The encyclopedic meaning tells us that it refers to a type of plant. (6a), on the other hand, is a novel compound; it is semantically compositional. The meaning of kuş-burnu as a type of plant takes precedence over the meaning of kuş-burnu as “bird nose” (i.e. is typically more accessible in normal speech), but stress-wise, these two are the same. It appears that stress is not a reliable piece of evidence to draw conclusions about compound and phrase structure in Turkish (see Kamali and İkizoğlu (2012) for further details on this).

2.2.3 Recursivity

NN%Ns in Turkish manifest two types of recursivity. In the first type, as shown in (7), there can be multiple items in the non-head position. In these cases, there is a single exponence of the compound marker realized on the head noun. In the other type, as shown in (8), the non-head position of the matrix NN%N can be occupied with other NN%Ns. In these cases, each compound has its own compound marker.

(7) [Avcılar [Ticaret [Meslek Lise-si]]]
Avcılar trade vocation high.school
‘Avcılar Vocational Trade High School’

(8) [[[[TED [İstanbul Kolej-i]] Vakf-ı ] Özel Lise-si]
TED Istanbul College endowment private high.school
‘Private TED Istanbul College Endowment High School’

Furthermore, certain adjectives may intervene between constituents of an NN%N. In (8), the adjective özel ‘private’ intervenes between the head noun and the non-head. (9)
shows a similar case, in which the non-intersective adjective *eski* ‘former intervenes between the head and the non-head.

(9) ekonomi *eski* bakan-ı
    economy former minister-SIN
    ‘former minister of economic affairs’

Availability of both types of recursivity as well as the modifiers in intermediate positions must be accounted for by any given theory of compound formation in Turkish provided that a fully developed analysis is the desired goal.

2.3 Properties of the compound marker

2.3.1 Plurals

When NN%Ns are pluralized, the plural marker has to precede the compound marker; it cannot follow it. This is an interesting fact since one would expect the plural marker to follow the word-sized unit bearing the compound marker. (See section 2.2.6 for the maximally lexicalized forms, where this observation does not apply.) This is true of both semantically compositional and idiosyncratic compounds, as shown in (10) and (11), respectively:

(10)  a. *masa-örtü-sü-ler*
      table-cloth-SIN-PL
    b. masa-örtü-*ler-i*
      table-cloth- PL-SIN
      ‘table cloths’

(11)  a. *akşam-sefa-st-ler*
      evening-joy-SIN-PL
    b. akşam-sefa-*lar-i*
      evening-joy-PL-SIN
      ‘four-o’clocks’

An analysis of NN%Ns in Turkish must also be capable of explaining the fact that the plural marker has to precede the compound marker, a surprising observation since an inflectional marker appears inside a putatively derivational one.
2.3.2 Possession

Turkish has agreement morphology within possessive phrases, such that the possessor is the controller of number and person features, which need to be hosted by the possessee. Examples are in (12) and (13):

(12) benim örtü-m
    my cloth-1SG.POSS
    ‘my cloth’

(13) Selin’in sefa-st
    Selin-GEN joy-3.POSS
    ‘Selin’s joy’

When an NN%N is in the possessee position in a possessive phrase, we have a puzzling case, where the compound suffix cannot co-occur with the possessive agreement marker (Lewis 1967, Dede 1978, Kornfilt 1984, Yükseker 1987, van Schaaik 2002, Göksel 2007, Kharytonava 2011).

(14) benim masa-örtü-(*sü)-m
    my table-cloth-SIN-1SG.POSS
    ‘my table cloth’

(15) Selin’in akşam-sefa-(*st)-st
    Selin-GEN evening-joy-SIN-3POSS
    ‘Selin’s four-o’clock’

Whether the compound marker is deleted in the presence of an agreement marker or whether it never gets realized in the first place is a mystery. Since it is obvious that the compound marker is sensitive to agreement morphology in either approach, our analysis must also address this interesting behaviour of the apparent compound marker when an agreement marker is also present.

2.3.3 Suspended affixation

Turkish has the property of what has come to be known as “suspended affixation” (Lewis 1967; Orgun 1995; Kornfilt 1996, 1997, 2012; Good and Alan 2005; Kahnemuyipour and Kornfilt 2006; Kabak 2007; Hankamer 2008; Kharytonava 2011), which is found in coordinated structures, where a grammatical ending shared by two or more conjuncts is
“suspended” to the last conjunct. Suspended affixation (henceforth, SA) is observed both in nominal and clausal domains. Consider the following examples, which are all DPs/NPs:

(16)  

a. *anne ve baba-lar*  
   mother and father-PL  
   ‘mothers and fathers’  
   (ambiguous with ‘mother and fathers’)

b. *anne ve baba-mız*  
   mother and father-1PL.POSS  
   ‘our mother and father’

c. *anne ve baba-nın*  
   mother and father-GEN  
   ‘mother and father’s’

We observe in the above-mentioned examples that the plural marker, an agreement marker and a case marker, respectively, are suspended. Even though these grammatical endings phonologically appear only in the last conjuncts, their semantic interpretation applies to the first conjuncts, too. However, a closer look at further examples suggests that the term ‘suspended affixation’ is loosely coined. It appears that these constructions are available in the Turkish language not because certain affixes can be suspended, but rather because certain linguistic units can be conjoined. For example, the 1st person plural possessive agreement marker -(l)m(l)z in (17c) cannot be suspended if theconjuncts are plurally-marked as seen in (17a).

(17)  

a. *anne-ler ve baba-lar-mız*  
   mother-PL and father-PL-1PL.POSS  
   Intended: ‘our mothers and fathers’

b. *anne ve baba-lar-mız*  
   mother and father-PL-1PL.POSS  
   ‘our mothers and fathers’
(17b), on the other hand, shows that the plural marker and the agreement marker can be suspended together. Comparing this example to (17c), we can say that plural and agreement markers are either both realized in both conjuncts, or they must be both suspended.

SA has been a popular topic in Turkish linguistics and a number of accounts have been proposed. Orgun (1996) claims that the ungrammaticality of constructions, such as (17a), results from a flat structure, where plural and possessive suffixes form a ternary-branching representation. Because the plural marker and the agreement marker are not in a hierarchical structure, when they are suspended, they have to be suspended together.

Kabak (2007) proposes that SA is allowed only when the non-final conjuncts lacking the suspended affix remain as ‘morphological words.’ A morphological word “is comprised of a stem plus optional affixes, the right edge of which can terminate a morphological string independently from agreement markers” (Kabak 2007: 311).

However, in his definition of a morphological word, a stem plus the plural marker (e.g. anne-ler, “mother-s”) do in fact form a morphological word since the plural marker can terminate a word. Kabak (2007) shows that constructions, such as (18) are allowed if the conjoined NPs denote “a collection of individuals,” or rather, a generic/indefinite interpretation, as in the following example:

(18) kahraman asker-ler ve komutan-lar-imiz
    heroic soldier-PL and commander-PL-1PL.POSS
    ‘our heroic soldiers and commanders’
Coordination of NN%N with -(s)İ(n) constitutes another puzzling case that deserves an explanation. When two such compounds are coordinated under the scope of a possessive phrase, such that the possessive marker is suspended, the initial conjuncts bear the compound marker while the final conjunct does not, an observation made by Kharytonova (2011). Consider the following examples, which have the same meaning:

(19) a. av-köpeğ-im ve ev-kedi-m
    hunting-dog-1SG.Poss and house-cat-1SG.Poss
    ‘my hunting dog and house cat’

b. av-köpeğ-*(i) ve ev-kedi-m
    hunting-dog-SIN and house-cat-1SG.Poss
    ‘my hunting dog and house cat’

In (19a), we have a coordinated structure where no affix is suspended. Two possessive phrases, both having a NN%N as a possessee, are coordinated. As we have seen in section 2.2.2, the -(s)İ(n) suffix cannot co-occur with possessive markers. In (19b), we have a case of SA, where the possessive marker is suspended to the last conjunct. In this case, the -(s)İ(n) suffix cannot co-occur with the suspended possessive marker in the final conjunct. However, in the non-final conjunct, where the possessive marker is lacking, then the compound marker reappears, showing that it is obligatory in such compounds.

Any theory of compound formation in Turkish must account for this observation as well.

2.3.4 Possessive-free genitives

As we have seen in section 2.2.2, Turkish has possessive agreement, where the possessee bears a marker that agrees with the possessor’s person and number features, as in (20):

(20) benim kiz-(im)
    my daughter-1SG.Poss
    ‘my daughter’
The possessive marker seen in (20) is not obligatory in some cases. It is not immediately clear why there is such optionality in possessive agreement, if optional at all. Because such possessive constructions lacking possessive agreement are typically used with family members and familiar places (hometown, school, etc.), an initial hypothesis might be that these are limited to certain semantic categories, such as animate and inalienable nouns. However, as the following examples show, neither animacy nor inalienability determines when possessive-free genitives are allowed.

(21) _Bizim köy(-ümüz) bura-dan çok uzak._ INANIMATE
    our village-1PL.POSS here-DAT very far.
    ‘Our village is far from here.’

(22) _Benim kız(-ım) yine okul-da kavga et-miş._ ANIMATE
    my daughter-1SG.POSS again school-LOC fight do-PST
    ‘My daughter had a fight at school again.’

(23) _Benim kafa(-m) hep güzel._ INALIENABLE
    my head-1SG.POSS always pretty
    ‘I’m always excited/euphoric.’

The examples in (21-23) show that both animate and inanimate possessees may or may not be marked with agreement. (23) shows that this seeming optionality is not limited to alienable possessees; inalienable possessees, such as _kafa_ “head” can also be optionally marked with agreement morphology. However, it appears that there is a slight difference in meaning between those possessive constructions with the possessive agreement marker and without it: The possessors of those phrases lacking possessive agreement are topics while the possessors of those phrases triggering agreement morphology are not (Öztürk, Eser-Erguvanlı and Zimmer, upcoming).
Existential predicates would be a reliable testing ground to confirm whether the difference has anything to do with information structure since their subjects must be new information by nature. Turkish existentials are copular constructions where the subject position is occupied with a DP or a CP and the predicate is occupied with the existential particle var or the negative existential yok. In the context of a locative phrase, the resulting sentence is interpreted as a locative existential. In the context of a possessive phrase bearing a genitive-marked possessor, it is interpreted as a possessive existential. (Note that Turkish has no verb have and (25) is the canonical way of expressing possession.) Consider the following examples, where we can see an example for both cases, respectively:

(24) Ev-de bir misafir var.
    house-LOC a guest EXST
    ‘There is a guest at home.’

(25) Benim bir kız-*(im) var.
    my a daughter-1.POSS EXST
    ‘I have a daughter.’

Since the possessive marker is obligatory in (25), it shows us that in cases where the possessive phrase is new information, possessive marking is not optional. When we have an NN%N as the possessee in a possessive phrase, then again, possessive marking is obligatory:

(26) benim bir ev kedi-*(im) var
    my a house cat-1SG.POSS EXST
    ‘I have a domestic cat.’

(27) *benim bir ev kedi-si var
    my a house cat-SIN EXST
    Intended: ‘I have a domestic cat.’
Crucially, in cases where the possessor is a NN%N and the construction is allowed to drop the possessive agreement marker, the compound marker obligatorily surfaces (also noted by Kharytonava 2011), as exemplified in (28):

\[(28) \quad \textit{bizim ev kedi-*(si) çok akıllı}
\]

\[\text{our street cat-SIN very smart} \]

‘Our domestic cat is very smart’

It appears that in cases where agreement morphology and compound marker are both potentially marked, it is the agreement marker that surfaces as we have seen in section 2.2.2. When the agreement marker does not surface as in (26), where the possessor is a topic, the compound marker mysteriously surfaces, another observation that needs to be accounted for.

2.3.5 M-reduplication

Let us finally look at a peculiar case of reduplication, \(m\)-reduplication (henceforth, \(m\)-red) in Turkish and how it interacts with Turkish NN%Ns. This kind of reduplication in Turkish targets nouns and leads to the semantic interpretation to the effect of “and the like; similar things” as in the following examples:

\[(29) \quad \textit{böcek mücek} \quad \text{(30) \quad \textit{arı marı}}
\]

\[\text{bug M-RED} \quad \text{bee M-RED} \]

‘bugs and the like’ ‘bee(s) and the like’

The \(m\)-reduplicated noun is derived by echoing the entirety of the noun except the onset of the first syllable, which is replaced by \([m]\). In cases where there is no onset, \([m]\) is inserted while in cases where the word begins with \([m]\), \(m\)-red is ruled out.

\[(31) \quad \text{*\textit{masa masa}}
\]

\[\text{table M-RED} \]

Intended: ‘table(s) and things like that’
The set of the expression in (29) includes all the objects in the world that are like bugs including the bugs themselves. In many cases, Turkish $m$-red resembles English $shm$-reduplication. However, while the latter cannot target arguments (Nevins and Vaux 2003), the former can. Hence, we can say that Turkish $m$-red is not sentsitive to the grammatical function of the nP in the sentence while English $shm$-reduplication is, as shown in (32a-b). English $shm$-reduplicated forms, therefore, typically appear as hanging topics, as in (33).

\[(32)\]
\[\text{a. } \text{Um-ar-im ev-de böcek möcek yok-tur.} \]
\[
\text{hope-AOR-1SG house-LOC bug MRED NEG.EXST-EPIS}
\]
\[\text{‘I hope there are no bugs or the like in the house.’}\]

\[\text{b. } \text{*I hope there are no bugs shmugs in the house.}\]

\[(33)\]
\[\text{Bugs shumgs, I hear they are a great source of protein!}\]

Let us now see how this type of reduplication interacts with NN%N. Consider the following examples:

\[(34)\]
\[\text{a. sokak kedi-si} \]
\[\text{street cat- SIN}\]
\[\text{‘street cat (=stray cat)’}\]

\[\text{b. sokak mokak kedi-si} \]
\[\text{street M.RED cat- SIN}\]
\[\text{‘cat(s) (who live) on streets and the like’}\]

\[\text{c. sokak kedi-si medi-si} \]
\[\text{street cat- SIN M.RED}\]
\[\text{‘cat(s) and the like (who live) on streets/ street cats and the like’}\]

\[\text{d. sokak kedi-si mokak kedi-si} \]
\[\text{street cat- SIN M.RED}\]
\[\text{‘street cats and and the like’}\]
The compositional compound in (34a) consists of the nouns sokak, “street” and kedi, “cat” which together with the compound marker forms a compound that could be translated into English as “street cat” or “stray cat.” (34b) and (34c) show that either one of these constituents are legitimate targets for m-red as well as the compound in its entirety, as seen in (34d). Consider another example, which is not a compositional compound in (35a) and its behavior under m-red in (35b-d):

(35)  

a. Kül- kedi-si
      ash cat- SIN
      ‘Cinderalla’

b. *Kül- mül kedi-si
      ash M.RED cat- SIN

c. Kül- kedi-si medi-si
      ash cat- SIN M.RED
      ‘Cinderella and the like’

d. Kül- kedi-si mül-kedi-si
      ash cat- SIN M.RED
      ‘Cinderella and the like’

Any theory of NN%N formation in Turkish must explain why individual constituents of the compound as well as the entire compound are legitimate targets for m-red, and explain why (35c) and (35d) are acceptable while (35b) is not. I return to this issue in Chapter 3.

2.3.6 Maximally lexicalized forms

We have thus seen that Turkish NN%Ns bear a compound final suffix, -(s)I(n) that is sensitive to particular morphological and syntactic operations, which, as a matter of fact, is an extremely productive way of forming NN%Ns. There is, however, a small set of word-sized units, historically bearing a compound structure, which have undergone
reanalysis of some sort, such that the compound marker is no longer an individual morpheme. These are vanishingly rare, but they, nevertheless, should be differentiated from the more general case. Some examples are in (36-40):

(36)  
ayak-kab-ı  
foot-case-SIN  
‘shoe’  

(39)  
on/yüz/bin-baş-ı  
ten/hundred/thousand-head-SIN  
‘corporal, captain, major’  

(37)  
hanım-el-i  
lady-hand-SIN  
‘honesuckles’  

(40)  
kahve-reng-i  
coffee-color-SIN  
‘brown’  

(38)  
deniz-alt-ı  
sea-under-SIN  
‘submarines’  

To illustrate how they behave as simplex words rather than compounds, consider the behavior of -(s)I(n) in the presence of the plural in (39).

(36’)  
ayak-kab-ı-lar  
foot-case-SIN-PL  
‘shoes’  

(39’)  
on/yüz/bin-baş-ı-lar  
ten/hundred/thousand-head-SIN-PL  
‘corporals, captains, majors’  

(37’)  
hanım-el-i-ler  
lady-hand-SIN-PL  
‘honesuckles’  

(40’)  
kahve-reng-i-ler  
coffee-color-SIN-PL  
‘(shades of) brown’  

(38’)  
deniz-alt-ı-lar  
sea-under-SIN-PL  
‘submarines’  

By
In these examples, unlike in regular NN%Ns, the plural has to follow the compound marker. What appears to be a compound marker in (36‘-40’), as a matter of fact, is not sensitive to any of the operations observed earlier. Therefore, in the rest of this dissertation, I do not discuss these examples any further. Note that these are vanishingly rare and unproductive, and there is nothing structural or semantic about these examples that might have led to their reanalysis as maximally lexicalized forms, other than possibly pure chance.

2.3.7 NN%Ns without the compound marker

There is a set of listed nominal compounds, which have the form of NN%N, but do not bear the compound marker, -(s)İ(n).

(41)  
\( \text{baba -anne} \)  
father mother  
\('\text{paternal grandmother}'\)

(44)  
\( \text{kuzey batt} \)  
north west  
\('\text{northwest}'\)

(42)  
\( \text{serçe parmak} \)  
sparrow finger  
\('\text{pinky}'\)

(45)  
\( \text{top sakal} \)  
ball beard  
\('\text{goatee}'\)

(43)  
\( \text{hamsi tava} \)  
anchovy pan  
\('\text{fried anchovies}'\)

(46)  
\( \text{tavuk güveç} \)  
chicken casserole  
\('\text{chicken casserole}'\)

Some of the NN%Ns lacking the compound marker are found in special terminologies, such as kinship terms, as in (41) and directions, as in (44). Some others, as in (42) and (45) modify the head noun with an attribution, such as size and shape. This type of NN%N lacking the compound marker is highly productive, especially with modifiers denoting material. I take the attributive non-heads in such examples to be adjectives.

Finally, examples, such as (43) and (46) denote a locative relation between the two
constituents, such that the second noun is a location for the first. These head initial compounds are also rare and are typically culinary terms as in the examples.

In the rest of this dissertation, I do not discuss such examples any further, but assume that their underlying structures are different from those of NN%Ns with the compound marker. Assuming that this is the case, the presence of such compounds lacking the compound marker do not pose counter-evidence to the analysis proposed for NN%Ns presented in Chapter 3.

2.4 Literature

Turkish NN%N with -(s)İ(n) have been widely studied in Turkish linguistics because it provides us with a test case to investigate the morphology-syntax interface. Such compounds, bearing a compound-final suffix that is sensitive to several syntactic operations, show both lexical and syntactic properties. They have been compared to NN%N lacking -(s)İ(n) (Dede 1978, Yükseker 1987, van Schaaik 2002, Kharytonava 2011, Ralli 2013) and to possessive phrases (Lewis 1967, Dede 1978, Kornfilt 1984, Yükseker 1987, Göksel 2007). Particularly because it cannot co-occur with possessive markers, -(s)İ(n) has been analyzed as an agreement marker by some of these authors (e.g. Kornfilt 1984). Because it derives new words, it is also analyzed as a linking element by some others (e.g. van Schaaik 2002). In this final descriptive section, I provide a brief summary of literature relevant to the analysis provided in this chapter.

2.4.1 The compound marker as an agreement marker

-(s)İ(n) has been analyzed as a possessive marker by several authors (Lewis 1967, Dede 1978, Kornfilt 1984, Yükseker 1987) mainly because it has the same phonological shape
as the 3rd person possessive marker and it cannot co-occur with other possessive markers.

Kornfilt (1984: 60-62) discusses three types of structural Case assigned under government in Turkish: (i) Accusative by V, (ii) Nominative by “verbal” AGR in tensed sentences, and (iii) Genitive by “nominal” AGR in non-tensed sentences. These are all instances of structural Cases governed by elements with Case features sensitive to referentiality of their phonological host. When the host is referential, an overt structural Case is assigned; when the host is non-referential, a phonologically null counterpart is assigned. Among the three types of structural Case alternation, it is possibly the first one that received most attention in the literature, which has been widely discussed for Turkish (Enç 1991, Aydemir 2004, von Heusinger and Kornfilt 2005) and other languages, such as Persian (Karimi 1996, 2005) and Spanish (von Heusinger and Kaiser 2007), and has come to be known as Differential Object Marking (DOM, Bossong 1985, Aissen 2003). In the example pairs below, the object in the first one is differentially marked with the accusative because it refers to a specific book the speaker has in mind and assumes that the hearer also knows of, whereas in the second example, the speaker is not referring to a specific book.

    Ayşe daughter-GEN-DAT book-ACC read-PST
    ‘Ayşe read the book to her daughter.’

    Ayşe daughter-GEN-DAT book read-PST
    ‘Ayşe read book(s) to her daughter.’

While the object in the first example refers to a specific book, the second one is not referential, and thus receives a kind-level reading. Note that the indirect object in the
second example receives the dative, as in the first example, despite the lack of the accusative on the direct object. Such an alternative, as Kornfilt (1984, 2009 and elsewhere) discusses, is also attested on the subjects of non-finite sentences, which may or may not receive the Genitive case depending on the referentiality of the host noun.

(48)  a. [köy-ü bir haydut-un bas-tığ-un]-ı duy-du-m
      village-ACC a robber-GEN raid-FN-3SG-ACC hear-PST-1SG
      ‘I heard that a (certain) robber raided the village.’ (specific for all speakers)

     b. [köy-ü haydut bas-tığ-un]-ı duy-du-m
        village-ACC robber raid-3SG-ACC hear-PST-1SG
        ‘I heard that robbers raided the village.’ (non-specific, generic reading as the only reading) (Kornfilt 2009: 84)

Kornfilt (1984:62) asks whether the Genitive marking on the possessor NP within possessive NPs share the property of being dependent on referentiality as well. Since it does, this provides us with an additional argument in favor of structural Case being assigned under government and the status of Agr as a governor. In other words, the examples in (49a) and (49b) differ from one another only in the referentiality of the first constituent in the former, thus the overt genitive marker, and the lack of it in the latter. She therefore analyzes nominal compounds with -(s)İ(n) as instances of possessive NPs with a non-referential subject.

(49)  a. kadın-ın hak-lar-ı
       woman-GEN right-PL-SIN/3.POSS
       ‘the woman’s rights’

     b. kadın hak-lar-ı
       woman right-PL-SIN/3.POSS
       ‘women’s rights’

Kornfilt (1984) claims that (49a) and (49b) must have the same underlying structure because (i) the latter bears the same person agreement as the former, (ii) and the first constituent cannot scramble away in the latter just like other non-referential NPs with abstract structural case in Turkish. One might claim that the compounds cannot have the
same underlying structure as possessive phrases because the first noun in compound constructions does not have to be the possessor. Kornfilt (1984) states that this is true of possessive NPs, too:

(50)  a. İstanbul’un feth-i
      Istanbul-GEN conquest-3.POSS
      ‘Istanbul’s conquest’

      b. Şekspir’in eser-ler-i
      Shakespeare-GEN work-PL-3.POSS
      ‘Shakespeare’s works’

She concludes that “[o]nce the notion of “possession” loses its importance with respect to these constructions, the semantic difference between “possessive NPs” and “compounds” becomes very blurred, and, possibly, non-existent” (1984: 64). In Chapter 3, section 3.3, I follow Kornfilt (1984) and claim that the underlying structure of NN%Ns and possessive phrases are the same.

Yükseker (1987) claims that NN%Ns with -(s)İ(n), despite the fact that they are listed as compound words, are “syntactic words” in the sense of Di Sciuullo and Williams (1987), who define syntactic words as listed syntactic objects (e.g. idioms). Such linguistic objects are atomic just like simplex words as their internal structure cannot be modified by syntax. For example, none of the following constructions can mean “die” except the last one, which is the listed form:

(51)  a. *kick the scuttle
      b. *kick their bucket
      c. *boot the bucket
      d. kick the bucket

There are at least two problems with this analysis. First, the listed NN%N compound does not have to be semantically non-compositional like the idiom in (51d). In other words, a listed compound can either be semantically compositional or idiosyncratic. Second, the internal structure of an NN%N is visible to syntax. I address this issue of
NN%Ns in Turkish in Chapter 3, section 3.1.

2.4.2 The compound marker as a linker

Most lexicalist approaches to NN%Ns in Turkish consider the -(s)ı(n) suffix to be an instance of a compound linker (Göksel and Haznedar 2007, Göksel 2009, van Schaaik 2002) either with the assumption that -(s)ı(n) is at least historically related to the 3rd person agreement marker (Göksel and Haznedar 2007, Göksel 2009) or its resemblance to the 3rd person agreement marker is pure coincidence (van Schaaik 2002).

Göksel (2009) claims that the structural similarity between a possessive phrase and a compound is because the “possessive force” in the former was lost and -(s)ı(n) was reduced to a linking element (LE). She proposes that the structure in (52b) derives from the one in (52a), the structure proposed by Arslan-Kechriotis (2006: 63) for possessive phrases. The PossP losing its possessive force, becomes an NP:

(52) a. PossP
    DP Poss°
    NumP D°
    NP Num°

Göksel (2009) claims that the derivation of NN%Ns belongs to the morphological component, as it produces new words. She states that the analysis in (52b) explains why
the plural marker precedes the LE since the NumP is originally inside the PossP. She also claims that this approach explains why the LE cannot co-occur with possessive markers because there is only one slot for a possessive marker.

Under this analysis, it is not clear why there is only one slot for a linker/possessive marker because the NP in (52b) might well be selected by a PossP, which would have its own Poss head. Further, though a theoretical matter, it is not clear how morphology can borrow a structure (possessive) from syntax to form words (compounds) in a grammatical architecture where morphology feeds the syntax. Again, more on lexicalist analyses is presented in Chapter 3, section 3.1.

Kharytonava (2011), who adopts a Distributed Morphology account of Turkish NN%Ns, claims that the compound suffix is a little n° head, which is specified for deriving nominal compounds. In other words, she claims that the compound suffix is a compound linker or marker, but its derivation takes place entirely in syntax before the construction receives a phonological form. She claims that little ns in Turkish are semantically empty and they are simply categorizers, such that the n head for simple nominals (simplex words) is headed by Ø while compound structures (NN%N) are headed by -(s)İ(n), which carries certain person and number features. Kharytonava (2011) assumes that -(s)İ(n) as an agreement marker and -(s)İ(n) as a compound marker are different morphemes. But, the latter carries person and number features, too, which are visible to further syntactic operations. Kharytonava (2011) proposes that the compound suffix -(s)İ(n) in Turkish NN%Ns cannot co-occur with agreement suffixes when selected by a PossP due to a Local Dislocation rule, which deletes the person and number features
of -(s)\(I(n)\) before it is spelled out. Her analysis is adapted in (53b) for the example in (53a):

(53) a. *bizim sokak kedi-imiz*
    
    our street cat-1PL.POSS
    ‘our street cat’

b. 

Since Poss c-commands \(n^\circ\) of the entire compound, which would otherwise be the position of exponence for the compound suffix, it deletes the number and person features at this position by means of an impoverishment rule before phonological insertion takes place. I return to Kharytonava’s analysis in Chapter 3 and claim that failure of the compound marker to co-occur with an agreement marker is not a result of a deletion rule as represented in (53b), but because the compound marker in these cases never gets realized in the first place.

### 2.5 Summary of descriptive observations

In previous sections, I have discussed several properties of NN\%N bearing the suffix -
Any thorough analysis of Turkish NN%N must account for these observations. A summary of the descriptive observations regarding the behavior of the compound marker -(s)İ(n) is provided in Table 1. In addition to these observations, a sound analysis of Turkish NN%N must also capture the fact that such compounds are productive, can be listed, bear a phrasal stress and are recursive.

Table 1: Summary of descriptive observations regarding -(s)İ(n)

<table>
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<tr>
<th>Observations</th>
<th>Statement</th>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td><strong>Observation 1: Sin and the Plural</strong></td>
<td>The plural has to precede -(s)İ(n).</td>
<td>sokak kedi-ler-i / *kedi-si-ler street cat-PL-SIN / cat-StN-PL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘street cats’</td>
</tr>
<tr>
<td><strong>Observation 2: Sin and the Possessive</strong></td>
<td>When a NN%N compound enters a possessive phrase as a possessee, -(s)İ(n) cannot co-occur with possessive agreement markers.</td>
<td>bizim sokak kedi-(*si)-miz our street cat-(*SIN)-1PL.POSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘our street cat’</td>
</tr>
<tr>
<td><strong>Observation 3: Sin and the Possessive-Free Genitive</strong></td>
<td>When a NN%N compound enters a possessive phrase a possessee and the possessive agreement marker does not surface for information structure reasons, -(s)İ(n) obligatorily surfaces.</td>
<td>bizim sokak kedi-si our street cat-StN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘our street cat’</td>
</tr>
<tr>
<td><strong>Observation 4: Sin and Suspended Possessive</strong></td>
<td>When NN%N compounds are possesses in a coordinated structure of possessive phrases and the possessive marker is suspended to the last conjunct, -(s)İ(n) cannot co-occur with the possessive marker in the final conjunct and it obligatorily surfaces in the non-final conjuncts.</td>
<td>bizim av köpeği-i our hunting dog-SIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ve sokak kedi-(*si)-miz and street cat-(*SIN)-1PL.POSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘our hunting dog and street cat’</td>
</tr>
<tr>
<td><strong>Observation 5: Sin and M-Reduplication</strong></td>
<td>Both the entirety of an NN%N and its individual constituent Ns can be m-reduplicated. When the entire compound or the head N is m-reduplicated, the reduplicated form includes -(s)İ(n). Semantically opaque NN%N differs from transparent ones in that the non-head N cannot be m-reduplicated.</td>
<td>sokak kedi-si mokak-kedisi street cat-StN M-REDUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sokak kedi-si medisi street cat-StN M-REDUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sokak mokak kedi-si street M-REDUP cat-StN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kül kedi-si mül-kedisi ash cat-StN M-REDUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘Cinderella and the like’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kül kedi-si medisi ash cat-StN M-REDUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Kül mül kedi-si ash M-REDUP cat-StN</td>
</tr>
</tbody>
</table>
We have also seen some pointers in section 2.3 that lexicalist approaches to NN%N formation in Turkish run into problems. In the next chapter, I provide an analysis of NN%N from a pre-syntactic (lexical), syntactic and a post-syntactic perspective, and show that the pre-syntactic approaches are the least likely ones to capture the observations listed in Table 1.
CHAPTER 3

A POST-SYNTACTIC ANALYSIS OF TURKISH N+N PRIMARY COMPOUNDS

3.1 Introduction

In chapter 2, I discussed several properties of NN%N bearing the suffix -(s)İ(n). I showed that these compounds are productive and recursive, and they bear a phrasal stress. I also discussed several properties of the compound marker, -(s)İ(n). Any thorough analysis of Turkish NN%Ns must account for these observations, which I repeat below.

(1) OBSERVATION 1: -(s)İ(n) and plurals
The plural has to precede -(s)İ(n).

(2) OBSERVATION 2: -(s)İ(n) and possessive phrases
When a NN%N enters a possessive phrase as a possessee, -(s)İ(n) cannot co-occur with possessive agreement markers.

(3) OBSERVATION 3: -(s)İ(n) and the suspended affixation of possessive phrases
When NN%Ns are possessees in a coordinated structure of possessive phrases and the possessive marker is suspended to the last conjunct, -(s)İ(n) cannot co-occur with the possessive marker in the final conjunct (as in Observation 2) and it obligatorily surfaces in the non-final conjuncts.

(4) OBSERVATION 4: -(s)İ(n) and possessive-free genitives
When a NN%N enters a possessive phrase as a possessee and the possessive agreement marker does not surface for information structure reasons, -(s)İ(n) obligatorily surfaces.

(5) OBSERVATION 5: -(s)İ(n) and m-reduplication
When a NN%N is m-reduplicated in its entirety, the reduplicated form includes -(s)İ(n). When only the second constituent is m-reduplicated, the reduplicated form also includes -(s)İ(n).

In this chapter, I tackle each of these observations with both a pre-syntactic (lexicalist) approach and a syntactic approach, and show that the former cannot account for these
empirical facts while the latter can explain most of them (but not all). I therefore consider the third logical option and claim that a post-syntactic component in grammar, as in the Distributed Morphology framework (Marantz 1991, Harley and Noyer 1999, Bobaljik 2006, etc), can account for all of the observations listed above. I therefore claim that the compound marker -(s)lí(n), being a type of agreement marker, is realized only after all syntactic operations are completed and their outputs are sent to the Morphology component for linearization and further morphological operations including agreement.

In section 3.2, I consider a lexicalist approach according to which word formation takes place in a generative lexicon, which precedes syntax (e.g. Di Sciullo and Williams 1987). In lexicalism, it is claimed that there is a strict division of labor between the lexicon and the syntax, such that the former is responsible for the derivation of words and the latter is responsible for the derivation of phrases. According to the Lexicalist Hypothesis (Lapointe 1981, Selkirk 1982, Di Sciullo and Williams 1987), the output of the lexical/morphological component is accessible to syntax only in limited ways. For example, the grammatical category of a lexical derivation is visible to the syntax in order for further syntactic derivations to be possible. However, the internal structure of words are claimed to be invisible to the syntax. Lexicalist theories come in a variety of forms, and it is therefore not possible to address each and every one of these in a subsection of this chapter. I therefore discuss a particular variety in which derivational morphology is claimed to be derived in the lexicon while inflectional morphology is claimed to be derived in syntax (e.g. Anderson 1992).
In section 3.3, I consider three different syntactic approaches\(^1\). According to the first one, agreement morphology is represented categorically in syntactic derivations, which head an Agr(eement)P(hrase) in the sense of Pollock (1989). Movement to the specifier of this phrase is required to check uninterpretable features of its head. According to the second one, agreement is not represented categorically but is derived by means of an AGREE relationship between a Probe and a Goal (Chomsky 2000), such that the [-interpretable] features of the former are checked against their [+interpretable] counterparts of the latter in a local domain. The third and last one (Kharytonava 2011) considers the compound marker -(s)İ(n) a nominalizer, such that it selects compounded structures to derive NN%Ns. This final analysis does not consider -(s)İ(n) the product of an agreement relationship, but instead, a nominalizing little n head that selects \(\sqrt{}\)Ps to form nominal compounds. In this analysis, this little n head is realized as -(s)İ(n) post-syntactically if certain syntactic conditions are met.

In section 3.4, I provide an alternative post-syntactic analysis of Turkish NN%N with -(s)İ(n). In doing so, I assume the general grammar architecture of Distributed Morphology (Halle and Marantz 1993, Harley and Noyer 1999) and its post-syntactic morphological component (e.g. Marantz 1991, Bobaljik 2006), where certain morphological phenomena, such as case and agreement are realized. I provide an analysis of -(s)İ(n) in the light of these assumptions and show that an analysis where this compound marker figures in a post-syntactic module better captures the observations I made in Chapter 2. Section 3.5 concludes this chapter.

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\(^1\) Even though these mostly assume some type of lexical representation or another (e.g. lexical feature specifications), I consider them syntactic for ease of exposition.
3.2 -(s)İ(n) as a pre-syntactic morpheme

The Lexicalist Hypothesis is based on the assumption that word formation and phrase formation belong to two independent components of grammar and that there is a strict division of labor between them (e.g. Anderson 1982, 1992; Chomsky 1970, 1995; Di Sciullo and Williams 1987; Kiparsky 1982a, 1982b, 1982c, 1985; Lapointe, 1980, 1981; Lieber 1980; Mohanan 1986; Selkirk 1982; Spencer 2005; Williams 1981). The hypothesis comes in a strong and a weak variety. The strong variety (e.g. Lapointe 1980, Di Sciullo and Williams 1987) claims that all kinds of words are formed in a component preceding syntax while the weak variety claims that some words, either those that are idiosyncratic, unproductive (e.g. Chomsky 1970) or those that are only derivational (e.g. Anderson 1982, 1992), are formed pre-syntactically. Other words, especially those which bear inflectional material that depends on the surrounding syntactic context, are formed in the syntax or post-syntactically.

In general, the idea that has come to be known as the Lexicalist Hypothesis makes a strict distinction between so-called words and phrases. Words are claimed to be derived in a component that provides input to the syntax. The syntax cannot manipulate the internal structure of words, see their derivational histories or refer to their constituents. Compound nouns are not an exception; on the contrary, they have been central to the claim that a generative lexicon exists because they form a class of listed complex units made up of at least two words, and yet, they can be listed, idiosyncratic and atomic (Selkirk 1982, Anderson 1992).

Lexicalism has a number of incarnations. Despite some important differences in
assumptions, what they all have in common is that the derivation of words -whatever “words” may refer to- is ordered with respect to the derivation of phrases and sentences.

The following hypotheses are among the major claims in the lexicalist literature, which, we might say, together have formed the Lexicalist Hypothesis:

(6) The Generalized Lexical Hypothesis (Lapointe 1981: 125)
No syntactic rule can refer to an element of morphological structure, where element of morphological structure here refers to any morphological feature, any morphological category or any element dominated by such a category.

(7) Word Structure Autonomy Condition (Selkirk 1982:70)
No deletion or movement transformations may involve categories of both W[ord]-structure and S[entence]-structure.

(8) The Thesis of the Atomicity of Words (Di Sciullo and Williams 1987)
Words are “atomic” at the level of phrasal syntax and phrasal semantics. The words have “features,” or properties, but these features have no structure, and the relation of these features to the internal composition of the word cannot be relevant in syntax – this is the thesis of the atomicity of words…

(9) Lexical Phonology and Morphology (Kiparsky 1982c)
Morphological and phonological processes cannot be sensitive to internal structure from preceding levels.
Three decades after these three hypotheses were proposed, the lexicalist hypothesis still prevails with some adjustments:

(10) Revised Lexical Integrity (Spencer 2005: 81)
Syntactic rules cannot alter the lexical meaning of words (including argument structure); syntactic rules have no access to the internal structure of $X^\circ$ categories.

Reviewing the properties of Turkish NN%Ns as they relate to all incarnations of the Lexicalist Hypothesis would be an impossible goal in a single section of this chapter. Therefore, in the rest of this section, I assume the weak version of lexicalism that considers derivational morphology and compounding the responsibility of the lexicon and inflectional morphology the responsibility of syntax (e.g. Anderson 1982, 1992). Before moving on to consider what a lexicalist analysis of -(s)$i(n)$ might look like, let us first make two assumptions:

(11) -(s)$i(n)$ is a derivational morpheme because it is obligatory in the derivation of new words, i.e. nominal compounds consisting of two nouns (e.g. masa örtüsü ‘table-cloth’).


Based on these assumptions, we can hypothesize that a compound in the form of NN%N in Turkish is a terminal node in syntax:

(13) \[ NP \\
      \downarrow \\
      N' \\
      \downarrow \\
      N^\circ \\
\]

\[ masa örtüsü \]

\[ table-cloth \]
Observation 1, according to which the plural marker has to precede the -(s)İ(n) suffix, constitutes a challenge to the hypothesis in (13). If compound nouns are derived in the lexicon, and thus, the compound marker -(s)İ(n) is derivational in nature, then our theory must explain why the plural marker, a morpheme that is inflectional in nature (Di Sciullo and Williams 1987), can precede the compound marker rather than follow it.

Ralli (2008) points out that everything that can follow -(s)İ(n) is a contextual inflection (which in fact happens to be case markers only) while the plural marker, which precedes -(s)İ(n), is an inherent inflection in the sense of Booij (2005): The former type is a kind of inflection that is dependent on the syntactic context, such as an accusative case requirement of a direct object, while the latter type is freely available to the speaker and is not dependent on any syntactic requirement.

According to Ralli (2008), the plural marker is therefore an inherent one, and it thus precedes the compound marker. The examples in (14) manifest that this claim is in fact not true. The plural marker, if inherent, would always add plural semantics to the word it is attached to. But, the example in (14b) shows that the plural marker, which would normally be attached to the possessor as in (14a), can be dislocated if the possessor is pro-dropped. Because the phonological host of the plural marker is no more available, it is locally dislocated to the next available host, which is the possessee2. In other words, the plural attaches to a phonological host that has no syntactic or semantic relation to it.

This example clearly shows that the plural marker -İEr in Turkish is not inherent but

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2 Note that this example is ambiguous; it can mean, ‘their cars,’ ‘his/her cars’ or ‘their car’. It is the final interpretation that is crucial here, where a plural marker realized on ‘car’ does not entail multiple cars, but multiple possessors of a single car.
contextual (in Booij’s terms) because it can be manipulated by syntactic means, such as pro-drop. The examples in (15) show that this generalization is true for NN%N possessees, too.

(14) a. [on-lar-in [araba-si]]
   3-PL-GEN car-SIN
   ‘their car’

         b. [proi [araba-lar-ı]]
   car-PL-SIN
   ‘their car’

(15) a. [on-lar-in [at araba-si]]
   3-PL-GEN horse car-SIN
   ‘their horse cart’

         b. [proi [at araba-lar-ı]]
   horse car-PL-SIN
   ‘their horse cart’

These examples do not show why the plural marker has to precede -(s)İ(n) but they do show that it is not inherent, and thus, the inherent/contextual account of this distribution is ruled out. Note that Observation 1 is especially problematic for the version of weak lexicalism that considers inflectional morphemes syntactic and derivational morphemes lexical (e.g. Chomsky 1970, Anderson 1992) since it would predict the opposite order (i.e. compound marker > plural); the hypothesis stated in (13) wrongly predicts the order in (16):

3 An alternative explanation (Kornfilt 1997) is that -lEr-(s)İ(n) is a 3rd person plural agreement marker; in non-pro-dropped examples, the plural morpheme is deleted due to a redundancy effect:

(a) onlar-in araba-lar-ı ➔ (b) onlar-in araba-si
   they-GEN car-PL-SIN they-GEN car-SIN
   ‘their car’ ‘their car’

When the possessor is pro-dropped, this deletion is not possible due to the licensing and identity requirements of the pro:

(c) pro araba-lar-ı ➔ (d) *araba-si
   pro car-PL-SIN car-SIN
   ‘their car’ Intended: ‘their car’

Similarly, when a non-third person plural possessor is pro-dropped, the possessee is marked with a contextual agreement marker, not with an inherent plural marker:

(e) proı araba-mızı,
   pro car-1PL.POSS
At any rate, examples such as (a), indicate that -lEr, in at least these contexts, is clearly an inflectional/contextual phenomenon sensitive to syntactic principles.
Observation 2, which shows that -(s)İ(n) cannot co-occur with possessive markers is another challenge to the hypothesis in (13). Remember that when a NN%N is acting as a possessee in a possessive phrase, -(s)İ(n) does not get realized, and instead, a marker that agrees with the person and number features of the possessor appears in this position. An example is given in (17):

(17) benim sokak kedi-(*si)-m
my street cat-SIN-1SG.POSS
‘my stray cat’

If compound words are derived in a pre-syntactic component, then one would expect sokak kedi+si to be an input to syntax, whose internal structure is not visible to syntactic operations. And yet, we can see that a part of this lexical input, the compound marker, cannot co-occur with the possessive agreement marker, which clearly shows that it is not indeed the case; syntax would have to see the internal structure of the compound in order to be able to delete the compound marker, which would be a violation of the Lexical Integrity Hypothesis stated in (10), or the Bracketing Erasure Convention of Kiparsky (1982a), which states that internal brackets are erased at the end of each level in grammar, such as in the levels represented in (9).

Observation 3 states that when possessive agreement morphemes are suspended to the last conjunct, the suspension of these morphemes means the emergence of the
compound marker on the non-final conjuncts and the deletion or absence of the
compound marker on the final conjunct (just like the observation stated in Observation
1). To exemplify, let us recall what we mean by suspended affixation of agreement
morphology:

(18) \textit{bizim köpek ve kedi-mız}
\textit{our dog and cat-1PL.POSS}
\textit{‘our dog and cat’}

When the possessors are in the form of NN%N and the agreement morpheme gets
suspended just like it is in (18), then the compound marker in the final conjunct cannot
co-occur with the possessive marker, and its presence means the absence of the
compound marker on the final conjunct. Note that the sentence in (19a) has the same
meaning as its non-suspended counterpart in (19b).

(19) a. \textit{bizim bahçe köpeğ-*(i) ve sokak kedi-(*si)-mız}
\textit{our yard dog-SIN and street cat-SIN-1PL.POSS}
\textit{‘our yard dog and stray cat’}

a. \textit{bizim bahçe köpeğ-(*i)-imiz ve sokak kedi-(*si)-mız}
\textit{our yard dog-SIN-1PL.POSS and street cat-SIN-1PL.POSS}
\textit{‘our yard dog and stray cat’}

Such examples constitute another set of problems for the hypothesis in (13); as a
matter of fact, the suspended affixation phenomenon in its entirety is a challenge to
lexicalism. First of all, the compound marker of the final conjunct cannot co-occur with
the 1\textsuperscript{st} person plural marker. We have already stated why this is a problem for the
hypothesis in (13) above when we were discussing Observation 2 and the relevant
example in (17). Second, the seeming (re)emergence of the compound marker in the non-
final conjunct in (19a) would be a mysterious case because it is again be syntax which
determines the absence or the presence of the compound marker under suspended affixation.

Observation 4, the observation about possessive-free genitives, to the effect that \(-(s)\hat{i}(n)\) has to surface when there is no agreement marker, is another challenge for lexicalism. Let us first refresh our memories with an example:

\[(20)\]
\[\begin{array}{ll}
\text{a. bizim kedi-miz} & \text{b. bizim kedi} \\
\text{our cat-1PL.POSS} & \text{our cat} \\
\text{‘our cat’} & \text{‘our cat’} \\
\end{array}\]

\[(21)\]
\[\begin{array}{ll}
\text{a. bizim sokak kedi-\{*(si)-\}miz} & \text{b. bizim sokak kedi-*(si)} \\
\text{our street cat-SIN-1PL.POSS} & \text{our street cat-SIN} \\
\text{‘our stray cat’} & \text{‘our stray cat} \\
\end{array}\]

The absence of the possessive marker in (20b) does not cause any ungrammaticality. And the absence of the possessive marker in (21b) means the obligatory presence of -\(-(s)\hat{i}(n)\).

A comparison of the phrases in (20b) and (21b) with their counterparts in (20a) and (21a) reveals that there is a subtle difference between the two when uttered in a context. The forms in (20b) and (21b) cannot be subjects of existential predicates, as shown in (22) and (23):

\[(22)\]
\[\text{Bizim kedi-*(miz) var}.
\text{our cat-1PL.POSS EXST} \\
\text{‘We have (a) cat.’}\]

\[(23)\]
\[\text{Bizim sokak kedi-\{*(si/miz}\) var}
\text{our street cat-SIN/1PL.POSS EXST} \\
\text{‘We have a street cat.’}\]

These examples indicate that the presence or absence of the possessive marker is sensitive to discourse matters (e.g. new information) that must figure in post-lexical components, assuming that there is a lexical component. Now, what needs to be
accounted for is why the compound marker -(s)I(n) suddenly appears in the absence of the possessive marker in (21b). We have already said that the absence of the compound marker in the presence of an agreement marker is a challenge to weak lexicalism. Now, we have a reversed case, such that the absence of an agreement marker necessitates the presence of a compound marker. This flimsy character of the compound marker, being sensitive not only to syntactic operations within the DP but also to further syntactic operations, is a challenge for weak lexicalism. To recap, the absence or presence of the compound marker cannot be licensed until the larger syntactic discourse context is considered; at the lexical level, this information is not available yet.

The final observation, Observation 5, regarding m-reduplication, shows that both constituents of an NN%N are permissible targets for reduplication as well as the compound noun in its entirety. However, we have seen that there is at least one restriction. If an NN%N is semantically transparent, then the previous statement is true; however, if we have a semantically opaque compound, then only the second constituent (head noun) and the entire compound are possible targets of m-reduplication, while the first constituent (non-head) is not. Examples for both types of compounds from Chapter 2 are repeated below. Note that the reduplicated forms, if they target the second nouns, include the compound marker -(s)I(n):

(24)  a. sokak kedi-si
      street cat- SIN
     ‘stray cat’

     b. sokak mokak kedi-si
      street M.RED cat- SIN
     ‘cat(s) (who live) on streets and the like’
c. sokak  kedi-si  medi-si  
street  cat- SIN  M.RED  
‘cat(s) and the like (who live) on streets/ street cats and the like’

d. sokak  kedi-si  mokak  kedi-si  
street  cat- SIN  M.RED  
‘street cats and the like’

(25)  a. Kül-  kedi-si  
ash  cat- SIN  
‘Cinderalla’

b. *Kül-  mül  kedi-si  
ash  M.RED  cat- SIN

c. Kül-  kedi-si  medi-si  
ash  cat- SIN  M.RED  
‘Cinderella and the like’

d. Kül-  kedi-si  mül-kedi-si  
ash  cat- SIN  M.RED  
‘Cinderella and the like’

The challenge, regardless of one’s assumptions, is the unacceptability of (25b) in the face of the acceptability of (25c). Neither kül ‘ash’ nor kedi ‘cat’ is semantically relevant to the semantics of the entirety of the whole compound. And yet, the former is not a legitimate target of m-reduplication while the latter is.

One might argue that the difference between (24b), where the first constituent is a legitimate target for m-reduplication, and (25b), where the first constituent is not a legitimate target, results from their respective derivational histories, with the assumptions of a type of weak lexicalism that takes semantic idiosyncracy to be central to the lexicon, such that the compositional compound in (24a) is the product of an entirely syntactic operation while the idiosyncratic one in (25a) is the product of a pre-syntactic component because these examples are distinct from one another in their semantic compositionality.
This may explain why (25b) is not an acceptable form while (24b) is. However, this does not explain why (25c) is acceptable. If one of the elements of a semantically non-compositional compound is not accessible for m-reduplication because the compound is formed in the lexicon, then one would expect the other element to behave in the same way. This clearly is not the case. The first element in (25c) is an opaque noun that is semantically irrelevant to the meaning of the compound it belongs to just as much as the head noun’s semantics is irrelevant to it.

To recap, even when we assume that m-reduplication holds at a lexical component that precedes syntax, we cannot explain the difference between (26b) and (26a) as well as the difference between (26b) and (26c):

\[(26) \quad \begin{array}{ccc}
    a. & \quad b. & \quad c. \\
    N^O & \quad N^O & \quad N^O \\
    sokak mokak kedisi & *kül mül kedisi & kül kedisi medisi \\
\end{array}\]

One final property of Turkish NN\%Ns that needs to be mentioned herein is their recursivity. We have said in Chapter 2 that there are two types of recursivity at hand here. In the first type, as in (27a), the compound can have multiple non-heads (henceforth, Type I recursivity), while in the second type, as in (27b), the non-head can be an NN\%N on its own right (Type II recursivity):

\[(27) \quad \begin{array}{ccc}
    a. & \quad b. \\
    [sokak \ [kedi \ yavru-su]] & \quad [[sokak \ kedi-si] \ yavru-su] \\
    \text{street cat offspring-SIN} & \quad \text{street cat-SIN offspring-SIN} \\
    \text{‘stray kitten’} & \quad \text{‘stray cat offspring’} \\
\end{array}\]

Examples like (27a-b) with recursion do not cause an immediate challenge to the hypothesis in (13) insofar as we assume that recursion is not a property of syntax but also the lexicon, and very large lexical derivations can be X° inputs to syntax. However, if the
subparts of this input can be syntactically modified, as the following examples from Chapter 2 illustrate, then our pre-syntactic hypothesis of compound derivation runs into a problem.

(28) [[[TED [İstanbul Kolej-i]] Vakf-ı ] Özel Lise-si]
TED İstanbul College-siN endowment-siN private high.school-siN
‘Private TED Istanbul College Endowment High School’

(29) [ekonomi [eski bakan-ı]]
economy former minister-siN
‘former minister of economic affairs’

If adjectives can intervene between subparts of a compound, then the internal structure of the compound must be visible to syntax, which poses a challenge to the hypothesis in (13). The examples in (28) and (29) clearly show that subparts of NN%Ns can be modified, a violation of the Lexicalist Hypothesis (e.g. Di Sciullo and Williams 1987) as well as the No Phrase Constraint of Botha (1984), which states that phrases cannot be embedded in compound words. (See Sato 2010 for a more detailed analysis of phrasal compounds in English and Indonesian.)

We have thus discussed a number of observations about the NN%Ns in Turkish and have seen that they pose a challenge to lexicalist analyses of compounds that consider these compounds X° level inputs to syntax, summarized in Table 2.

*Table 2: Summary of a lexicalist account of -(s)I(n)*

<table>
<thead>
<tr>
<th>Observation 1</th>
<th>Observation 2</th>
<th>Observation 3</th>
<th>Observation 4</th>
<th>Observation 5</th>
<th>Recursivity</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak Lexicalism</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Type I: √</td>
<td>Type II: √</td>
</tr>
</tbody>
</table>

The next section reviews syntactic approaches to the derivation of -(s)I(n).
3.3 -(s)İ(n) as a syntactic morpheme

Let us now assume that -(s)İ(n) figures in syntax. We can think of at least three types of analyses in which this is the case, depending on whether it is represented categorially or not: (i) as a categorial head representing agreement, (ii) as a syntactic morpheme derived by a checking operation, (iii) and a categorial head representing nominal compoundhood.

In (i), agreement is represented categorially in syntax, such that an AgrP is headed by an Agr that bears some agreement features. This view of agreement was widely accepted after Pollock’s (1989) split-INFL proposal that T and Agr are separate projections. I discuss this approach in section 3.3.1 and review whether it can predict the observations discussed in Chapter 2.

The assumptions in (ii) became widely accepted after Chomsky (1995) dispensed with AgrPs on grounds that only those functional projections whose features are visible to LF (e.g. CP, TP, vP) must have categorical representations, and AgrPs, which bear [-interpretable] features, are not among them. In this view, agreement morphology is realized by means of a feature checking or AGREE, a relationship between a functional head bearing [-interpretable] features, called a Probe, checking these features against a matching set of [+interpretable] features, called a Goal within a local domain. I consider this approach in section 3.3.2.

The final alternative analysis in (iii) was proposed by Kharytonava (2011), according to whom the compound marker -(s)İ(n) in Turkish is a nominalizer that derives NN%Ns. In her analysis, the compound marker is represented categorially as a little n head. Because of this aspect of her proposal, I review her analysis of -(s)İ(n) here in this section.
despite the fact that this little \( n \) head is realized post-syntactically in her analysis. Section 3.3.3 reviews this approach.

3.3.1 \(-s \hat{I}(n)=Agr^o\)

Pollock (1989) proposes that the Infl category must be split into at least two categories, one representing Tense with a TP projection, and the other representing Agreement with an AgrP projection. Chomsky (1991) claims that there should in fact be two phrases responsible for Agreement, an AgrS(subject)P, which dominates TP, and an AgrO(object)P, which dominates the VP. These phrases would be responsible for subject and object agreement, respectively, as well as nominative and accusative case by means of a spec, head relationship under AgrSP and AgrOP represented in (30):

(30)  a. AgrSP  
\[ \begin{array}{c} \text{NP}_i \\ \text{NOM} \\ \text{AgrS'} \\ \text{AgrS} \\ \text{TP} \\ \text{...f...} \\ \text{Feature checking} \end{array} \]

b. AgrOP  
\[ \begin{array}{c} \text{NP} \\ \text{ACC} \\ \text{AgrO'} \\ \text{AgrO} \\ \text{VP} \\ \text{...f...} \\ \text{Feature checking} \end{array} \]

(Boeckx 2006).

We can argue that the same type of operations hold in the nominal domain, too. Let us assume the following structure in this section for possessive agreement, in which the AgrP is the locus for GEN and its head acts as a Probe bearing [-interpretable] features, which need to be checked:

(31) AgrP  
\[ \begin{array}{c} \text{NP} \\ \text{GEN} \\ \text{Agr'} \\ \text{SC} \\ \text{Agr} \\ \text{...f...} \end{array} \]
Let us also assume that the structure of an NN%N is (32), whereby a DP selects an AgrP. In this structure, the possessor moves to spec, AgrP and checks its [+interpretable] \( \phi \) features in a specifier, head relationship against the possessee’s [-interpretable] features before moving to the specifier of the DP for genitive case (see Chapter 2, section 2.4.1). The possessee, on the other hand, head-moves to Agr\(^{\circ}\) and receives agreement morphology before head-moving to D to receive referentiality features (e.g. specificity, definiteness). Note that the derivation starts out as a SC. This SC is the locus for semantic interpretation of primary compounds (e.g. NP1 has NP2; NP1 is a location for NP2; NP1 is a sub-category of NP2, etc.).

Let us also assume that possessive phrases are derived in the same manner; there is no structural difference between (33a) and (33b), which only differ in whether the first element is specific or not. Recall from Chapter 2 that specific/referential nouns in this position must be genitive-marked (Kornfilt 1984).
According to Observation 1, the plural suffix precedes -(s)İ(n), which means, assuming the structure in (32), the NumP must be between the lower NP and the AgrP. This is typologically not unusual. For example, Alexiadou, Haegeman and Stavrou (2007), considering a number of languages, present the extended order of phrases in the nominal domain as in (34).

(34) \[DP > \text{AgrP} > \text{Num(ber)}P > \text{Gen(der)}P > \text{nP} > \text{NP}\]

To illustrate, the head of the compound receives number after it head-moves to Num° before it receives agreement features in Agr° as represented in (35), which clearly shows that an AgrP analysis of -(s)İ(n) can correctly predict Observation 1.

(35)
**Observation 2**, which shows that -(s)İ(n) cannot co-occur with possessive phrases, poses a challenge for an AgrP analysis of compounds at first encounter. If the structure in (32) becomes the object in a possessive phrase, there would be nothing in particular that would disallow structures, such as (36) and (37), in which the compound marker and the agreement marker co-occur:

(36) \([\text{[benim [ masa-örtü-(*sü)]-m]} \text{ my table-cloth-SIN-1SG.POSS} \text{ ‘my table cloth’}\]

(37) \([\text{[konsu-nun aksam-sefa-(*si)]- si]} \text{ neighbor-GEN evening-joy-SIN-SIN} \text{ ‘the neighbor’s four-o’clock’}\]

In other words, the structure in (32) can be recursively applied, such that the DP derived in (35) would be the object of another possessive SC, which would have another possessor in the spec of this SC. If this were the case, then each cycle of DP would have its own agreement morphology and the examples in (36) and (37) would be incorrectly predicted to be acceptable. But, as we can see in these examples, two morphemes of the same type (i.e. -(s)İ(n) and possessive agreement markers) cannot follow one another.

To exemplify, let us remember the examples which show the two types of recursivity that can apply to NN%Ns in Turkish, repeated below in (38). Note that (38a) has only one exponence of the compound marker.

(38) a. \([\text{sokak [ kedi yavru-(*su)-su]}] \text{ Type I recursivity} \text{ street cat offspring-SIN-SIN} \text{ ‘stray kitten’}\]

b. \([\text{[sokak kedi-si]} \text{ yavru-su} \text{ Type II recursivity} \text{ street cat-SIN offspring-SIN} \text{ ‘stray cat offspring’}\]
The Type II recursivity case in (38b) can readily be derived by the structure in (32). The first constituent sokak kedi-si “street cat” is derived in the same exact way as in (32). Then, this becomes the subject of another SC, whose complement position is occupied by yavru “offspring.” Finally, this SC forms the basis of another DP, as shown in (39). Note that if DPs move to receive case, then DP1 must be moving to the specifier of the highest DP to receive gen assuming Kornfilt’s (1984) analysis of Turkish NN%Ns (see Chapter 2, section 2.4.1).

(39)

However, when we apply the analysis in (32) to derive examples Type I recursivity, such as (38a), then we run into a series of problems. Consider the representation in (40), which involves two cycles of the structure in (32), where the first cycle constitutes the complement of the SC in the second cycle:
There is nothing wrong in the derivation of the first cycle. However, after this cycle is completed, the rest of the analysis has at least three problems: (i) The compound relator P cannot take a DP as a complement because the head of a compound must be an N/NP, not a DP. (ii) If NP2 moves to spec of AgrP2 to check its [+interpretable] features against the [-interpretable] features at Agr, then this would result in a second exponent of -(s)\(\hat{l}(n)\) and thus two compound markers following one another, which, as we have already seen in (38b), is not allowed. (iii) Most importantly, the structure in (40) cannot derive a second cycle because nothing can move to the head position of the AgrP2 and DP2 out of
the first cycle respectively: the complex head $N^o_j + Agr^o + D^o$ cannot move out because DP1 constitutes a phase (Chomsky 2005, Svenonius 2004, Legate 2002) and moving out of this phase would be forbidden; the entirety of DP1 cannot move either because DPs as phrasal elements can only move to empty specifier positions to check case or other features. (According to Chomsky (2001) only the specifier of a phase is the position from which an element can move out.) Furthermore, even if it could, it would not because its uninterpretable feature would already be checked after head-moving to Agr in the first cycle, and thus, there would be nothing left to motivate such a further movement operation. We can therefore say that an AgrP analysis of the compound marker -$\text{(s)İ(n)}$ can predict Type II recursivity, such as (38b), with a single exponence of -$\text{(s)İ(n)}$ per cycle, as represented in (39), but cannot predict Type I recursivity, such as (38a), with a single exponence of -$\text{(s)İ(n)}$ in the entire complex compound. The examples in (36) and (37) also have Type II recursivity, and they therefore cannot be derived for the same reasons we discussed for the example in (40).

The observation that two exponents of the same type of morpheme cannot co-occur in Turkish is not a new one. Because it can be applied to several other cases, Kornfilt (1986) claims that morphemes of the same type can never occur in sequence in Turkish, a generalization she calls the “Stuttering Prohibition,” which can be subsumed under morphological haplology, a type of morphological exception where certain inflected words do not allow further marking (Stemberger 1981). It is exactly because of examples like (36) and (37), in which the compound marker -$\text{(s)İ(n)}$ cannot co-occur with agreement markers -$\text{(l)m, (l)n, (l)mİz and –(l)mİz}$ as well as the 3rd person marker –
(s)İ(n) that Kornfilt (1986) claims, “[t]he crucial notion of "similarity" is not one of phonological identity, but rather refers to the category and function of the morphemes involved" (1986: 72-73).

Haig (2002) claims that it is not only morphological similarity but also phonological similarity that derive the Stuttering Prohibition. He presents two types of examples to support this claim, which are both provided in (41) and (42):

(41) ȫl-dür-t
die-CAUS-CAUS
‘cause to kill, have killed’

(42) (bu odada) döv-ül-ün-ür
(in this room) hit-PASS-PASS-AOR
‘it is hit (by human agent) (in this room)’ (Özkaragöz 1986: 77)

Because the causative morphemes in (41) and the passive morphemes in (42) are categorically similar but phonologically dissimilar, Haig (2002) claims that phonological similarity should be included in the definition of the Stuttering Prohibition unlike Kornfilt (1986), who claims that phonological similarity is irrelevant. However, Haig’s claims about the categorial similarity in the causative and passive morphemes in (41) and (42) should be revisited; recent work on causatives suggests that the two exponents of causatives in (41) are, in fact, represented as different categories. For example, Harley (2008) claims that there are two types of causatives, lexical and productive, the former being monoclausal, and the latter being biclausal (at least in scope, binding and adverbial modification). Key (2013) claims that the first CAUS in (41) is of little v type with a ‘cause’ flavor in the sense of Harley (1995), which selects the root √ÖL to derive a transitive verb öldür- ‘kill’ while the second exponent of CAUS head a CAUSP, which would be the locus for introducing an optional causee agent. From this perspective, these two exponents of CAUS are in fact two different categories projecting two different types
of phrases, vP and CAUSP, respectively.

A similar argument can be made for (42), which actually translates as, ‘you get beaten up here’ where the impersonal you refers to the impersonal passive morpheme, the second PASS, in the example. While the first exponence of PASS is a true passive, the second one is not. One way to show this is the use of causee objects. Consider the following examples, which involve a causative verb, döv, ‘beat.’

(43) Bu oda-da üniversitè öğrencileri dövülür
this room-LOC university student-PL-SIN beat-PASS-AOR

‘In this room, university students are beaten (up).’

(44) *Bu oda-da üniversitè öğrencileri dövülnür
this room-LOC university student-PL-SIN beat-PASS-PASS-AOR

Because (44) cannot take a subject, it is clear that the second exponence of the PASS morpheme cannot be of the passive type in the traditional sense. What appears to be the case is that the first PASS absorbs the agent argument (one who does the beating event, such as the police), the second one absorbs the theme argument, the university students. Even though both of these morphemes are of the valence decreasing type, they have different functions and they are thus different types of projections.

Because we conclude that the examples (41) and (42) are not counterexamples to the Stuttering Prohibition, we do not have to look for phonological similarity in deciding where this prohibition applies. Going back to Observation 2, which states that the compound marker and agreement markers cannot co-occur, we can continue arguing that the compound marker -(s)I(n) is of the same type as agreement markers because it fails to co-occur not only with its phonological twin, the 3rd person marker but also with other agreement markers which do not have the same phonological shape as -(s)I(n). We thus
conclude that the compound marker and agreement markers cannot follow one another because they are of the same type. What we do not know is how. Is it the case that syntax derives the sequence -(s)İ(n) + agreement morpheme, which then gets morphologically readjusted to meet the criterion required by the Stuttering Prohibition (as proposed by Kharytonava (2011), which I return to in section 3.3.3)? Or, is it the case that this prohibition applies in syntax, which thus never derives the -(s)İ(n) + agreement morpheme sequence in the first place?

To sum up, an analysis of -(s)İ(n) as an Agr head cannot correctly predict Observation 2 because it cannot account for the type of recursivity where multiple non-heads appear in the complex compound without having multiple exponents of the compound marker in sequence. Possessive phrases with NN%N possessees (examples stated in Observation 2) are a type of the latter category, and they, therefore, pose a challenge for an analysis where -(s)İ(n) is an AgrP head.

Observation 3 states that the deletion or absence of an agreement marker under suspended affixation entails the presence of the compound marker if the conjuncts are of the form of NN%N. Below is a pair of examples copied from Chapter 2:

(45) a. (benim) av-köpeği-im ve ev-kedi-m
    my hunting-dog-1SG.POSS and house-cat-1SG.POSS
    ‘my hunting dog and house cat’

    b. (benim) av-köpeği-*i) ve ev-kedi-m
    my hunting-dog-S1N and house-cat-1SG.POSS
    ‘my hunting dog and house cat’

In (45a) two NN%Ns as posseses are coordinated. In (45b), the possessive marker is suspended, which means that it only appears on the final conjunct but not on the non-final
conjunct. This has interesting consequences for the compound marker-(s)I(n). As just stated in Observation 3, it cannot co-occur with an agreement marker in the final conjunct. But, when the agreement marker does not get realized in the non-final conjunct, then the compound marker must surface.

Let us assume the asymmetric phrase structure for compounds proposed by Johanessen (1993) and consider the following representation where two NN%Ns are coordinated under the scope of an AgrP, leaving aside higher projections than the AgrP. Note that the underlying SC has benim “my” as its subject while the entire coordinated phrase is a complement to the predicate PP just as we claimed for the derivation of NN%Ns.

(46)

\[
\begin{array}{c}
\text{AgrP} \\
\text{DP} \\
\text{benim} \\
\text{SC} \\
\text{PP} \\
\text{Agr°} \\
\text{CoP} \\
\text{DP2} \\
\text{ev-kedi-si} \\
\text{house-cat-SIN} \\
\text{Co°} \\
\text{and} \\
\text{av-köpeg-i} \\
\text{hunt-dog-SIN} \\
\text{Co°} \\
\text{DP1} \\
\text{t} \\
\end{array}
\]

Under this analysis, the head of the NN%N in DP2 cannot head-move to the Agr° position for reasons we have discussed above for Observation 3 (i.e. DPs are phases). Even if it could, this would result in a -(s)I(n) + Agr° sequence, which is not allowed. It appears that syntax on its own cannot derive the Stuttering Prohibition, leading us to
think that a post-syntactic component in our grammar architecture may in fact be responsible for deriving these facts. I return to this issue in section 3.4.2.

Observation 4, regarding possessive-free genitives, shows that, in cases where the NN%N possessee lacks a possessive agreement marker, then -(s)İ(n) obligatorily surfaces. Let us recall this observation with the help of the following pair of examples:

(47) a. benim sokak kedi-(*si)-m
    my street cat-SIN-1SG.POSS
    'my stray cat'

    b. benim sokak kedi-*(si)
    my street cat-SIN
    'my stray cat'

In (47a), the presence of the 1st person singular agreement marker requires the absence of the compound marker -(s)İ(n), while in (47b), the absence of the 1st person singular agreement marker requires the presence of the compound marker. We have thus seen several times that the compound marker does not surface in the presence of an agreement marker, and it does surface in the absence of it, a generalization we can comfortably make.

Öztürk, Eser-Erguvanlı and Zimmer (upcoming, henceforth ÖEZ) provide a syntactic analysis of possessive-free genitives, and claim that these constructions have to do with information structure. Note that, their concern is not the observation we made in Observation 3 regarding examples such as (47b), but in fact why possessive-free genitives are available in the first place. Instead of AgrP, they propose a complex D+P head that is responsible for possessive agreement following Larson and Cho (2003). This issue does not affect our AgrP analysis of -(s)İ(n). In (48), I adopt their analysis and
assume an AgrP in the representation, which would be the locus for agreement morphology. This example is just to show our assumptions about possessive-free genitives, and thus, for the purpose of presentation, includes a simplex possessee:

(48) a. *benim kedi*
    my  cat
    ‘my cat’

b. 

In this representation, FP stands for a functional phrase responsible for hosting topics, or old information. When the possessor NP *benim* “my” moves to this position, it has to stop at the spec of the AgrP and the DP to check agreement and referentiality features, respectively. There is one issue in this analysis (which is also acknowledged by ÖEZ): As soon as the possessor NP moves to spec AgrP, it checks its [+interpretable] features [1st, sg] against the [-interpretable] features of its head, which would result in an agreement marker in the PF. In other words, the possessor cannot move to an FP/Topic position.
without doing so. Therefore, a syntactic analysis of agreement is not possible. I return to this issue in section 3.4 and claim that a post-syntactic analysis of agreement better captures the phenomenon of possessive-free genitives in Turkish because it allows us to propose an impoverishment rule, which would delete the agreement features in the context of a TopicP.

Let us recall Observation 5, which is concerned with m-reduplication. We have said that this type of reduplication can target any constituent of a transparent NN%N as well as the entire compound itself. We have also said that if we have an opaque NN%N, both of whose constituents are semantically irrelevant to the meaning of the compound noun, then the second element can be m-reduplicated while the first element cannot. This latter fact contrasts with the transparent compounds. Examples from the previous section are repeated below in (49) and (50):

(49) a. *sokak* *kedi-si*
    street cat- SIN
    ‘stray cat’

    b. *sokak* *mokak* *kedi-si*
    street M.RED cat- SIN
    ‘cat(s) (who live) on streets and the like’

    c. *sokak* *kedi-si* *medi-si*
    street cat- SIN M.RED
    ‘cat(s) and the like (who live) on streets/ street cats and the like’

    d. *sokak* *kedi-si* *mokak* *kedi-si*
    street cat- SIN M.RED
    ‘street cats and the like’

(50) a. *Kül-* *kedi-si*
    ash cat- SIN
    ‘Cinderalla’
b. *Kül- mül kedi-si
   ash     M.RED cat- SIN

c. Kül- kedi-si medi-si
   ash cat- SIN M.RED
   ‘Cinderella and the like’

d. Kül- kedi-si mül-kedi-si
   ash cat- SIN M.RED
   ‘Cinderella and the like’

We might speculate by saying that there is kind of a ‘vagueness’ feature on reduplicated Ns right from the beginning in Numeration, which is interpretable in syntax and thus visible to LF so that the semantic consequences are derived. This feature, when spelled out, has phonological consequences, such that the nominal bearing the [VAGUE] feature gets m-reduplicated at PF.

Such an analysis runs into a problem when we compare (49) to (50). The challenge would be accounting for the observation that the first constituent of (50a) cannot be reduplicated, as shown in (50b), while the second one can, as shown in (50c), despite the fact that they are both semantically opaque. One can argue that, since the second noun is the head, and its reduplication can have semantic consequences over the entire compound, it can be reduplicated unlike the first constituent. However, this analysis must then assume that an idiosyncratic compound, such as (50a), is syntactically derived, so that its constituents are visible to syntax -note that a syntactic morpheme, the compound marker, appears in the reduplicated form- an assumption not typically made in the GB/Minimalism literature, which mostly assumes that idiosyncratic elements enter syntax as single atomic units (Chomsky 1995).

Of course, the discussion above is related to legitimate targets for m-reduplication,
which is not directly related to the AgrP. If \( m \)-reduplication is an operation that holds at the PF component of grammar, which would, of course, follow syntactic operations, then our AgrP analysis of the compound marker \(-(s)\hat{I}(n)\) would predict that any component bearing the compound marker and is a target of \( m \)-reduplication could also bear the \-(s)\hat{I}(n)\ suffix on the reduplicated form. This is borne out in examples (48) and (49); when \( m \)-reduplication targets the second noun or the entire noun, the reduplicated forms all have \-(s)\hat{I}(n)\ in their forms. We can therefore say that the \( m \)-reduplication facts laid out in Observation 5 causes only trivial challenges to an analysis of \-(s)\hat{I}(n)\ as an Agr head, but this analysis would have little to say about the difference between (48b) and (49b). And, of course, it can predict the possibility of compound-internal modifiers discussed in the previous section since on the AgrP analysis, the individual parts of a compound have independent syntactic status and thus can be modified. A summary of this section is provided in Table 3.

### Table 3: Summary of an AgrP account of \( (s)\hat{I}(n)\)

<table>
<thead>
<tr>
<th>( (s)\hat{I}(n))=AgrP</th>
<th>Observation 1</th>
<th>Observation 2</th>
<th>Observation 3</th>
<th>Observation 4</th>
<th>Observation 5</th>
<th>Recursivity</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>( (s)\hat{I}(n))</td>
<td>√</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>?</td>
<td>Type I: X</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type II: √</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3.2 \(-(s)\hat{I}(n)=\text{AGREE}\)

AgrPs are called into question by Chomsky (1995) on the grounds that their heads consist of [-interpretable] features, unlike other functional categories that bear [+interpretable] features, like T, v and D. Once the [-interpretable] Agr features are checked against their [+interpretable] counterparts, they are deleted in syntax with no consequence for the LF component. Chomsky concludes that there is no reason to have such categories.
represented in syntax as categories other than theory internal reasons. Furthermore, in examples such as the ones in (51b-d), it is clear that agreement can arise even when an argument does not overtly move to a position where it can trigger agreement:

(51)  
  a. They declared [three men guilty]  
  b. There were declared [three men guilty]  
  c. There were declared guilty three men  
  d. There were three men declared guilty  (Chomsky 2000: 125)

Chomsky (2000) therefore introduced agreement as a long-distance checking operation, called Agree (henceforth AGREE), which would be responsible for both case and agreement. Movement to spec, TP would thus be an EPP requirement, but not an agreement requirement. The structures in (30) are thus revised as follows (Boeckx 2006):

(51)  
  a.  
      TP  
         T'  
            T°  
              vP  
                  v  
                      v°  
                          VP  
                              NP...  
                                Nominative

  b.  
      vP  
         v'  
            v°  
              VP  
                  NP...  
                    Accusative

In the rest of this section, I assume that nominal agreement in Turkish is derived by checking [-interpretable] features of the D° against the possessor’s [+interpretable] features. I also assume that the specifier of the DP in Turkish is the locus for the genitive case and possessors thus need to move to this position for the EPP:
Observation 1 can easily be accounted for with an AGREE analysis of -(s)İ(n) assuming a numP projection that selects the SC projection, such that number gets realized before the construction merges with a D° that would check its [-interpretable] features against the most local NP in this complement position, which happens to be the possessor. For example, sokak kedi-ler-i “street cats” would be represented as follows:

Just as in the AgrP analysis presented in section 3.3.1, an AGREE analysis of -(s)İ(n) also needs to explain both types of recursivity observed in NN%Ns.
Remember that when a NN%N becomes the possessee of a possessive phrase, the structure is exactly like the left-branching one in (54a), such that neither structure can have two agreement markers (including the compound marker) in the same sequence. This latter type constitutes our Observation 2:

(55) [benim [kedi yavru-(*su)-um]]
    my cat offspring-SIN-1SG.POSS
    ‘my kitten’

Just like the previous AgrP analysis, the left-branching structure in (54b) does not cause a challenge to our AGREE analysis in this section. The NP sokak “street” can check its [+interpretable] features against [-interpretable] features of D multiple times. As a matter of fact, this is allowed in the grammar architecture we are assuming in this section: when a set of [-interpretable] features checks against their [+interpretable] counterparts, the [-interpretable] ones get deleted, and they are, thus, not available for any further checking operations while the [+interpretable] ones remain in the structure, and they can thus participate in further checking operations. (For example, in concord in Romance languages, the interpretable gender, person and number features can check against [-interpretable] features multiple times deriving multiple adjectives all agreeing with the modified noun.) With this assumption, it can be claimed that the multiple exponences of –(s)İ(n) in (48b) are the result of multiple checking operations as represented below:
In (56), the possessor NP *sokak* “street” in the lower DP checks its [+interpretable] features against the [-interpretable] features of the lower D head. Once this cycle is complete, this NP can participate in further checking operations because it bears [+interpretable] features. Furthermore, even if the lower DP constitutes a phase, such that its head and complement are spelled-out in the sense of Chomsky (2001, 2005), this NP can move to higher projections because it is in the specifier position of the lower DP, and is not spelled-out, and can thus, move out of the DP.

Let us now apply this analysis to Type I recursivity in (54a) and (55). The following tree-diagram represents (55):
The problem in (57) that is relevant to the discussion herein is that once the first cycle is completed, it is spelled-out along with the compound marker -(s)İ(n). If this derivation continues, then the possessor benim “my” would check its features against the [-interpretable] features of the higher D, which would then derive a structure in which the possessor marker would have to follow the compound marker, which, as we have said before, is not allowed. This analysis would derive an agreement marker for each DP cycle, but as the examples in (54a) and (55) show, there is only a single marker in each entire structure. We can therefore say that Type I recursivity examples cannot be derived as in (57).

A possible alternative analysis for right-branching examples, therefore, would be to use multiple specifiers inside a single DP projection. Let us assume that there is no SC
projection in possessive/compound phrases and the DP on its own can be the locus for compound noun interpretation. Further, possessors are base-generated in the spec, DP positions and they participate in a feature checking operation in a spec, head configuration. Note that both specifiers are equidistant to the possessee and this representation thus reflects the constituency properties of the phrase.

\[(58)\]

\[
\begin{array}{c}
\text{DP1} \\
\downarrow \\
\text{DP2} \\
\downarrow \\
\text{NP} \\
\downarrow \\
\text{benim} \\
\text{my} \\
\downarrow \\
\text{NP} \\
\downarrow \\
\text{kedi} \\
\text{cat} \\
\downarrow \\
\text{D'} \\
\downarrow \\
\text{D°} \\
\text{yavru} \\
\text{offspring}
\end{array}
\]

The analysis in (58) has at least two problems. First, the multiple specifiers of DP1 are equidistant to the D head, and it would thus be impossible to determine which of the DP/ NPs in this position must check its features against the D head. Second, even though we could claim that one is merged before the other, reflecting the linear and hierarchical order in (58), then the lower NP *kedi* “cat” ought to be the one participating in a checking relationship because it would be more local to the D head. But, as we have seen in Observation 2 and many relevant examples that it is always the highest DP that participates in a checking operation, not the lower ones. We can sum up this discussion by stating that an AGREE analysis of -(s)İ(n) can account for Type II recursivity examples, such (54a), but not Type I recursivity examples, such as (54b) and (55), and therefore, Observation 2 cannot be properly explained.

*Observation 3* would pose a challenge to an AGREE analysis of -(s)İ(n) for similar
reasons. In (59b) the non-final conjunct av köpeği “hunt-dog” can correctly be predicted in this analysis but the final conjunct, which cannot have both the compound marker and the person agreement marker, cannot. We can therefore say that this analysis cannot predict Observation 3, either.

(59) a. (benim) av-köpeği-*i ve ev-kedi-(~*si)-m
   my hunting-dog-SIN and house-cat-SIN-1SG.POSS
   ‘my hunting dog and house cat’

b. *DP
   NP
   D’
   benim CoP D°
   my im Co’
   DP 1SG.POSS
   av köpeği-i ve ev kedi-si
   hunt-dog-SIN and house cat-SIN

Observation 4, which is about possessive-free genitives, cannot be predicted by an AGREE analysis of –(s)İ(n) either. Regardless of our analysis of the NN%Ns, the [+interpretable] features of the possessor noun must be checked before it can move to a Topic position. So, in this analysis, the example in (60a) can never be derived by a structure such as (60b) because the topic NP must first check its features against the head of DP2 before moving to spec, TopicP.

(60) a. benim sokak kedi-si
    my street cat-SIN
    ‘my street cat’
Finally, just like the AgrP analysis, the AGREE analysis of -(s)İ(n) can predict why the m-reduplicated forms have the -(s)İ(n) as long as we assume that such reduplication is a post-syntactic operation. However, such an analysis would not have much to say about the differences between examples, such as (48) and (49). The same discussion laid out in the previous section holds here, too. In other words, some post-syntactic mechanism would be needed to rule out examples where the semantically opaque non-head cannot be a target of m-reduplication, but the semantically opaque head can be. But, of course, our syntactic analysis here in this section would predict the fact that individual elements of an NN%N can be targets of m-reduplication because they are represented as individual NPs in the syntactic representation. They should also be able to be modified due to the same reasons.

A summary of this section is presented in Table 4.

<table>
<thead>
<tr>
<th></th>
<th>Observation 1</th>
<th>Observation 2</th>
<th>Observation 3</th>
<th>Observation 4</th>
<th>Observation 5</th>
<th>Recursivity</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>(s)İ(n)=AGREE</td>
<td>√</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>?</td>
<td>Type I: X</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type II: √</td>
<td></td>
</tr>
</tbody>
</table>
3.3.3 \(-(s)\tilde{I}(n)\)=n°

Kharytonava (2011, 2013a, 2013b) provides a Distributed Morphology account of the derivation of NN%Ns, such that \(-(s)\tilde{I}(n)\) is inserted in an n° position that figures in syntax. Following Harley (2009), she assumes that the non-head nP merges with the Root of the head before this entire \(\sqrt{P}\) gets categorized as an n°. For example, Harley (2009: 140) proposes the following structure for *nurse shoe* in English (whose head property is altered herein in this representation):

\[nP \rightarrow n° \rightarrow SHOE \rightarrow \sqrt{SHOE} \rightarrow n° \rightarrow \sqrt{NURSE} \rightarrow nurse \]  
\[\sqrt{P} \rightarrow n° \rightarrow \sqrt{SHOE} \rightarrow n° \rightarrow \sqrt{NURSE} \rightarrow nurse \]  
\[nP \rightarrow \sqrt{P} \rightarrow n° \rightarrow \sqrt{SHOE} \rightarrow n° \rightarrow \sqrt{NURSE} \rightarrow nurse \]

Kharytonava (2011) proposes that \(-(s)\tilde{I}(n)\) is a nominalizer that is contextually specified to derive NN%Ns in Turkish, as exemplified in (62):

\[nP \rightarrow n° \rightarrow KEDI \rightarrow \sqrt{KEDI} \rightarrow n° \rightarrow \sqrt{SOKAK} \rightarrow sokak \]  
\[nP \rightarrow \sqrt{P} \rightarrow n° \rightarrow \sqrt{KEDI} \rightarrow n° \rightarrow \sqrt{SOKAK} \rightarrow sokak \]

However, nominals with overt nominalizers can also appear in the head position of NN%Ns in Turkish. For example, nominals with the agentive suffix -c\( \tilde{i} \) can be the head of NN%N with \(-(s)\tilde{I}(n)\) as in example (64a) below. Kharytonava (2013) proposes that
those derivational affixes are also Roots in Turkish, leaving little \( n \) heads as pure categorizers. She proposes the vocabulary insertion rule in (63), according to which \(-\text{I}(n)\) needs to be inserted if the \( n \) head c-commands a \( \sqrt{P} \). (The ‘sem-null’ notation refers to semantically null nominalizing heads.) Otherwise, \( \emptyset \) is inserted. Examples are in (64) and (65), respectively.

(63) \[ \text{If } n_{\text{sem.null}} \text{ c-commands } \sqrt{P}, \text{ insert } -(s)I/. \]

(64) a. \( \text{çocuk} \quad \text{bak-icı-sı} \)  
    child \quad look-DER-SIN  
    ‘baby-sitter’

b. \[ \begin{array}{c}
\sqrt{P} \\
\sqrt{\text{BAK}} \\
\sqrt{\text{ÇOCUK}} \\
\end{array}
\]

\[ \begin{array}{c}
\end{array} \]

(65) a. \( \text{çocuk} \)  
    child

b. \[ \begin{array}{c}
\sqrt{\text{ÇOCUK}} \\
\sqrt{\text{BAK}} \\
\end{array}
\]

\[ \begin{array}{c}
\end{array} \]

Kharytonava (2013a) calls for a modification in the assumptions of Distributed Morphology framework, which has traditionally assumed two types of morphemes: Roots (I-morphemes) and functional morphemes (f-morphemes) (Harley and Noyer 1999). The former roughly corresponds to open-class items, which are stored as semantic primitives with some semantic content. These need to be selected by f-morphemes to be categorized in syntax. F-morphemes also consist of what has traditionally been known as inflectional morphemes, such as TAM markers. Kharytonava (2011, 2013a) proposes that there are in fact two types of Roots: free roots and bound roots. The former consists of an open-list,
whose members may or may not merge with other roots. The latter, which consist of a closed-list, have to merge with other roots.

There are several problems with this proposal. First, Roots, by definition, are all bound. They have to merge with an f-morpheme in order to have any status in syntax. Second, introducing semantically null categorizing $n$ heads would have serious theoretical consequences; we would have to stipulate an extra layer for nominals with overt derivational nominalizing suffixes, which are claimed to be a different type of Roots by Kharytonava (2011). In other words, an example (66a) would have a representation like (66b) in the face of a simpler representation as in (66c).

(66)

a. $\text{bak-ic}\text{i}$
   look-NOM
   ‘caretaker’

b. $\text{nP}$
   $\text{nP}$
   $\text{n^o}$
   $\text{BAK}$
   $\text{C}\text{i}$
   $\text{bak}$
   look
   $\text{-ic}\text{i}$
   NOM
   $\text{Ø}$
   $\text{Ø}$

c. $\text{nP}$
   $\text{n^o}$
   $\text{BAK}$
   $\text{ci}$
   look
   $\text{NOM}$

Third, as we will see in Chapter 4, not all examples like (64a) have the suffix -(s)I(n) as exemplified in (67). We can therefore say that the Vocabulary Insertion rule in (63) over-generates. (See Chapter 4 for an analysis of true synthetic compounds that lack the
compound marker.)

(67) ağıri  kes-ici(*-si)
pain  cut-DER-SIN
‘pain-killer’

In order to explain the observation that the plural marker has to precede -(s)I(n) in NN%N constructions (Observation 1), Kharytonava (2013b) proposes a post-syntactic Local Dislocation rule, which reorders the position of these morphemes:

(68) [[[oyuncak, kutu,] (s)I] LAr] → [[[oyuncak, kutu,] LAr + (s)I]
toy  box  SIN  PL  toy  box  PL  SIN

Assuming the dislocation rule in (68), we can say that her analysis can account for Observation 1. But, note that the AgrP and AGREE analyses in the previous two sections can also account for the observation in Observation 1 without any extra rule, and are thus simpler explanations.

Kharytonava (2011, 2013a) proposes a post-syntactic impoverishment rule to account for cases stated in Observation 2. She states that the little n head position where -(s)I(n) gets inserted carries certain person and number features, which are deleted by the head of a dominating Poss head in the post-syntactic morphological component. Her analysis is represented in (69b) adapted for the example in (69a):

(69) a. benim sokak kedi-m
    my  street  cat-1SG.POSS
    ‘my street cat’
In the analysis in (69b), the -(s)İ(n) suffix that can potentially be inserted in the n position cannot be the same -(s)İ(n) that is inserted when there is a third person possessor.

There is evidence that the agreement suffix -(s)İ(n) is, in fact, the elsewhere form: partitive constructions with the logical 1st plural possessors are marked with -(s)İ(n).

These are cases where the possessor is a partitive construction equivalent to English constructions, such as “the two of us”

(70) iki-miz-in hikaye-si
    two-1PL-GEN story-SIN
    ‘the story of the two of us’

(70) shows that -(s)İ(n) is not specified for 3rd person, but is rather the elsewhere form, triggered by possessors lacking 1st and 2nd person features. So, if there is a single Vocabulary Item and it is the elsewhere form, then it would appear as a nominalizing head everywhere in the language, but it does not. Kharytonava (2011) in fact claims that
the compound marker -(s)\(\hat{I}\)(n) and the agreement marker -(s)\(\hat{I}\)(n) are two different homophonous Vocabulary Items; in her analysis, the elsewhere form for the nominalizing head is \(\emptyset\). In other words, her analysis correctly predicts examples like (69a) but this analysis requires two homophonous Vocabulary Items -(s)\(\hat{I}\)(n) in the grammar of Turkish, one for compounds and one for 3rd person possessives, while an agreement analysis requires only one.

As for the recursivity properties of NN%Ns, we can say that both types of recursivity are captured by Kharytonava’s (2011) proposal. A possible analysis for (71a) and (71b) is provided in (72a) and (72b), respectively.

(71) a. \([sokak\ [kedi\ yavru-(\text{\textasciitilde}su)-su]]\) Type I recursivity

‘stray kitten’

b. \([[sokak\ kedi-si\ yavru-su]]\) Type II recursivity

‘stray cat offspring’

(72) a.
As for cases such as Observation 3, in which an NN%N becomes the possessee of a possessive-free genitive, Kharytonava (2011) states that the lack of possessive agreement results in the presence of -(s)İ(n) because the lack of possessive agreement as in (73) means that an impoverishment rule cannot occur and -(s)İ(n) is, thus, not deleted. She does not further elaborate as to why possessive-free genitives are available in the first place, but whatever the reason, possessive agreement does not occur and the compound marker -(s)İ(n), therefore, can surface.

(73) benim sokak kedi-si
    my street cat-SIN
    ‘my street cat’

Kharytonava (2011) assumes the unbalanced conjunction phrase proposed by Johanessen (1998) to account for suspended affixation facts of coordination of nominals in Turkish, including that stated in Observation 4 in this chapter. In her analysis, deletion/impoverishment targets only the highest conjunct, leaving the other occurrences of -(s)İ(n) on the non-final conjuncts untouched:
The analysis made by Kharytonava (2011) readily accounts for the $m$-reduplication of the first constituents of NN%N since these are syntactic representations on their own right, and are, thus, legitimate targets for $m$-reduplication. The entire compound can also be $m$-reduplicated in this analysis including the suffix -(s)$l(n)$ provided that reduplication is a later operation in the derivation. However, the second constituents of NN%N never receive an $nP$ status on their own right because their roots merge with the first constituents before they get selected by a categorizing $n^o$. But, Roots cannot be reduplicated in Turkish. We can, therefore, say that this analysis does not provide a full account of the observations stated in Observation 5.

As for compound-medial adjectives, Kharytonava’s analysis cannot predict these cases because the second part of the compound does not receive a nominal status until it merges with the first part in her proposal, and therefore, they be modified with adjectives. For instance, the highlighted adjectives below cannot be predicted in her proposal because the elements they modify would still be in Root form.

‘Private TED Istanbul College Endowment High School’

(76) [ekonomi [eski bakan-ı]] economy former minister-sîN

---

4 Some relevant examples:

\'il+ik ‘button hole’ → *il-nil-ik but ilik-milik ‘button holes and things like that’
\'yes+im ‘jade’ → *yes-meş-im but yeşim-meşim ‘jade and things like that’
\'uz+an-mak ‘lie down’ → *uz-muz-an-mak but uzanmak-muzanmak ‘to lie down and (do) things like that’
The summary of this section is presented in Table 5.

*Table 5: Summary of an n° account of -(s)İ(n)*

<table>
<thead>
<tr>
<th></th>
<th>Observation 1</th>
<th>Observation 2</th>
<th>Observation 3</th>
<th>Observation 4</th>
<th>Observation 5</th>
<th>Recursivity</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>(s)İ(n) = n°</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>?</td>
<td>X</td>
<td>Type I: √</td>
<td>X</td>
</tr>
</tbody>
</table>

3.3.4 Interim summary

In this section, we looked at lexicalist and syntactic analyses of the peculiar compound marker -(s)İ(n) found in Turkish NN%Ns. We saw that the former is particularly challenged by this marker since, as seen in a number of tests, its absence or presence can be determined entirely by non-lexical means. As for syntactic analyses, we have considered three different approaches, which consider this compound marker an AgrP head, an agreement marker realized by a checking operation and a nominalizer contextually specified to derive nominal compounds, respectively. We have seen that, although syntactic approaches have a number of advantages to the lexicalist ones, they cannot account for all observations we have laid out in Chapter 2. The syntactic approaches are especially challenged by the fact that the presence of an agreement marker in the same context with the compound marker always results in the compound marker’s absence while the absence of an agreement marker due to suspended affixation or topicalization of the possessor always results in its presence.

In the next section, I consider the third logical possibility, such that the derivation of -(s)İ(n) or any other agreement marker belongs to a post-syntactic component as assumed within the framework of Distributed Morphology. I show that such an analysis has a
number of advantages, and I therefore claim that agreement morphology, including the compound marker, is realized post-syntactically after all syntactic operations are completed and their outputs are sent to the Morphology component as inputs for linearization.

### 3.4 Proposal: -(s)İ(n) as a post-syntactic morpheme

#### 3.4.1 Assumptions

Following Marantz (1991) and Bobaljik (2006), I make the following assumptions for Turkish in the rest of this section:

(77) **Case and agreement in the Turkish nominal domain:**

a. Spec, DP is the syntactic environment for the unmarked case GEN in the nominal domain.

b. GEN-marked nPs search for another nP in this domain that can host agreement features. GEN-marked nPs are the only ones that do so.

c. When multiple GEN-marked nPs are available in a single DP domain, it is always the highest GEN-marked nP that triggers agreement.

We can therefore say that a possessive phrase, such as the one in (78a) can be represented as in (78b), in which *benim* being in the spec of the DP gets the unmarked GEN case, and therefore, triggers agreement on the possessee *kedi*.

(78) a. *benim kedi-m*

   *my cat-*1SG.POSS

   ‘my cat’

b. *benim*

   nP/DP

   *kedi*

   DP

   D’

   D°
I also assume that NN%Ns in Turkish are DPs, too, and the first nP in the specifier position of this DP is differentially GEN-marked, as in (79b), unlike the possessive phrase in (79a) with an overt GEN. This is because non-specific/non-referential nPs in Turkish receive null case (Enç 1991, Kornfilt 2009):

(79)  

<table>
<thead>
<tr>
<th></th>
<th>a.</th>
<th>b.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>kadin-in</strong></td>
<td><strong>kadin</strong></td>
</tr>
<tr>
<td></td>
<td><strong>hak-lar-ı</strong></td>
<td><strong>hak-lar-ı</strong></td>
</tr>
<tr>
<td></td>
<td>woman-GEN right-PL-SIN/3.POSS</td>
<td>woman right-PL-SIN/3.POSS</td>
</tr>
<tr>
<td></td>
<td>‘the woman’s rights’</td>
<td>‘women’s rights’ (Kornfilt 1984)</td>
</tr>
</tbody>
</table>

If agreement in the nominal domain in Turkish is triggered by GEN, then the first element in (79b) must be marked with a null GEN marker, which only receives a phonological form when attached to referential nouns. There are also two observations about the phonology of these null GEN-marked nouns suggesting that our assumption herein is on the tight track, which I discuss below.

We have already said in Chapter 2 that NN%N compounds in Turkish with -(s)İ(n) have phrasal stress rather than a compound stress. Kabak and Vogel (2001) show that what appears to be a compound stress in such compounds may be because the syllable immediately preceding the phonologically null case marker receives phrasal stress rather than the case marker, which would otherwise be the host for such stress. The example in (79b), therefore, has primary stress on the last syllable of the first constituent because it is the closest phonological host for such stress, which would otherwise be on the case marker having phonological content, as in (79a).

Second, some nouns in Turkish with a complex coda, mostly with foreign origin, undergo vowel insertion in their PF form:
When these words are followed by a case marker, as in (81a), an agreement marker, as in (81b), a light verb to form a complex predicate, as in (81c), or an attributive compound, as in (81d) there is no need for an epenthetic vowel:

(81)  
a. kayb-\text{-}a  \quad /  \quad *kayıp-a  
loss-\text{-}DAT \quad loss-\text{-}DAT  
‘to/of (the) loss’

b. karn-\text{-}ım  \quad /  \quad *karın-ım  
stomach-1SG.POSS \quad stomach-1SG.POSS  
‘my stomach’

c. nakl-\text{-}et-mek  \quad /  \quad ??nakıl-et-mek  
transport-DO-\text{-}INF \quad transport-DO-\text{-}INF  
‘to transport’

d. kayn-\text{-}ana  \quad /  \quad *kayın-\text{-}ana  
in-law-mother \quad in-law-mother  
‘mother-in-law’

However, when these nouns are followed by another noun beginning with a vowel to form a NN%N with -(s)İ(n), in contrast to (81), there is a need for the epenthetic vowel.

(82)  
a. *kayb  aile-ler-ı  \quad /  \quad kayıp  aile-ler-ı  
loss  family-PL-SIN \quad loss  -family-PL-SIN  
‘families of lost (people)’

b. *karn  ağrı-sı  \quad /  \quad karın  ağrı-sı  
stomach  ache-SIN \quad stomach  ache-SIN  
‘stomach ache’

c. *nakl  arac-ı  \quad /  \quad nakıl  arac-ı  
transport  vehicle-SIN \quad transport  vehicle-SIN  
‘delivery vehicle’
Kabak and Vogel (2001) argue that examples such as (8a-d) must have an epenthetic vowel in the first constituent possibly because the presence of a phonologically null GEN marker. Due to the reasons outlined above, I assume the structure in (83) for NN%Ns:

\[
\text{(83)} \quad \begin{array}{c}
\text{DP} \\
\text{DPnP} \\
\text{sokak} \\
\text{[GEN]} \\
\text{kedi} \\
\text{nP} \\
\text{D°}
\end{array}
\]

When (83) is sent to Morphology, the nP bearing the unmarked case features receives the GEN case. However, since this nP is non-referential, its morphological case is phonologically null. Because GEN in Turkish is accessible for agreement, this nP triggers agreement, and hence the nominal agreement marker -\((s)İ(n)\):

\[
\text{(84)} \quad [\text{DP sokak [ kedı-sı]} \text{D°}]
\]

3.4.2 A post-syntactic analysis of -\((s)İ(n)\)

*Observation 1*, which states that the plural marker -İEr has to precede -\((s)İ(n)\) in a post-syntactic analysis falls out from the order of operations: The plural marker being a syntactic head is realized in morphology before the dissociated morpheme, the compound marker, is realized, hence the plural > compound marker order. We can therefore represent (85a) as in (85b):

\[
\text{(85)} \quad \begin{array}{c}
a. \text{sokak kedı-ler-i} \\
\text{street cat-PL-SIN} \\
\text{‘street cats’}
\end{array}
\]
Recall *Observation 2*, which states that when an NN%N becomes the possessor in a possessive phrase, the compound marker cannot co-occur with agreement markers. This falls out from the structure in (86b) which has multiple specifiers of the DP\(^5\). What this means is that syntax creates the context for multiple npS each of which bears an unmarked case feature, forming a set of candidates that can possibly be accessible for agreement. Recall that the multiple specs in the DP projection are equidistant to the

---

\(^5\) Unlike in the X' schema (Jackendoff 1977, Chomsky 1986), multiple specifiers were not precluded in the Minimalist Program (Chomsky 1994, 1995); on the contrary, they were "permitted in principle on minimalist assumptions about phrase structure theory" (Chomsky 1995: 285). Data from a number of languages involving multiple subjects (e.g. Japanese, Korean), preposed negative constituents (e.g. English), multiple wh- fronting (e.g. Bulgarian, Serbo-Croatian, Japanese), superraising (e.g. Indonesian), V2 in embedded clauses with overt complementizers (e.g. Yiddish, Icelandic), clitic doubling (e.g. Spanish) show that multiple specifier positions do exist both at the CP and the DP levels (see Koizumi 1994, 1995; Guitérrez-Rexach and Silva-Villar 1999; Grewendorf and Sabel 1999, Richard 2001; Karimi 2005, among others). Finally, Kato (2010) argues for multiple specifiers in FocusP on the basis of gapping facts in Japanese, according to which multiple remnants are possible when gapping a main verb; exactly parallel examples are found in Turkish. For all of the above reasons, I conclude that multiple specifiers are a necessary theoretical construct independently of their application in the analysis provided here.
possessee noun *kedi*, such that the constituency of *sokak kedi* “street cat” is captured with the exclusion of the subject *benim* “my.”

(86) a. *benim sokak kedi(=*-si)-m*
    my street cat-SIN-1SG.POSS
    ‘my street cat’

In the previous section, following Bobaljik (2006), we have made the assumption that in cases where more than one *nP* is available for agreement in the same domain, it is always the higher one that triggers agreement. In the syntactic representation in (86b), we cannot determine which of the spec, DPs is higher than the other because these two *nP*s are syntactically equidistant. However, when this structure gets linearized in Morphology, we can talk about distance, such that the *nP* that precedes the other one must be the controller for agreement. In other words, Morphology does not care about syntactic distance, but linear distance, and therefore, the element that comes first in the linear order can be thought of being the more distant element. We can therefore say that the post-syntactic analysis presented here can correctly predict Observation 2, such that it is the first element *benim* “my” that triggers 1SG.POSS agreement on the possessee host and the compound marker -(s)İ(n) thus never gets realized. In this analysis, insofar as Bobaljik’s (2006) claim about multiple triggers for agreement is true, there is no need to
stipulate a deletion operation to account for the absence of -(s)ı(n) in examples like (86a) because this marker never gets realized in the first place. Let us now consider the two types of recursivity observed in NN%Ns.

We have said that NN%Ns involving a Type I recursivity have only a single exponence of the compound marker while the left-branching examples have multiple exponences of it. I repeat the example pair below for ease of reference:

(87) a. [sokak [kedi yavru-(su)-su]] Type I recursivity
    street cat offspring-SIN-SIN
    ‘stray kitten’

    b. [[sokak kedi-si] yavru-su] Type II recursivity
    street cat-SIN offspring-SIN
    ‘stray cat offspring’

The analysis in (87b) can account for the right-branching examples in (87a). Because there is a single domain for agreement, and only one of the GEN-marked nPs can trigger agreement, the single exponence of -(s)ı(n) is correctly predicted:

(88)

On the other hand, the left-branching examples have multiple DP projections, and hence multiple domains for agreement. Each of these DPs must have its own agreement morphology.
The analysis here also accounts for the semantic composition of (87a) and (87b). In the former, “street” and “cat” do not form a semantic unit, such that there is nothing in the composition of this example, where “street cat” forms a semantic unit. Whereas in the latter example, “street” and “cat” form a semantic unit because we are talking about the offspring of “street cats.” To sum up, we can say that the analysis provided herein can account for both types of recursivity.

Observation 3, regarding an observation in suspended affixation constructions, states that when the agreement marker is suspended in coordinated structures, -(s)İ(n) cannot co-occur with the suspended agreement marker and it obligatorily surfaces in the non-final conjuncts if the possessed NPs are all NN%N:

(90) bizim gaz dedektör-ü ve hırsız alarm-imiz
    our gas detector-sIN and theft alarm-1PL.POSS
    ‘our gas detector and anti-theft system’

Based on the assumptions we have made so far regarding the structure of the NN%N as well as the structure of coordination, we can say that the pre-morphology structural representation of (90) should be as follows:
In this syntactic representation, which represents the structure before agreement markers, including the compound marker, are inserted, the lower DP *gaz-dedektör* “gas detector” is a domain for agreement. In other words, the *nP gaz* bearing the unmarked case GEN controls agreement in this domain, hence the compound marker on the possessee. The higher *nP* in the CoP, which rests in the specifier position of this phrase, is a domain for agreement, too. However, it appears that the domain for this second DP expands to cover the highest DP too\(^6\). In this case, this larger domain again has multiple GEN-marked nPs, and it is again the highest one that triggers agreement once the structure is linearized. Because of this, the second conjunct lacks the compound marker -(s)İ(n) unlike the first conjunct.

*Observation 4* states that when NN%N with -(s)İ(n) is located in the possessee position of a possessive phrase and the agreement is not realized, then the compound

\(^6\) This structure is not totally satisfactory, and it requires further investigation, may be a psycholinguistic analysis.
marker -(s)İ(n) surfaces. We said in previous sections that this happens due to movement of the possessor nP to a Topic position. The relevant example is repeated below:

(92)  *benim sokak kedi-si*  
*my street cat-SIN*  
*‘my street cat’*

I propose that an Impoverishment rule applies prior to Vocabulary Insertion, which deletes the person and number features of possessee nPs in the context of a Topic phrase⁷.

(93)  [*number, person* → Ø / [TopP ___ ] ]

This rule states that nPs bearing a [Topic] feature cannot also have number and person features. This makes sense considering that person agreement markers would be redundant if the nP at hand is old information. Once it moves to a Topic position and its features are deleted, neither the nP itself nor its trace can trigger agreement. Therefore, the second nP in the domain of the DP would be the one controlling agreement, hence the -(s)İ(n) marker will be realized. The analysis is given in (94):

---

⁷ Note that this does not apply to topicalized subjects in a sentence, which trigger agreement on the verb regardless of whether they are topics or not. However, topicalized subjects are typically *pro*-dropped, in which case *pro* obligatorily licenses agreement.
A post-syntactic analysis of -(s)İ(n) can account for Observation 5, such that either constituents an NN%N with -(s)İ(n) is a legitimate target for m-reduplication, because they have independent status in the current analysis. Since each constituent of an NN%N is an nP in this analysis, m-reduplication of either constituent as well as the entire compound is correctly predicted. The relevant example is copied here in (95):

(95) a. sokak kedi-si
    street cat- SIN
    ‘street cat (=stray cat)’

    b. sokak mokak kedi-si
    street M.RED cat- SIN
    ‘cat(s) (who live) on streets and the like’

    c. sokak kedi-si medi-si
    street cat- SIN M.RED
    ‘cat(s) and the like (who live) on streets/ street cats and the like’

    d. sokak kedi-si mokak kedi-si
    street cat- SIN M.RED
    ‘street cats and the like’

However, we have also seen in Observation 5 that the observation in (95) cannot apply to all NN%N with -(s)İ(n). When the compound at hand is an exocentric, non-compositional type, and the first constituent is m-reduplicated, then the resulting form is not acceptable. Again, the relevant example is copied below:

(96) a. Kül- kedi-si
    ash cat- SIN
    ‘Cinderella’

    b. *Kül- mül kedi-si
    ash M.RED cat- SIN

    b. Kül- kedi-si medi-si
    ash cat- SIN M.RED
    ‘Cinderella and the like’
c. Kül- kedi-si  mül-kedi-si
ash  cat- SIN  M.RED
‘Cinderella and the like’

In fact, (96b) is not unacceptable because there is any structural constraint, but rather such m-reduplicated forms of non-compositional compounds lose their idiomatic meaning. If there were such a thing as ‘an ash cat,’ then the m-reduplicated form in (96b) would be acceptable. The analysis provided here can predict the difference between (95b) and (96b) because of the status of the Conceptual Interface in the DM grammar architecture discussed in Chapter 1. In this architecture, access to Encyclopedia, where meaning-form correspondences are listed, happens late, such that it happens after all syntactic, morphological and phonological operations are completed. The linear context of items is relevant to this component in grammar. For example, the knowledge of catgut as ‘a type of suture’, rather than ‘the gut of a cat’ is stored in this list, which only interprets this non-compositional compound only when cat and gut are in the linear context of one another. Similarly, the example in (94), which is composed of kül ‘ash’ and kedi ‘cat’ are interpreted as ‘Cinderella’ only when they appear in that order in the linear order. When the first constituent is m-reduplicated as in (94b), the reduplicated form intervenes between the first constituent and the second constituent, destroying the linear context for the idiomatic interpretation of the compounded form. On the other hand, when the second constituent is m-reduplicated, the reduplicated form does not destroy the context for the idiomatic interpretation, hence (96c) is acceptable.

3.4.3 An alternative: revisiting the Stuttering Prohibition

In section 3.3.1, I briefly discussed the Stuttering Prohibition of Kornfilt (1986).
According to this prohibition, two morphemes of the same type, regardless of their phonological shape, cannot appear in sequence. The examples discussed with respect to *Observation 2* and *Observation 3*, which both demonstrate that the compound marker -\(s\)\(\text{il}(n)\) and agreement markers cannot be in sequence, are central to the Stuttering Prohibition. Examples in which other types of markers cannot be in sequence also exist. Consider (97b), which shows that the Stuttering Prohibition holds for the plural marker as well:

\[
(97) \quad \begin{align*}
& \text{a. } \text{pro ev-ler-i} \\
& \quad \text{pro house-PL-SIN} \\
& \quad \text{‘their house/his house/their houses’}
\end{align*}
\]

\[
\begin{align*}
& \text{b. *pro ev-ler-ler-i} \\
& \quad \text{pro house-PL-PL-SIN} \\
& \quad \text{Intended: ‘their houses’}
\end{align*}
\]

There is no syntactic principle that would disallow examples like (97b). The first exponence of the plural marker represents number modifying the noun \(ev\) ‘house’ while the second exponence of this marker is licensed by \(\text{pro}\). It appears that whatever disallows (97b) must be independent of the general principles of syntax. We can therefore claim that the Stuttering Prohibition is congruent with the general grammar architecture of the DM framework because this rule of morpheme ordering must apply in a component that follows syntax, a morphological component that is readily available in DM. More specifically, we can propose that it is in a post-syntactic component that the sequence in (98) is forbidden and an impoverishment rule, which deletes the first \(\alpha F\) applies.

\[
(98) \quad \ast \alpha F-\alpha F
\]
3.4 Conclusion

We have looked at the five observations presented in Chapter 2 with a pre-syntactic (lexicalist) and syntactic approach and determined that neither can fully account for these observations. We have then considered the third logical option, a post-syntactic approach, and have seen that it has a number of advantages. First of all, assuming a single position of exponence for agreement in a single domain has let us have an explanation as to why the compound marker and other agreement markers never co-occur. Second, we have been able to account for this observation, which was relevant for Observation 2 and Observation 3, without proposing extra rules, such as a deletion rule of -(s)İ(n) in the context of an agreement marker. Finally, the grammar architecture of DM, which claims that semantic interpretation happens late in the derivation, has allowed us to account for acceptability differences of m-reduplicated nPs inside an NN%N.

If the post-syntactic analysis provided in this chapter is correct, then NN%Ns marked with -(s)İ(n) cannot be selected by categorizing heads, which is a syntactic operation. This is because the presence of -(s)İ(n) would be an indication that the construction is already spelled-out. This is borne out by the following examples, which show that -(s)İ(n) cannot, in fact, be followed by derivational suffixes:

(99)  a. *deniz tuz(-u)-luk
      sea    salt-SIN- DER
      Intended: ‘sea-salt shaker’

       b  *deniz tuz(-u)-cu
      sea    salt-SIN- DER
      Intended: ‘sea-salt seller’

In (99a-b), we can see that neither -lİk nor -cİ can follow the compound marker.
Furthermore, deleting the compound marker does not solve the problem, either. This is because NN%Ns are DPs, and DPs cannot be selected by nominalizers.

However, there are certain cases where, semantically, the presence of these derivational suffixes is very much needed, such as for names of occupations, such as the ones in (100). In these cases, the compound marker is not realized, further showing that -(s)İ(n) cannot be a syntactic requirement that is relevant for LF; otherwise, we would not be able to do without it.

(100) a. dil *bilim(*-i)-ci  
language  *science-SIN-DER  
ˈlinguist’

b. su top-(*u)-cu  
water  ball-SIN-DER  
ˈwater polo player’

We have seen that the analysis of -(s)İ(n) provided here can account for the observations discussed so far. There is but one caveat that needs to be clarified. We have claimed so far that the underlying structure of NN%N with -(s)İ(n) in Turkish is a DP. When we compare this structure to other possessive DPs, with a possessive determiner in the specifier position of this DP, we see that there are important differences. For example, as direct objects, such possessive phrases are always specific and they require an overt ACC rather than the phonologically null counterpart:

(101) a. *Anne *çocuğ-un-a hikaye kitab-i oku-du  
mother  child-SIN-DAT  story  book-SIN  read-PST  
ˈThe mother read her child story books.’

b. Anne *çocuğ-un-a hikaye kitab-un-i oku-du  
mother  child-SIN-DAT  story  book-SIN-ACC  read-PST  
ˈThe mother read her child the story book.’

(102) a. *Anne *çocuğ-un-a benim kitab-im oku-du  
mother  child-SIN-DAT  my  book-1SG.POSSread-PST  
ˈThe mother read her child my books.’
b.  *Anne çocuğ-un-a benim kitab-un-I oku-du*  
    *mother child-SIN-DAT my book-1SG.POSS-ACC read-PST*  
    *‘The mother read her child story books.’*

The contrast between (101a) and (102a) lies in the referentiality of the entities these object DPs denote, such that the former receives a kind-level reading because neither of its constituents is specific, and the latter receives a definite reading because there is at least one specific entity (the possessor).\(^8\)

In the next chapter, I analyze ‘synthetic compounds’ in Turkish, in which a nominal compound is made up of an N and a deverbal head, such that the former appears to be an argument of the latter. In doing so, I claim that the presence of -(s)İ(n) is always an indicator of a primary compound structure analyzed in this chapter, and therefore, those compounds bearing this marker can never be true synthetic compounds.

\(^8\) Note that I am making the assumption that DPs can either be specific or non-specific; in this respect, it is not specificity but rather syntactic size what makes DPs different from nPs; DPs allow larger structure, providing the syntactic means for representing deixis, possession, and even aspect, and can denote either referential or non-referential entities. nPs, on the other hand, are smaller units where syntax manipulates Roots to form nominal categories, which are non-referential by definition. But, of course, both DPs and nPs appear in case positions.
CHAPTER 4

TURKISH SYNTHETIC COMPOUNDS

4.1 Introduction

In the previous chapter, I examined a productive type of N+N concatenations in Turkish, which are marked with a peculiar compound-final suffix, -(s)İ(n) and analyzed them as primary compounds. I claimed that these compounds are DPs, whereby the first element occupies the specifier position, whose unmarked GEN case triggers agreement on the second element, hence the compound marker -(s)İ(n). I also claimed that the presence of -(s)İ(n) is always an indicator of such a structure (unless it is not realized due to the presence of another agreement marker). In this chapter, I examine a different type of nominal compound in Turkish, which can be identified as synthetic compounds. These compounds can be defined as nominal compounds consisting of a deverbal noun in the head position, and a noun in the non-head position, where the latter acts as an argument of the former.

At least two analyses are possible for seemingly synthetic compounds. For example, truck-driver can be thought of having a synthetic compound structure because the first element appears to be the theme argument of drive. In this case, we would argue that it should be parsed as (1). However, it can also be considered as a primary compound, analogous to, let’s say, truck-garage, and thus, can be parsed as (2).\(^1\)

\(^1\) Harley (2009) claims that compounds like truck garage are also represented as (1). I return to her analysis is section 4.2.1.
In Turkish, the difference between (1) and (2) is less obscure. This is because compounds like (2) would necessitate the presence of the compound marker -(s)İ(n) across the board. Therefore, the presence or absence of this marker can be used as a tool to differentiate between examples that have the structure in (1) from those that have the structure in (2).

In this chapter, I examine three different types of nominal compounds, which are in the form of N+deverbal noun in Turkish (henceforth, NV%N, though the second element is not always a true deverbal noun as we see shortly). My examination of subtle Turkish data revolves around examples such as the following:

(3) matematik bil-gi-si Compound with a Root-selecting nominalizer
    math \(\sqrt{\text{know-KI-SIN}}\) ‘math knowledge’

(4) doğal-gaz yap-tur-im-ı Pseudosynthetic compound
    natural-gas \(\sqrt{\text{make-CAUS-IM-SIN}}\) ‘natural gas sanction(s)’

(5) oda süs-le-me True synthetic compound
    room \(\sqrt{\text{ornament-VER-ME}}\) ‘room decorating’

I claim that the first type of the so-called synthetic compounds, as in (3) is not, in fact, a type of synthetic compound in the definition provided above. I show that the nominalizer marked on the heads of such compounds is a Root-selecting type, and it, thus, forms nominals directly from Roots, a structure which does not inherit any argument structure. This is contrary to claims by Marantz (1997) and Harley (2009, 2011) for whom at least part of the argument structure (i.e. the internal argument)
projects from Roots. I call these ‘compounds with Root-selecting nominalizers’. These are primary compounds with the same syntactic representation as the ones discussed in Chapter 3, and are, therefore, obligatorily marked with the compound marker -(s)İ(n).

The second type of compound, as exemplified in (4), is formed in a similar fashion to the first type, but the nominalizing suffix in this example not necessarily Root-selecting; instead, it is either Root-selecting or verb-selecting. When it select Roots, it is also obligatorily marked with the compound marker -(s)İ(n). When it selects verbal stems and forms nominals that have specific meanings like the head noun in the example in (4), which does not refer to not any type of ‘causing to make,’ but only to political or economic enforcement, then these compounds are also obligatorily marked with the compound marker -(s)İ(n). I claim that, when marked with the compound marker, these are primary compounds, too - in fact, the presence of -(s)İ(n) is always an indicator of a primary compound structure as proposed in Chapter 3. I call these ‘pseudo-synthetic compounds’ because these nominalizers appear to be capable of selecting verbal stems, which would normally have an argument structure, but they do not in fact have argument structure and thus fail to derive synthetic compounds. Following Marantz (2013), I claim that these have semantically null elements between the Root and the nominalizing head, thus being able to create special meanings denoting entities and failing to take arguments.

The final type of examples, such as the one in (5), constitutes what I call ‘true synthetic compounds’. These manifest properties of synthetic compounds, such as argument structure and event entailment. The first element in this example is an internal argument of the second, and the entire construction entails the act of decorating.
Crucially, these are *never* marked with the primary compound marker -(s)İ(n). The nominalizer -mE marked on the second element in this example can select Roots as well, but when it does so, it does not form true synthetic compounds, either.

There are at least two claims in the Distributed Morphology/Constructionalist literature as to the syntactic status of Roots. According to the first one, Roots can project √Ps and select complements (Marantz 1997; Harley 2009, 2011). Under this view, the structural position for introducing internal arguments is the complement of √Ps.

According to the second view, Roots do not project phrases or select arguments. Internal arguments can be introduced only when Roots are selected by a verbal category (Borer 2011, Fu 1994, Fu, Roeper, and Borer 2001). In this chapter, I show that true synthetic compounds in Turkish cannot be formed by nominals that are directly derived from Roots. In other words, for true synthetic compounds to be possible, such that the first element is an argument of the second, a category other than the Root is necessary so that an internal argument can be introduced. This supports the latter claim that Roots are not projecting categories in syntactic derivations. In this chapter, I claim that the true synthetic compounds are derived as in (6), and only true synthetic compounds are derived in this manner.

(6)
True synthetic compounds in Turkish, other than the lack of the compound marker -(s)İ(n), shows the characteristics of A(rgument)S(tructure)-nominals (Borer 2011), such as event entailment and argument inheritance. To illustrate, compare the following examples:

(7) a. brokoli dondurma-sı
    broccoli freeze-CAUS-ME-SIN
    ‘broccoli ice-cream’

b. brokoli dondurma
    broccoli freeze-CAUS-ME
    ‘freezing of broccoli’

The head noun dondurma in (7b) refers to an event, which is the actual Root meaning ‘freezing,’ and the presence of the causative morpheme indicates that there must be a verbal layer in the derivation, which provides the syntactic context for the internal argument brokoli. Note that despite their event entailment, nominals of this type can take case markers and appear in argument positions. On the other hand, the head noun dondurma in (7a) does not refer to an event but an entity, and it, therefore, cannot project an internal argument, thus the compound marker -(s)İ(n). However, this nominal bears the causative morpheme just like the entity-denoting nominal in (7a). This is rather problematic given the fact that a verbal layer is necessary in order to derive an event-denoting nominal. The example in (7a), however, shows that the presence of such a layer does not necessarily mean that the nominal derived as such will denote an event. To account for such problem, as I mentioned above, I follow Marantz (2013) and claim that the verbal morphemes between the Root and the nominalizer are semantically null.
To recap, in this chapter, I claim that true synthetic compounds can be formed when at least three conditions are met: (i) There must be a vP layer in their derivation before they get nominalized; (ii) this vP (as well as other elements that make the verbal stem) must be semantically compositional; and (iii) the deverbal must entail an event and inherit the argument structure from its verbal stem, and thus should be able to take an internal argument and allow adverbial and aspectual modification.

This chapter is organized as follows. In section 4.2, I present a summary of the two stances on the identity of Roots as projecting versus Roots as non-projecting categories. In section 4.3, I discuss three different nominalizers, -KL, -(l)m and -mE. I show what kinds of categories each of them can select and what kind of nominals (entity- or event-denoting) they can derive. In section 4.4, I provide an analysis of synthetic compounds in which the head noun is a derived nominal formed by these nominalizers. In doing so, I consider the presence or absence of -(s)İ(n), event entailment, argument inheritance and adverbial modification. In section 4.4, I present my concluding remarks.

4.2 Where is the internal argument?

The status of external arguments has been a central topic in linguistic theory. They have been given a special status by a number of linguists (e.g. Hale and Keyser 1993; Marantz 1997; Kratzer 1994, 1996; Pylkkänen 2002, 2008; Harley 1995). The common ground among these is that external arguments, or “non-core” arguments (Pylkkänen 2002), must be introduced by a functional projection that is independent of the verbal representation, such as by Voice (Kratzer 1996). Internal arguments, on the other hand, have been generally assumed to reside inside the verbal representation, whatever that may be.
Within the Distributed Morphology/Constructionalism literature, where syntax is responsible for deriving words as much as phrases and sentences, there are two main claims as to where internal arguments are hosted. According to the first one, Roots are considered syntactic categories, which project phrases and specifiers and take complements. In this view, the complement position of the $\sqrt{\text{P}}$ is where the internal argument is hosted (Marantz 1997; Harley 2009, 2011). According to the second view, Roots are non-projecting categories, such that they do not project $\sqrt{\text{P}}$s or specifiers, take complements, or impose any position for arguments (Fu, Roeper, Borer 2001; Borer 2003, 2012; de Belder 2011; de Belder and Craenenbroeck 2011). In this view, a verbal projection, such as a $\sqrt{\text{P}}$ is needed to host the internal argument. In sections 4.2.1 and 4.2.2, I review these two stances respectively.

4.2.1 Roots as projecting categories

According to Marantz (1997), nominalizations like destruction in English never become verbs in the derivation before they become nominalized. To him, the phrase in (8a) is not transformationally related to the sentence in (8b).

(8)  
   a. *John’s destruction of the city.*  
   b. *that John destroyed the city.*

Marantz claims that nominalizations like destruction do not have a verbal projection, and they get nominalized when selected by a D. What appears to be an external argument in (8a) is not in fact a true external argument but a possessor, which can potentially have all sorts of meanings, including a logical agent role. It is because of this latter fact that constructions such as yesterday’s destruction of the city, are also available. In this view,
the only thing in common between (8a) and (8b) is the presence of internal argument as well as the Root of *destroy* and *destruction*. He thus claims that external arguments are constructed in syntax, and that internal arguments are projections of Roots. In this view, the presence or absence of an internal argument is internally specified in the Root forms. (8a) and (8b) can therefore be represented respectively as follows:

(9) a. 
\[ \begin{array}{c}
\text{D} \\
\sqrt{\text{DESTROY}} \\
\sqrt{\text{DESTROY}} \\
\text{the city}
\end{array} \]  

b. 
\[ \begin{array}{c}
\text{v} \\
\sqrt{\text{DESTROY}} \\
\sqrt{\text{DESTROY}} \\
\text{the city}
\end{array} \]

Harley (2011) presents three pieces of evidence (syntactic, semantic and morphological) which support the view that Roots select complements as in (9a) and (9b): (i) syntactic distribution of *one*-replacement, (ii) Kratzer’s (1996) proposal concerning the interpretation of verb-object idioms, (iii) and Root suppletion in Hiaki, which is conditioned by internal arguments. In what follows, I summarize these three arguments.

The *one*-replacement test was originally used by Jackendoff (1977) to show the differences between complements and adjuncts, such that the former fails to be selected by *one* and the later does not, which gives rise to the grammaticality differences between phrases such as (10a) and (10b). *One* was thus claimed to be anaphoric to N’ projections and not Ns.

(10) a. *This student of chemistry and that one of physics*

   b. *This student with short hair and that one with long hair.*
In Bare Phrase Structure (Chomsky 1994), the difference between adjuncts and complements cannot be accounted for since there is no room for non-branching projections, such as N’s. Harley (2011) proposes that we can account for such differences if we assume that one is anaphoric to nPs and internal arguments are sisters to Roots. In this view, (10a) would be ungrammatical because once one replaces as NP, it would be replacing the complement along with the head noun as shown in (11):

(11)

On the other hand, (10b) is grammatical because when one-replacement occurs, the PP with long hair would not be a part of the target NP as shown in (12).

(12)

Speas (1986) proposes that the difference between (10a) and (10b) results from their respective theta-grids. The former is ruled out because PPs like of physics in (10a) are thematically-dependent while PPs like with long hair as in (10b) are not. A similar analysis is also found in Panagiotidis (2003).
Harley (2011: 21) concludes that “[i]nsofar as the analysis provides a successful resolution of an empirical problem for Bare Phrase Structure theory, then, it constitutes an argument in favor of the notion that Root nodes can select for sister constituents, and subsequently project as the head of a phrasal category, just like a run-of-the-mill syntactic node.”

As semantic evidence, Harley (2011) presents Kratzer’s (1996) neo-Davidsonian approach to argument structure, who claims that external arguments are not in fact true arguments because they are not specified in the event structure of verbs. This is why verb-object idioms are possible, such that the verb and its internal argument form special meanings (e.g. kill an evening) but the verb and its external argument cannot do so. Harley (2011) states that Kratzer’s proposal that idiosyncratic truth conditions (idioms) are composed of a verb and its internal argument is compatible with the view that Roots are projecting categories and not compatible with the view that internal arguments are introduced in a separate projection.

Finally, as morphological piece of evidence, Harley (2011) discusses Hiaki Root suppletion, which is conditioned by the number feature of the internal argument. In this language, Root suppletion is dependent on whether the internal argument is singular or plural as shown in the following examples. (Harley shows that the examples in (13) are indeed unaccusatives).

(13)  a.  *Aapo weye*  
      3SG  walk.SG  
      ‘He/she/it is walking.’

     b.  *Vempo kaate*  
      3PL  walk.PL  
      ‘They are walking.’
Harley (2011) proposes that the suppletive forms of these verbs, in fact, result from Root competition in a maximally local environment, assumed to be sisterhood. If this is true, then Roots must be capable of taking complements to provide the triggering environment.

Due to the syntactic, semantic and morphological observations summarized so far, Harley (2011) claims that Roots are projecting categories, which can take internal arguments.

In a different work (Harley 2009), she proposes that English synthetic compounds are derived in a fashion such that the Root of the head noun takes a complement -which can be an internal argument- before getting categorized as an NP. In other words, English Roots allow incorporation of objects and adjuncts. For example, *truck-driver is derived first merging the Root √DRIVE with its internal argument truck before getting selected by the nominalizer -er, represented in (16) (adapted for this example to ignore the left-headedness properties of English). In her analysis, the impossibility of *truck-drive does not create a problem because the synthetic compound truck-driver is derived without having any verbal layer in the derivation, and hence no verb truck-drive.
(16)

Note that, for Harley (2009), primary compounds such as truck garage are also derived in this manner.

(17)

To summarize, in this view, internal arguments are hosted as sisters to Roots, which together form a constituent, give rise to special meanings, and create a local domain for Root competition:

(18)

4.2.2 Roots as non-projecting categories

Fu, Roeper and Borer (2001) claim that derived process nominals (e.g. exploration) in English have a verbal layer while simple nouns, even when they semantically denote a process, do not. Evidence from adverbial modification of derived process nominals and do-so tests indicate that the difference is due to syntactic reasons, such that the former has
a verbal layer in its derivation while the latter does not. The differences, therefore, cannot be boiled down to semantics since it is clear that the behavior of process nominals is conditioned by syntax. Consider the following pairs.

(19)  
a.  His explanation of the accident thoroughly (did not help him).
b.  *His version of the accident thoroughly (did not help him.)

(20)  
a.  His transformation into a werewolf so rapidly was unnerving.
b.  ??His metamorphosis into a werewolf so rapidly was unnerving.

Fu, Roeper and Borer (2001) claim that the grammaticality difference between the first member and the second member of (19) and (20) arises due to the syntactic representation of the nominals at hand. In (19a) and (20a), the process nominals explanation and transformation can be modified by thoroughly because these involve a verbal layer in their derivation whereas the simple or underived nominals version and metamorphosis do not. Similarly, compare the following pairs:

(21)  
a.  Sam’s destruction of his documents this morning was preceded by Bill's doing so.
b.  His removal of the garbage in the morning and Sam's doing so in the afternoon were surprising.

(22)  
a.  *Sam's version of the event and Bill's doing so were surprising.
b.  *Kim's accident in the morning and Sue's doing so in the evening were not coincidences.

Fu, Roeper and Borer (2001) maintain that the phrases destruction of his documents in (21a) and removal of the garbage in (21b) can both be replaced by do-so because these

---

3 Along similar lines, Punske (2012) claims that derived nominals are structurally more complex than nominal gerunds though nominal gerunds clearly have a verbalizing layer.
phrases contain a verbal layer. The test fails in (22a) and (22b) because the nominals in those examples do not.

Borer (2011) notes that internal arguments must be able to base-generated in a position other than the complement of √P because if this were the case, then complex transitive verbs, such as *globalize would not be able to take internal arguments. For instance, *globalize markets could not be derived if markets were a complement to the Root √GLOBE because this Root cannot take an argument without getting selected by an aP and a vP respectively.

\[(23)\]

Similarly, synthetic compounds with complex verbs, such as *market globalizing or minority patronizing would not be possible if the internal arguments were hosted by the Root. Borer (2011) also claims that the absence of noun incorporation forms, such as *truck-drive is a problem to the view that Roots can take complements. If this were true, then such verbs would be available in English. In fact, she claims that English does not have any synthetic compounds at all. What appear to be synthetic compounds in this language are actually primary compounds.
We can summarize this section by stating that the view that considers Roots non-projecting categories requires a verbal layer outside the scope of the Root, which would host the internal argument and an event variable. I take this layer to be the spec of $vP$:

(24)
\[
\begin{array}{c}
\text{nP/DP} \\
\text{internal argument}
\end{array} \quad \quad v' \quad \quad v
\]

4.3 Turkish nominalizations: first encounter

In this section, I present three types of nominalizers in Turkish and the types of categories each can select as well as whether they can derive entity-denoting nominals or event-denoting nominals. In doing so, I assume the following verbal structure for Turkish adapted from Key (2013):

(25)
\[
\begin{array}{c}
\text{VoiceP} \\
\text{CAUSP} \quad \quad \text{Voice} \quad \quad \text{CAUS}^\circ
\end{array} \quad \quad v' \quad \quad v_\circ
\]

In this structure, the VoiceP is the locus for introducing the external argument and it can be of the ACTIVE or the PASSIVE type. The CAUS head is the locus for external or syntactic causation, and it hosts the optional causee argument as an adjunct to this projection. The little $v$ head can have different flavors, such as BECOME, DO and CAUS. This is a projection required in all verbal structures because it is derives verbs from Roots. If it is of the CAUS
type, then it derives transitive verbs with an internal or lexical causation. In Key (2013), this vP selects a √P, which hosts the internal argument.

In this section, a distinction is made between nominals referring to entities and those referring to events. The former is a class of entity-denoting nominals, which lack an event variable. These can be simplex (e.g. table) or complex (e.g. transmission, meaning ‘part of a car’s engine’). The latter has an event variable, and thus entails an event.

These are typically complex nominals (e.g. destruction). Grimshaw (1990) identifies these two classes of nouns as referential/individual and complex event nominals, respectively. In what follows, I follow Borer (2003, 2011) and refer to them as R-nominals and AS-nominals; the properties of these two types of nominals are provided below:

(26)  
<table>
<thead>
<tr>
<th>R-nominals</th>
<th>AS-nominals</th>
</tr>
</thead>
<tbody>
<tr>
<td>no role assignment; no obligatory complements</td>
<td>role assignment; obligatory arguments</td>
</tr>
<tr>
<td>event reading not necessary</td>
<td>event reading necessary</td>
</tr>
<tr>
<td>no agent-oriented modifiers</td>
<td>agent-oriented modifiers</td>
</tr>
<tr>
<td>subjects are possessives</td>
<td>subjects are arguments</td>
</tr>
<tr>
<td>by phrases are non-arguments</td>
<td>by phrases are arguments</td>
</tr>
<tr>
<td>no implicit argument control</td>
<td>implicit argument control</td>
</tr>
<tr>
<td>no aspectual modifiers</td>
<td>aspectual modifiers</td>
</tr>
</tbody>
</table>

The three nominalizers I discuss are -Kl, -(ī)m and -mE. The first nominalizer primarily selects Roots. Even though there are a few exceptions, which are recent

---

4 This final point is not immediately relevant for the discussion in this section, but is highly important for the sections that follow, in which I claim that the vP must be the locus for introducing internal arguments, not a √P selected by it.

5 See Carnie (2011) for “mixed category” verbal nouns in Irish, which, according to the author, follow from either functional nominal categories, or as an “inherent-case repair strategy” in cases where structural case is not available.
coinages in Modern Turkish, this nominalizer is highly restrictive in what it can select. The nominals derived by this head are always $R$-nominals. The second nominalizer, -($\hat{I}$)$m$, on the other hand, can select both Roots and verbs. In the subsequent section, we see that when it select Roots, the resulting nominal is also always an $R$-nominal, but when it selects verbs, the resulting unit can be either an $R$-nominal or an $AS$-nominal. Finally, the nominalizer -$mE$, can select $CAUSP$ and anything underneath it. Similarly, when it selects a Root, the result is always an $R$-nominal. When it selects a $\nu P$ or a $CAUSP$, the resulting nominal can be either an $R$-nominal or an $AS$-nominal. None of the three nominalizers can select the VoiceP.

4.3.1 -$K\hat{I}$

When the nominalizer -$K\hat{I}$ selects a Root, the resulting nominal is always an $R$-nominal. It can never refer to nominals that denote an event. These $R$-nominals are often subject to semantic shift. Below is a list of examples:

(27) a. as+kı hang+$K\hat{I}$ ‘(cloth-) hanger’
b. bas+kı press+$K\hat{I}$ ‘oppression, edition’
c. bil+gi know+$K\hat{I}$ ‘knowledge’
d. dol+gu fill+$K\hat{I}$ ‘(dental) filling’
e. iç+ki drink+$K\hat{I}$ ‘(alcoholic) beverage’
f. il+gi relate+$K\hat{I}$ ‘interest’
g. sal+gi emit+$K\hat{I}$ ‘secretion’
h. sev+gi like+$K\hat{I}$ ‘love’
i. tut+ku hold+$K\hat{I}$ ‘passion’
j. ver+gi give+$K\hat{I}$ ‘tax’

Note that verbal Roots that cannot stand on their own are rare in Turkish (e.g. $\sqrt{UZ} \rightarrow *uz$ but $uzun$ ‘long,’ $uzak$ ‘far’ and $uza-$ ‘extend’). There is no example where -$K\hat{I}$ directly selects any of those. However, as we will see shortly, it cannot (typically) select $\nu Ps$ or anything larger than that. So, we can maintain that it is a primarily Root-selecting type.
Note also that -Kļ is not a productive nominalizer. Because the number of words it can derive is limited to the number of verbal Roots in the language, it cannot be productively used to select other types of elements. As a matter of fact, out of a total of 221 verbal Roots identified by Nakipoğlu and Üntak (2008), about half of them get selected by this nominalizer.

There are, however, some examples, where the nominalizer -Kļ selects units larger than a Root. These are words that have recently been introduced to Turkish in the last century. (28a) can be thought of an R-nominal because it neither entails an event of the verbal stem ilîş- ‘interfere with; tease’ nor any other event. This is true for the other examples, too, except maybe the last one, which refers to the state of being defeated.

(28) a. il-iş-ki tie+REC+Kļ ‘relation; affair’
b. çel-iş-ki hit+REC+Kļ ‘contradiction’
c. yan-il-gi err+INCH+Kļ ‘illusion’
d. yen-il-gi defeat+PASS+Kļ ‘defeat (n)’

There are no cases where -Kļ selects any unit larger than a vP. We can end this section by saying that -Kļ primarily selects Roots, sometimes selects verbal stems but never CAUSPs. In the few cases where it selects vPs, the derived nominal refers to abstract nouns, including the ones that refer to the state or result of the event that the verbal Root entails.

4.3.2 -($l)m

-($l)m is a type of nominalizer that can select both Roots and vPs. (29) lists some R-nominals and (30) some event nominals derived by this affix. Note that there is at least one example, (29j), in which ($l)m directly attaches to a Root form that cannot stand on its own, *yěş (but yěşer- ‘produce leaves’ and yěşil ‘green’).
Nominals derived by -(I)m from Roots can be ambiguous between an R-nominal and an AS-nominal reading, analogous to transmission as a part of a car’s engine versus transmission as an event of transmitting. When -(I)m derives an R-nominal in this way, it usually is the result of the event the verbal Root or stem denotes. For instance, the following examples are ambiguous between the first and the second English equivalents:

(31)  

\[
\begin{array}{lll}
\text{a. } & \text{seç-im} & \text{choose+(I)m} & \text{‘choosing’} \\
\text{b. } & \text{kes-im} & \text{cut+(I)m} & \text{‘cutting, slaughtering’} \\
\text{c. } & \text{ölç-üm} & \text{measure+(I)m} & \text{‘measuring’} \\
\text{d. } & \text{yap-im} & \text{make+(I)m} & \text{‘making’} \\
\text{e. } & \text{çiz-im} & \text{draw+(I)m} & \text{‘act of drawing’} \\
\end{array}
\]

<table>
<thead>
<tr>
<th>AS-nominal</th>
<th>R-nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘choosing’</td>
<td>‘election’</td>
</tr>
<tr>
<td>‘cutting, slaughtering’</td>
<td>‘section’</td>
</tr>
<tr>
<td>‘measuring’</td>
<td>‘scale’</td>
</tr>
<tr>
<td>‘making’</td>
<td>‘production’</td>
</tr>
<tr>
<td>‘act of drawing’</td>
<td>‘drawing (n)’</td>
</tr>
</tbody>
</table>

I claim that AS-nominals in the form of Root+(I)m, such as seç-(I)m ‘choosing’ have a null v head between the Root and the nominalizer. In this case, we are compelled to claim that AS-nominals derived by -(I)m must be selecting a vP, not a Root. Here is why.

Consider the alternation in (32):

(32)  

\[
\begin{array}{lll}
\text{inchoative} & \text{transitive} \\
\text{dol- ‘become full’} & \text{doldur- ‘fill’} \\
\text{çekil- ‘withdraw’} & \text{çek- ‘pul’} \\
\end{array}
\]
As the above examples show, the transitive/inchoative alternation in Turkish, can be derived in either direction, such that the inchoative verb has the base form in the first example while the transitive verb has the base form in the second example. When -(l)m selects the base form dol- to derive an AS-nominal, it cannot refer to a transitive filling event, but it has to refer to an inchoative filling event, such as a pool becoming full of water. When it selects the base form çek- to derive an AS-nominal, it has to refer to a transitive pulling event, such as the pulling of one’s hair. These examples indicate that when -(l)m selects a base form to derive an AS-nominal, its stem cannot be the Root, but instead Root+v, where v is null; otherwise, the meaning of the derived noun would not be limited to the meaning of the verb stem, but rather to the Root semantics, which would give rise to special meanings.

Cases where -(l)m selects a vP are indeed quite common. These are also relatively new words in Turkish, but it appears that we have a much larger collection of them compared to those where -Kl selects a vP. (33) and (34) list some R-nominals and AS-nominals derived by -(l)m from verbal stems, respectively.

(33)  a. an-la-m  understand+VD0+(l)m ‘meaning’
      b. öz-le-m  miss+VD0+(l)m ‘longing’
      c. denk-le-m equate+VD0+(l)m ‘equation’
      d. aç-il-im  open+VBECOME+(l)m ‘initiative’
      f. eğ-il-im  bend+VBECOME+(l)m ‘tendency’
      g. ger-il-im  stretch+VBECOME+(l)m ‘tension’

(34)  a. kul-lan-im  use+VCAUS+(l)m ‘usage’
      b. ed-in-im  possess+VCAUS+(l)m ‘acquisition’
      c. dağ-ı-im  spread+VCAUS+(l)m ‘distribution’
      d. gel-iş-im  come+VBECOME+(l)m ‘development’
Finally, examples where -(l)m selects units larger than the vP such as reciprocals and causatives exist as well. These are quite rare and are also recent additions to Turkish vocabulary. Two examples are provided in (35). (The example in (a) has a nominal stem derived by -Kl glossed as single items here.)

(35)  a. etki-le-ş-im  effect+VDO+REC+(l)m  ‘interaction’  R-nominal  
b. bos-al-t-im  empty+VBECOME+CAUS+(l)m  ‘excretion’  R-nominal

We can conclude this section by stating that -(l)m can select Roots, vPs and CAUSPs, the latter being quite rare. When it selects Roots, the derived nominal must be of the R-nominal class. When it selects vPs, it can be either an R-nominal or an AS-nominal. In the rare cases where it can select a CAUSP, they are always R-nominals.

4.3.3  -mE

The final nominalizer we look at in this section, -mE, as it appears, can select Roots. These consist of a smaller set (about 35), but they, nevertheless, exist. (36) lists some examples:

(36)  a. aç-ma  open+mE  a type of pastry  
b. as-ma  hang+mE  ‘vine’  
c. bas-ma  press+mE  a type of cotton fabric  
d. bol-me  divide+mE  ‘division, partition’  
e. dol-ma  fill+mE  a type of stuffed vegetables  
f. ez-me  crush+mE  a type of salad with ground vegetables  
g. in-me  descend+mE  ‘stroke’  
h. oy-ma  engrave+mE  ‘carving’  
i. sac-ma  scatter+mE  ‘buckshot’  
j. sür-me  apply+mE  ‘mascara’

Nominals with the form of Root+mE can also derive AS-nominals. However, in this case, we have to accept that -mE selects a vP, not a Root as we have done for the previous nominalizer -(l)m. Consider the alternation in (37):
When \(-mE\) selects base forms to derive \(AS\)-nominals, they inherit the argument structure of the base form. For example, the \(AS\)-nominal \(inme\) has to refer to an intransitive descending event (e.g. walking down the stairs) whereas the \(AS\)-nominal \(bölmeme\) has to refer to a transitive dividing event (e.g. cutting bread into two). Because of this reason, I take \(AS\)-nominals derived by \(-mE\) as Root\(+v+mE\) forms as well, where the \(v\) is null, because I assume the inchoative/transitive alternation is encoded in the presence of the \(v\).

The nominalizer \(-mE\) can derive both \(R\)-nominals and \(AS\)-nominals from \(v\)Ps. As expected, \(R\)-nominals are restricted to a subset of all possible \(\sqrt{v}+v\) combinations while \(AS\)-nominals can be productively derived from any of the \(\sqrt{v}+v\) combinations possible in the language. Some examples for both class of nominals are provided below:

(37) \begin{align*}
\text{inchoative} & \quad \text{transitive} \\
\text{in-} & \text{‘descend (intr.)’} \quad \text{indir-} & \text{‘descend (tr.)’} \\
bölüm- & \text{‘be divided’} \quad böl- & \text{‘divide’}
\end{align*}

Similarly, the nominalizer \(-mE\) can derive both \(R\)-nominals and \(AS\)-nominals from \(CAUS\)Ps. As expected, the former group forms a smaller set compared to the latter. This is because \(-mE\) can basically derive \(AS\)-nominals from any given \(CAUS\)P. (39) lists some \(R\)-nominals derived by \(-mE\).
As I have mentioned above, -mE can derive an AS-nominal from basically any type of verbal stem. There are a few R-nominals where -mE attaches to a complex stem such as (40). In these cases, the meaning of the nominal is restricted to the meaning of the special meaning created by the first merge of the Root and the verbalizing morpheme. For instance, özel refers to ‘special,’ ‘personal’ as well as ‘private (i.e. non-governmental).’ However, when verbalized, only the last meaning is available (just like the English equivalent, privatize), and from there on, only this special meaning is available for further derivations, including the nominalization headed by -mE. This is because only the first merge that includes the Root is the locus for creating special meanings (Marantz 1997, Arad 2003).

We have looked at three different nominalizers and whether they can select Roots to form new nominals. We have seen that all three of these can indeed select Roots, and when they do so, they always derive an R-nominal. Note that the same Root can be selected by more than one nominalizer, deriving different meanings. Some examples are given in (41).

(39)  a. çık-ar-t-ma\(^6\) exit\(^{v_{\text{CAUS}}}\)\(^{CAUS}\)\(^{mE}\) ‘sticker’
     b. ot-ur-t-ma \(\sqrt{\text{OT}}\)+\(^{v_{\text{DO}}}\)\(^{CAUS}\)\(^{mE}\) ‘a type of casserole dish’
     c. uç-ur-t-ma fly\(^{v_{\text{CAUS}}}\)\(^{CAUS}\)\(^{mE}\) ‘kite’
     d. çök-er-t-mE crouch\(^{v_{\text{CAUS}}}\)\(^{CAUS}\)\(^{mE}\) ‘a type of folk dance’

(40) özel-les-tir-me private\(^{v_{\text{BECOME}}}\)\(^{CAUS}\)\(^{mE}\) ‘privatization’

\(^6\) Key (2013) analyzes the verbal stem çıkart- as having a CAUS affix that undergoes fission postsyntactically But note that the nominals derived by \(-\{l\}m\) from çıkart- and çikar- have different meanings: ‘sticker’ and ‘military invasion,’ respectively.
A summary of the properties of the three nominalizers discussed in this section is provided in Table 6.

<table>
<thead>
<tr>
<th>Root-selecting</th>
<th>vP-selecting</th>
<th>CAUSP-selecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-nominal</td>
<td>AS-nominal</td>
<td>R-nominal</td>
</tr>
<tr>
<td>-Kı</td>
<td>(\sqrt{SEV+ki}) ‘love’</td>
<td>NA</td>
</tr>
<tr>
<td>(-(l)m)</td>
<td>(\sqrt{TUT+(um)}) ‘attitude’</td>
<td>NA</td>
</tr>
<tr>
<td>-mE</td>
<td>(\sqrt{DOL+ma}) stuffed vegies</td>
<td>NA</td>
</tr>
</tbody>
</table>

In the next section, I examine nominalizations that are formed from Roots, vPs and CAUSPs one by one and determine which of these can derive synthetic compounds as well as the constraints on deriving such compounds.

### 4.4 Analysis

In this section, I provide an analysis of nominal compounds in which the head nominal is derived by the nominalizers -Kı, -(l)m and -mE. In doing so, I categorize compounds
according to whether the nominalizer selects a Root, a vP or a CAUSP. I consider the
presence or absence of -(s)İ(n), event entailment, availability of the by-phrase, argument
inheritance, aspectual modification and adverbial modification as diagnostic tests to
determine the status of the compounds in hand as synthetic compounds or not.

4.4.1 NV%Ns with \+_NOM

We have seen in the previous section that all three of the nominalizers under scrutiny
herein can select Roots. As seen in Table 6, nominals derived in this manner can only be
R-nominals. In (42), an example compound where the head noun is derived from a Root
by each these nominalizers is provided:

(42) a. anne sev-gi-*(si)
    mother \_\_love-ki-SIN
    ‘mother love’

    b. kadın çiz-im-*(i)
    woman \_\_\_\_draw-im-SIN
    ‘woman drawing’

    c. biber dol-ma-*(si)
    pepper \_\_\_\_\_\_\_fill-ME-SIN
    ‘stuffed peppers’

First of all, as we can see in the examples above, when the head position is occupied by a
nominal derived directly from the Root, the compound marker -(s)İ(n) is obligatory.
Second, if we look at these examples closely, we will see that none of them entails an
event. The most obvious examples are (42b) and (42c), which refer to a type of drawing
and a type of food, both objects, respectively. (42a), while it may not be an object, is an
abstract noun, an individual.
This observation about event entailment becomes much clearer if we consider whether these inherit any argument structure. The example in (42a) is ambiguous between ‘love felt by mothers’ and ‘love felt for mothers.’ What that means is the first element *anne* ‘mother’ (i) does not have to be the theme argument, (ii) and it can potentially be the agent argument. This is true for the other examples, too. (42b) can potentially refer to a drawing made by a woman. Though the agent reading for the first element in (42c) is not immediately accessible, the following example shows that this position can be spared for an agent argument, too:

(43).  

\[
\begin{align*}
\text{*anne dol-ma-si} \\
\text{mother} \text{ fill-ME-SIN} \\
\text{‘stuffed vegetables cooked by a mother’}
\end{align*}
\]

Furthermore, these compounds cannot take *by*-phrases suggesting that there is no verbal structure in their representation\(^7\).

(44) a.  

\[
\begin{align*}
\text{*çocuk tarafindan anne sev-gi-si} \\
\text{child by mother} \text{ love-KI-SIN} \\
\text{Intended meaning: ‘love felt for the mother by a child’}
\end{align*}
\]

b.  

\[
\begin{align*}
\text{*öğrenci tarafindan kadin çiz-im-i} \\
\text{student by woman} \text{ draw-IM-SIN} \\
\text{Intended meaning: ‘drawing of a woman by the student’}
\end{align*}
\]

c.  

\[
\begin{align*}
\text{*anne tarafindan biber dol-ma-si} \\
\text{mother by pepper} \text{ fill-ME-SIN} \\
\text{Intended meaning: ‘stuffed peppers made by a mother’}
\end{align*}
\]

---

\(^7\) In Turkish, stative verbs such as *sev*- ‘love’ can take progressive aspect and aspectual modifiers. So the ungrammaticality of this particular example must result from the lack of a verbal stem rather than about the nature of the stative verbs.

(i)  

\[
\begin{align*}
\text{Onu iki sene-dir sev-i-yor-um} \\
\text{him/her two year-EP love-COP-PROG-1SG} \\
\text{‘I have been in love with him for two years.’}
\end{align*}
\]
Finally, these compounds can be modified neither by adverbs nor aspectual markers due to the same reason mentioned above. Consider the following examples.

(45) a. (*iki ay içinde) (*tamamen) anne sev-gi-si
two month in completely mother √love-KIN
Intended: ‘completely loving of a mother in two months’

b. (*bir saat-te) (*nihayet) kadın çiz-im-i
one hour-LOC eventually woman √draw-IM-SIN
Intended: ‘eventually drawing of a woman in one hour’

c. (*bir hafta-dar) (*sik sik) biber dol-ma-si
one week-EP frequently pepper √fill-ME-SIN
Intended: ‘frequently filling of peppers in for one week’

We can conclude that NV%Ns, where the head nominal is derived directly from a Root, the derived compound can never be a true synthetic compound. These compounds are just like any other primary compounds as examined in the previous chapter.

(46) NV%Ns with √+NOM (All R-nominals)
presence of -(s)I(n) yes
event entailment no
by-phrase no
argument inheritance no
external argument yes
adverbial modification no
aspectual modifiers no

4.4.2 NV%Ns with vP+NOM

We have seen in section 4.3 that both R-nominals and AS-nominals can be derived from verbal stems. Among the three nominalizers we examine in this chapter, only -KI fails to derive AS-nominals from verbal stems, but can derive R-nominals. These are few, but they nevertheless merit an explanation. This leaves us with five types of compounds to be accounted for in this section:
The first three of the examples are \textit{R}-nominals and are all obligatorily marked with the compound marker \textit{-I(s)I(n)}. The example in (47d) can be marked with the compound marker, and the meaning difference caused by the presence of this marker in this particular example is rather subtle. The final example in (47e) can be marked with the compound marker, and if it is, then the \textit{R}-nominal reading (i.e. ‘reference’) is semantically more accessible. An \textit{AS}-nominal reading is available to some speakers.

Let us first consider the \textit{R}-nominals in (47a-c). As with the \textit{R}-nominals in the previous section, none of these entail an event. This is especially obvious in (47c), which does not entail any ‘freezing’ event, but it refers to an object, ice-cream. We can argue that (47a) and (47b) are \textit{R}-nominals, too. Even though the ‘hitting against each other (e.g. contradicting) and the ‘causing to make’ events are inherent to the semantics of these nominals, they are not available as event variables. Let us see if these can take \textit{by-}
phrases, require internal arguments, and allow external arguments. Note that the verbal stem in (47a) is not a transitive verb in Turkish; therefore, the by-phrase test would not be an eligible test for this particular example. However, it can be used with (47b) and (47c) as shown in (48a) and (48b), respectively.

(48) a. *Rusya tarafından doğal-gaz yap-tr-im-ı
    Russia by naturalgas √make-CAUS-IM-SIN
    Intended meaning: ‘Russia’s sanctioning of natural-gas’

b. *Ali usta tarafından ahududu don-dur-ma-sı
    Ali master by raspberry √freeze-CAUS-ME-SIN
    Intended meaning: ‘Chef Ali’s raspberry ice cream’

Consider the deverbal nouns in (48b) and (48c), both of which have the morphology of a little ν with a CAUS flavor. These R-nominals resist taking by-phrases because they do not entail events. So, by-phrases are not available for R-nominals even when they have an overt verbalizer. Also, consider (49a), where yaptrim ‘sanction’ takes an agent to form a compound, and (49b), where dondurma ‘ice-cream’ takes a source, location, theme and a logical agent as part of the compound.

(49) a. Türkiye ABD yap-tr-im-ı ile karşı karşı-ya.
    Turkey USA √make-CAUS-IM-SIN with against against-DAT
    ‘Turkey faces USA sanctions.’

b. Roma / ev / ahududu / Yaşar Usta don-dur-ma-sı
    Rome / house / raspberry / Chef Yaşar √freeze-νDO-ME-SIN
    ‘Rome/ home-made/ raspberry/ Chef Yasar’s ice-cream’

To conclude, the first position in these compounds is not reserved for internal arguments despite the presence of a verbalizer.

These compounds also fail to take adverbial modification as well as aspectual markers as shown in the following examples. Compare the examples in (50) with their
counterparts (51); even though the verbal stems in (50) can be modified with adverbs and aspectual markers, they cannot be modified as such in the nominalized versions in (51):

\[(50)\]
\[\begin{align*}
\text{a.} & \quad \text{kader bin yıl-} \text{dir dua-} \text{yla tamamen çel-iş-} \text{i-} \text{yor} \\
& \quad \text{destiny thousand year-EP prayer-with completely hit-REC-COP-PROG} \\
& \quad \text{‘Destiny has completely been contradicting prayer for a thousand years.’}
\end{align*}\]

\[\begin{align*}
\text{b.} & \quad \text{Ahmet iki ay-} \text{dır güçlük-le ev yap-tur-} \text{i-} \text{yor} \\
& \quad \text{Ahmet two month-EP hardship-COM house make-CAUS-COP-PROG} \\
& \quad \text{‘Ahmet has been having a house built with hardship for two months.’}
\end{align*}\]

\[\begin{align*}
\text{c.} & \quad \text{Anne-m iki dakika-da hızlica ahududu don-dur-} \text{du} \\
& \quad \text{mother-1SG.POSS two minute-LOC quickly raspberry freeze-CAUS-PST} \\
& \quad \text{‘My mom froze raspberries quickly in two minutes.’}
\end{align*}\]

\[(51)\]
\[\begin{align*}
\text{a.} & \quad \text{(*bin yıl-} \text{dir) (*tamamen) kader-dua çel-iş-} \text{ki-si} \\
& \quad \text{thousand year-EP completely destiny-prayer hit-REC-KI-SIN} \\
& \quad \text{Intended: ‘completely contradicting of destiny and prayer for a thousand years.’}
\end{align*}\]

\[\begin{align*}
\text{b.} & \quad \text{(*iki ay-} \text{dır) (*güzclük-le) doğal-gaz yap-tur-} \text{im-} \text{ı} \\
& \quad \text{two month-EP hardship-COM natural-gas make-CAUS-IM-SIN} \\
& \quad \text{Intended: ‘sanctioning of natural-gas with hardship for two months’}
\end{align*}\]

\[\begin{align*}
\text{c.} & \quad \text{(*iki dakika-da) (*hemen) ahududu don-dur-} \text{ma-si} \\
& \quad \text{two minute-LOC quickly raspberry freeze-CAUS-ME-SIN} \\
& \quad \text{Intended: ‘ice-creaming of raspberries quickly in ten hours’}
\end{align*}\]

We have thus seen that compounds with AS-nominal heads derived from vPs have neither an argument structure nor an event entailment. But, how is it possible that an R-nominal can have a verbal projection and yet fail to take arguments and denote an event? We have said in the previous section that a verbal layer is a must in order to derive AS-nominals. In this section, we see that a verbal layer does not guarantee the presence of an event. If the same grammatical architecture is responsible for deriving, for instance, yaptrim meaning ‘cause to make’ and yaptrim meaning ‘sanction,’ then we need to
explain why the latter does not project arguments and denote an event while the former can.

Marantz (2013) addresses this issue and proposes that special meanings denoted by nominals that include verbal morphology in their PF forms, in fact, have semantically null morphemes in their LF form. In his analysis, a verbal morpheme, such as the little \( v \) head would be semantically null arising from contextual allosemy analogous to contextual allomorphy. Let me explain this phenomenon with Marantz’s own examples. In the PF branch of derivation of English verbs in past tense forms, regular and irregular forms are possible. Consider the following examples adapted from Marantz (2013) (ignoring English left-headedness, which is not relevant here):

\[
\text{(52) } \begin{align*}
\text{a.} & \quad \begin{array}{c}
\text{TP} \\
\sqrt{vP} & T^o
\end{array} \\
\sqrt{\text{TEACH}} & \sqrt{v^o} \\
\sqrt{\text{teach}+\emptyset+pst} & \text{taught}
\end{align*}
\begin{align*}
\text{b.} & \quad \begin{array}{c}
\text{TP} \\
\sqrt{vP} & T^o
\end{array} \\
\sqrt{\text{QUANT}} & \sqrt{v^o} \\
\sqrt{\text{quant}+ize+pst} & \text{quantized}
\end{align*}
\]

These examples show that when the \( v \) head is phonologically null, as in (52a), it can give rise to contextual allomorphy, such that in the context of a \( T \) head bearing the past tense, a special form is inserted (i.e. \textit{taught}, *\textit{teached}). On the other hand, in (52b), the presence of a phonologically overt \( v \) head eliminates the context where special vocabulary items can be inserted. Marantz proposes that in the LF side of derivation where semantic interpretation occurs, a similar phenomenon occurs, this time with semantic values, rather than, obviously, phonological values, which he calls “contextual allosemy.” In other words, we have a phonological interpretation at PF and a semantic interpretation at LF.
after spell-out, which are subject to analogous conditions, the former having to do with conditions on sound, such as contextual allomorphy, and the latter having to do with conditions on meaning, such as contextual allosemy.

Among the examples Marantz (2013) provides, the Japanese ones seem to be relevant here because they show similar patterns to Turkish. Citing Volpe (2005) Marantz shows that the little \( v \) head with a causative flavor in certain nominalizations does not contribute to the meaning of the derived nominal. Consider the following examples:

\[
\begin{array}{ccc}
\text{Root} & \text{Verb}_{\text{INTRANS}} & \text{Nominalization} \\
a. & \sqrt{\text{ko(y)}} & \text{ko-e-} (r_u^{\text{NON-PAST}}) \\
& & \text{‘to become fat’} \\
b. & \sqrt{sag} & \text{sag-ar-} (u^{\text{NON-PAST}}) \\
& & \text{‘to be lowered’}
\end{array}
\]

In these examples, ‘to become fat’ is not semantically related to ‘manure,’ nor is ‘to be lowered’ semantically related to ‘hand-me-downs.’ Marantz proposes that the little \( v \) in such examples is semantically null, which therefore does not destroy the semantic context for deriving contextual allosemy, giving rise to special meanings, just like phonological contexts can give rise to contextual allophony. Assuming that Marantz’s claims about allosemy at LF is on the right track, we can explain the \( R \)-nominals in (47a-c). Consider the derived nominal \textit{dondurma} ‘ice-cream’ in (47c). Its derivation before spell-out must have a verbal layer because there is an overt verbalizing Vocabulary Item.

\[
\begin{array}{c}
\text{(54)}
\end{array}
\]
If at LF, the \( v \) head is semantically null, then we might say that the nominalizer is semantically adjacent to the Root. Remember that in the previous section, we have seen that Root-selecting nominalizers can derive \( R \)-nominals, but not \( AS \)-nominals. In this section, we see that nominalizers semantically adjacent to the Roots, can derive \( R \)-nominals, too. We might therefore make a generalization, such that \( R \)-nominals can be derived only when the nominalizer is adjacent to the Root at LF.

Kornfilt (2012) shows that \(-mE\) cannot undergo suspended affixation if the nominal it derives is a resultative. Consider the following examples:

\[
\begin{align*}
(55) \quad &\text{\textit{don}-\textit{dur}-ma} \\
&\text{\( \sqrt{\text{freeze-VAUS-ME}} \)} \\
&\text{‘ice-cream’}
\end{align*}
\]

\[
\begin{align*}
(56) \quad &\text{\textit{kav}-\textit{ur}-ma} \\
&\text{\( \sqrt{\text{roast-VDO-ME}} \)} \\
&\text{‘roasted’}
\end{align*}
\]

\[
\begin{align*}
(57) \quad &\text{\textit{don}-\textit{dur}-\textit{up}} \\
&\text{\( \sqrt{\text{freeze-VAUS-VRB.CONJ}} \)} \\
&\text{Intended: ‘ice-cream and roasted meat’}
\end{align*}
\]

The example in (57) shows that result nominals such as (55) and (56) cannot be coordinated as such where the nominalizing head undergoes suspended affixation. (57) is only grammatical with an event reading, ‘freezing and roasting (of X).’ The fact that (57) is ungrammatical with the result nominal reading can be explained insofar as Marantz (2013) is right about the need for semantic Root-adjacency in deriving special meanings. In other words, examples like (57) are ruled out because there is semantically contentful material between the first Root \( \sqrt{\text{DON}} \) and the suspended nominalizing head \(-mE\) as shown in (58); the little \( n \) head is too far from \( \sqrt{\text{DON}} \), and thus, fails to derive a special meaning such as ‘ice cream.’
To recap, we can say that R-nominals derived from vPs are idioms whose v heads are semantically null at LF, giving rise to contextual alloacymy and that such nominals cannot derive synthetic compounds due to their individual non-eventive properties. I refer to compounds derived with these nominals as ‘pseudo-synthetic compounds’ because they seemingly have a verbal layer in their derivation, and yet, fail to derive true synthetic compounds, where the first element is an argument to the derverbal head. Such compounds are indeed primary compounds that can be represented as DPs with the first element in the specifier of the DP triggering agreement on the second element as proposed in Chapter 3. We can list the properties of pseudo-synthetic compounds as follows.

\[ NV\%N \text{ R-nominals with } vP^{+}\text{NOM heads} \]

<table>
<thead>
<tr>
<th>Property</th>
<th>Rnominals</th>
<th>True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of -(s)I(n)</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Event entailment</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>By-phrase</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Argument inheritance</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>External argument</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Adverbial modification</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Aspectual modifiers</td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>
Let us now return to the examples in (47d-e). Note that these lack the compound marker -(s)İ(n), which gives us all the rights to suspect that they are true synthetic compounds. First of all, both of these examples denote an event, such that the first one would not be felicitous if there were not any ‘sharing’ event and the second one would not be felicitous if there were not any ‘sending’ event. Let us see if these two compounds can take by-phrases, select internal arguments and reject external arguments. The following examples show that these indeed can take by-phrases.

(60) a. öğrenci-ler tarafından bilgi pay-laş-im
student-PL by information \share-VER-IM
‘information sharing by the students’

b. müşteri tarafından para gön-der-me
customer by money \-CAUS-ME
‘money transfering by the customer’

The first element in these two compounds are obviously theme arguments, such that it is information that gets shared in (60a) and money that gets sent in (60b). The following examples indicate that agent arguments are not allowed in this position.

(61) a. *öğrenci pay-laş-im
student \share-VER-IM
Intended: ‘student’s sharing’

b. *müşteri gön-der-me
customer \-VER-ME
Intended: ‘customer’s sending’

So far, we have seen that the compounds in (47d) and (47e) have an argument structure, such that the first element must be an internal argument to the deverbal head. This shows that these are true synthetic compounds insofar as our definition of synthetic compound requires such property. If they are true synthetic compounds denoting events,
then they must be able to be modified by adverbs and aspectual markers. The following examples demonstrate that it is indeed the case.

(62) a. iki hafta-dir güçlük-le bilgi pay-laş-im
   two week-EP hardship-COM information √share-VER-IM
   ‘sharing of information with difficulty for two weeks’

   b. bir dakika-da hızlıca para gön-der-me
   one minute-LOC quickly money √-VER-ME
   ‘transferring of money quickly in one minute’

We can conclude this section by stating that AS-nominals derived directly from vPs can derive true synthetic compounds, which also show the properties of AS-nominals themselves.

(63) NV%N AS-nominals with vP+NOM heads

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>presence of -(s)l(n)</td>
<td>no</td>
</tr>
<tr>
<td>event entailment</td>
<td>yes</td>
</tr>
<tr>
<td>by-phrase</td>
<td>yes</td>
</tr>
<tr>
<td>argument inheritance</td>
<td>yes</td>
</tr>
<tr>
<td>external argument</td>
<td>no</td>
</tr>
<tr>
<td>aspectual modifiers</td>
<td>yes</td>
</tr>
</tbody>
</table>

4.4.3 NV%Ns with CAUSP+NOM

Finally, we need to examine a set of compounds in which the head noun is derived from verbal stems that are larger than a vP. Assuming that the structure of the verbal layers in Turkish is the one in (25), this has to be the CAUSP. According to Table 5, we have three types of compounds derived in this manner. The first two of these R-nominals derived by -(l)m and -mE. The third one is an AS-nominal derived only by -mE. Following is an example for each case, respectively.

(64) a. ev can-lan-dir-im-*t(i)
   house √life-VER-CAUS-IM-S1N
   ‘a house reconstruction’ (e.g. at an archeological museum)
b. *patlıcan ot-
   ur-t-
   ma-* (si)
eggplant √sit-VER-CAUS-ME-SIN
‘eggplant casserole’

c. *öğretmen yet-
   iş-tir-
   me
teacher √suffice-VER-CAUS-ME
‘teacher training’

The first two of these examples are obligatorily marked with the compound marker -
(s)İ(n) and we can rightfully claim that these compounds denote objects, a reconstructed
model and a type of dish, respectively, despite the presence of a verbalizing v head and a
causativizing CAUS head in both. The following examples show that these two can have
non-theme arguments, such as location and agent, in the first position:

(65) a. müze / mimar can-
   lan-dir-
   im-
   i
museum architect √life-VER-CAUS-IM-SIN
‘a reconstruction at a museum’ / ‘a reconstruction by an architect’

b. lokanta / anne ot-
   ur-t-
   ma-
   si
restaurant mother √sit-VER-CAUS-ME-SIN
‘a casserole dish at a restaurant’ / ‘a casserole dish made by a mother’

And as expected, these compounds allow neither adverbial modification nor
aspectual modification as the following examples show.

(66) a. (*iki ay-
   da) (*tamamen) ev can-
   lan-dir-
   im-
   i
two month-LOC completely house √life-VER-CAUS-IM-SIN
Intended: ‘a house-reconstruction completely in two months’

b. (*bir saat-
   te) (*çabucak) patlıcan ot-
   ur-t-
   ma-
   si
one hour-LOC quickly eggplant √sit-VER-CAUS-ME-SIN

These compounds show the same exact pattern we have seen for R-nominals
derived from Roots and vPs, summarized in (67).
We have thus seen that R-nominals derived from CAUSPs can have more than one morpheme between the Root and the nominalizer, and yet, they fail to derive synthetic compounds. Even though R-nominals derived from CAUSPs are scarce, we need to explain why such few cases are possible. We have said in the previous section, following Marantz (2013), that R-nominals tend to have idiosyncratic meanings, which rise from the nominalizer’s semantic adjacency to the Root because the v heads in such cases is semantically null, providing the right environment for contextual allosemey. We can extend our claim to nominals derived from CAUSPs, as well. In this case, both the verbalizing morpheme and the causative morpheme are semantically null, such that, for instance, oturtma has nothing semantically to do with either ‘sitting’ or ‘causing to sit’ in the R-nominal reading of this noun.

On the other hand, AS-nominals derived from CAUSPs have semantically contentful verbalizers and causatives. The AS-nominal in (64c) has an argument structure, such that first element has to be the internal argument and it denotes an event, training of students in this particular example. For example, this compound cannot refer to a case where the first element öğretmen is the trainer rather than the trainee.

The following examples further show that this compound can be modified by adverbs and aspectual markers.
(68) on yıl-dır güçlük-le öğretmen yet-iş-tir-me
ten year-EP hardship-COM teacher  \text{\textsuperscript{\text{\textendash}}}suffice-VER-CAUS-ME
‘training of teachers with hardship for ten years’

AS-nominals derived from CAUSPs show the following properties.

(69) NV\textsuperscript{\%}N AS-nominals with CAUSP+Nom heads

<table>
<thead>
<tr>
<th>Property</th>
<th>Root-selecting</th>
<th>vP-selecting</th>
<th>CAUSP-selecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of -\textit{(s)}I(n)</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Event entailment</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>By-phrase</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Argument inheritance</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>External argument</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Aspectual modification</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
</tbody>
</table>

4.4.4 Summary

We have looked at three types of nominals, which are derived from Roots, vPs and CAUSPs and determined that nominals derived from Roots or derived from vPs and CAUSPs with semantically null verbal elements cannot form synthetic compounds. In other words, nominalizers that are semantically adjacent to the Root can only form R-nominals and these do not project arguments, thus failing to be the head of true synthetic compounds. AS-nominals, on the other hand, have to have verbal stems, which are semantically contentful. Synthetic compounds can be formed only by such nominals, which entail events, can take by-phrases and internal arguments, and be modified by adverbs and aspectual modification. These findings are summarized in Table 7.

Table 7: Properties of true synthetic compounds and their distribution across nominal types

<table>
<thead>
<tr>
<th>Properties of true synthetic compounds</th>
<th>Root-selecting</th>
<th>vP-selecting</th>
<th>CAUSP-selecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event entailment</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>By-phrase</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Argument inheritance</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Adverbiaial modification</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Aspectual modification</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td>Compound marker -\textit{(s)}I(n) absent</td>
<td>X</td>
<td>NA</td>
<td>X</td>
</tr>
</tbody>
</table>
4.5 Conclusion

In this chapter, we have looked at a number of seemingly synthetic compounds in Turkish, in which the first element is a theme argument to the second element, a nominal. We have seen that derived nominals formed directly from Roots cannot form true synthetic compounds. This is because such compounds would require the primary compound marker -(s)İ(m), do not have an argument structure such that the first element has to be an internal argument, and do not allow adverbial and aspectual modification. We have thus determined that Roots do not project internal arguments, and that for true synthetic compounds to be possible, the derived nominal in second position must have a verbal stem consisting of at least a vP.

However, we have also seen that the presence of a v head in the PF does not guarantee that the derived nominal can project an internal argument and form a synthetic compound. We have seen that when the derived nominal denotes an R-nominal, it also fails to project an internal argument. We have maintained, following Marantz (2013), that this is because the verbalizers in these nominals are semantically null at LF, creating an environment for contextual allostery, in which the nominalizer and the Root are semantically adjacent to one another. This adjacency allows for various meanings to occur. For example, in don-dur-ma (.freeze+CAUS+NOM), despite the presence of an overt causative marker at PF, has no semantically contentful element between the Root and the nominalizer, thus deriving a meaning which is only remotely related to ‘cause to freeze’ (i.e. ‘ice-cream’).
We can speculate that semantically null \( v \) heads cannot project specifiers, thus fail to take internal arguments. One possible line of thinking is that the \( R \)-nominals are idioms. As a matter of fact, \( R \)-nominals tend to be semantically opaque. Their meanings cannot be easily predicted from their morphological composition. So, it might be the case that such idioms are syntactically pruned, such that the specifier position of the \( vP \) is not available in the idiomatic ones while it is in the compositional ones. For the idiomatic interpretation to rise, the particular structure in (70b) is required.

(70)  
\[
\begin{align*}
\text{a. } & \text{yaptırım, ‘cause to make’} \\
\text{b. } & \text{yaptırım, ‘sanction’}
\end{align*}
\]

This leaves us with \( AS \)-nominals, in which there is a semantically contentful \( v \) head between the Root and the nominalizing head, whose phrasal projection does indeed have a specifier position, which is the designated host for internal arguments. We can therefore conclude that only \( AS \)-nominals can form true synthetic compounds. Not surprisingly, these are the only type of compounds that allow \( by \)-phrases, adverbs and aspectual modification.
CHAPTER 5
AGREEMENT IN TURKISH APHASIA

5.1 Introduction

In previous chapters, I analyzed primary and synthetic compounds in Turkish, and claimed that the compound marker -(s)İ(n) is always an indicator of a primary compound structure, and it cannot co-occur with agreement markers because this compound marker and agreement markers are of the same type competing for a single position of exponence, on the noun which acts as the possessee. In this chapter, I take a different approach and look at aphasiological data and analyze the errors produced by Turkish individuals with Broca’s and Conduction aphasia in a task where they are required to use agreement morphology in the context of a primary compound. In other words, I investigate if they can correctly use agreement morphology when the compound marker -(s)İ(n) and a possessive agreement marker are competing for realization.

However, before I investigate the compound marker and its relation to agreement morphology, I need to find out to what extent Turkish-speaking individuals with aphasia can produce agreement morphology of different paradigms because Turkish has rich agreement morphology, four paradigms to be more specific, which has not been studied in aphasiological literature in much depth. It is therefore believed that aphasic production of Turkish agreement patterns provides us with better insights into the mental representation of the organization of agreement material across languages.
There is a great deal of literature on the status of agreement (typically assumed to be a category) in comparison to other categories, such as Tense (e.g. Friedmann 2001, Wenzlaff and Clahsen 2003). The general conclusion is that agreement and tense are independent from one another, such that either or both can be impaired in aphasic speech. Some other studies have shown that, if either one of these is to be claimed to be central in aphasia, especially agrammatic aphasia resulting from damage to the Broca’s area in the left frontal region, then it is the Tense category that is most likely to be impaired (e.g. Friedmann 2001, Wenzlaff and Clahsen 2003). But, error patterns within an agreement system have not been widely studied.

The goal of this chapter is thus twofold: (i) finding out whether agreement morphology is subject to impairment as an entire system, and if not, whether it is agreement paradigms or specific vocabulary items that are subject to impairment; (ii) finding out what types of errors are produced by individuals with aphasia when faced with possessive agreement where the possessee is a primary compound.

To answer these questions, a phrase/sentence completion task was designed. In this task, the participants are given a sentence or a phrase in which only the agreement marker is missing. The participants are instructed to complete this phrase or sentence with the correct marker. The experimental design is a three-factor within items, in which the factors are person (1, 2 and 3), number (singular and plural) and agreement type (k-paradigm, z-paradigm and nominal paradigm), which depends on whether the attachment site is a noun or a verb, and if a verb, depends on what kind of tense or aspect marker the stem has. The participants in this experiment suffer from either Broca’s aphasia or
Conduction aphasia. The former type of aphasia results from damage to the Broca’s region (Broadmann 44, 45) in the inferior frontal gyrus of the left frontal lobe while the latter results typically from damage to the inferior supramarginal gyrus (Broadmann 40) in the left parietal lobe. Broca’s patients show increased *agrammatism*, which is characterized by disfluent speech along with an inability to produce inflectional morphemes, and difficulty in production and comprehension of complex sentences. Broca’s patients also have difficulty with remembering words. Conduction patients, on the other hand, show *paragrammatism*, which is characterized by fluent but paraphasic speech with sounds and morphemes becoming substituted. Conduction patients have difficulty repeating words and sentences even though they can understand them. They differ from individuals with Wernicke’s aphasia, whose speech is also paragrammatic, in that they are usually aware of their errors in speech and they typically continuously to self-correct.

Regarding the first question asked in this study about the mental status of agreement systems, it is hypothesized that agreement as an entire system is not subject to impairment. It has been shown that in aphasic speech, especially in agrammatic speech, agreement substitution errors typically involve exchanging target agreement markers with other agreement markers (e.g. Clahsen et al 2001), which suggests that at least part of what we might call an agreement system remains intact. But, the question as to what specifically gets impaired in aphasic speech has been studied only by a few linguists (e.g. Clahsen et al 2001, Janssen and Penke 2002). In this chapter, I show that it is individual vocabulary items (i.e. agreement affixes) rather than specific agreement paradigms (e.g.
the person paradigm) that are subject to impairment in aphasic speech. I show that agreement errors are not necessarily limited by a given paradigm and they can thus involve the exchange of more than one feature. Therefore, I claim that paradigms are not real mental representations, and theories such as Distributed Morphology (Halle and Marantz 1993), which consider paradigms as artifacts of the combinatoric feature space in the syntax in combination with vocabulary items and their corresponding insertion rules, better capture the mental representation of agreement systems.

Regarding (ii), as to whether speakers with aphasia produce the compound marker in the context of an agreement marker, an error analysis of possessive phrase production with compounded possessees was conducted. The results indicate that individuals with Broca’s aphasia do not produce such errors. As a matter of fact, they do not typically produce non-words (Grodzinsky 1990). As for the errors \( n=72 \) produced by individuals with Conduction aphasia in this study, only 5.5% of them are of the type where they produce the compound marker along with the agreement marker.

This chapter is organized as follows. Section 5.2 presents a brief summary of the literature on the mental status of inflectional paradigms while section 5.3 presents the participants, the experiment materials and design. Section 5.4 provides the results and the discussion of the first part of this experiment, in which the three experimental conditions (person, number and paradigm type) are considered. It is shown that a given paradigm in its entirety is not subject to impairment in aphasic speech. A further error analysis shows that agreement errors can involve the exchange of two morphosyntactic features (e.g. number and person). Section 5.5 summarizes the results of a qualitative error analysis of
compound marker production in the context of an agreement marker. It is shown that the compound marker along with an agreement is produced only by paragrammatic speakers, who may also produce other types of non-words. Section 5.6 concludes this chapter.

5.2 Inflectional paradigms

5.2.1 Are inflectional paradigms real?

Languages may differ in the amount of inflectional material they have, ranging from highly analytic inflectional systems, which barely have any inflectional markers to polysynthetic languages, which show remarkably rich inflectional systems. Despite the presence of such a wide range of possible inflectional richness, one can say that most languages manifest some sort of inflectional system or another. For example, according to Bickel and Nichols (2011), who examined the synthesis of the verb among the 145 languages that they have studied, only 5 of them show 0-1 category per word, category here referring to each type of inflectional affix a verb can host. On the other hand, 126 of them have verbs that can host 4-13 categories.

Among these inflectional tools, of course, are agreement systems. For example, Turkish verbs agree with their corresponding subjects depending on the number (singular, plural) and the person (1st, 2nd, 3rd) features. Since the agreement marker to be realized depends on these feature combinations, we can organize these related forms as paradigms. Turkish, a language that is on the polysynthetic end of the spectrum, has three different verbal agreement paradigms that are realized on the verb depending on the verb-final tense, aspect or mood affix, and a nominal agreement paradigm, which manifests itself in possessive phrases and nominalized clauses.
The verbal paradigms, namely the $k$-paradigm, the $z$-paradigm and the $l$-paradigm, traditionally take their names from the 1st person plural markers. The $k$-paradigm is used when the verbal stem ends with the past tense marker or the conditional marker. The $l$-paradigm is used when the verbal stem ends with the optative. Verbal stems ending with everything else are marked with agreement markers from the $z$-paradigm. The nominal paradigm, on the other hand, is used in possessive phrases where the possessee needs to be marked with an agreement marker that matches with the possessor’s person and number features. Nominalized clauses are also marked with the $poss$-paradigm. Table 8 lists all these markers. (1–4) list an example for each type of agreement.

<table>
<thead>
<tr>
<th></th>
<th>-k paradigm</th>
<th>-z paradigm</th>
<th>-l paradigm</th>
<th>poss. paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SG</td>
<td>PL</td>
<td>SG</td>
<td>PL</td>
</tr>
<tr>
<td>1</td>
<td>-m</td>
<td>-k</td>
<td>-lm</td>
<td>-lz</td>
</tr>
<tr>
<td>2</td>
<td>-n</td>
<td>-nl_z</td>
<td>-sln</td>
<td>-sln_lz</td>
</tr>
<tr>
<td>3</td>
<td>(\emptyset)</td>
<td>(\emptyset)</td>
<td>(\emptyset)</td>
<td>(\emptyset)</td>
</tr>
</tbody>
</table>

(1) (\textit{Biz}) ev-e git-ti-k  
we house-DAT go-PST-1PL  
‘We went home.’

(2) (\textit{Biz}) ev-e gid-i-yor-uz  
we house-DAT go-COP-PROG-1PL  
‘We are going home.’

(3) (\textit{Biz}) ev-e gid-e-lim  
we house-DAT go-OPT-1PL  
‘Let’s go home/ We shall go home.’

(4) (\textit{Bizim}) ev-imiz  
our house-1PL  
‘our house’
As can be seen in *Table 7*, there are several cases of syncretism. For example, the *l*-paradigm and the *z*-paradigm are almost the same, differing only in the 1st person plural. The 1st person singular is the same across paradigms differing only in the presence of an affix-initial vowel or not. (This difference is in fact entirely due to phonological reasons, whether it follows a consonant or a vowel, and not due to any difference in the actual form of the vocabulary item.) When we compare the *k*-paradigm and the *z*-paradigm, though, we can see that the 2nd persons and the 1st person plural do not show any syncretism.

Paradigmatic representations, such as the one in *Table 7*, conveniently provide us with tools to see how agreement morphology is organized in a language. However, whether such organizations are real mental representations or not constitutes one of the main debates in morphological theory. There are two main claims about the mental representation of inflectional paradigms. According to paradigm-based theories, paradigms are assumed to be real mental representations, such that a given paradigm itself is the mental representation, which provides an access system for grammatical information (e.g. Zwicky 1985, Stump 1993, Williams 1994, Wunderlich 1996). According to vocabulary-item-based theories (e.g. Lieber 1992, Halle and Marantz 1993, Bobaljik 2002), paradigms are simply epiphenomena resulting from the cross-classification of syntactic features and their interaction with particular vocabulary items, which can be realized according to certain feature combinations, such as the combination of 3rd person and singular in the context of present tense in English, which together get realized as *-s* as in *John dances*. Everywhere else, such agreement morphology is realized
as Ø, thus *I dance. According to this view, a paradigm is not real mental representation, and “is nothing more than a structured list of forms, a convenient descriptive device” (Bobaljik 2002: 7). To illustrate, the question is whether the actual mental representation that is accessed to mark a verb like *dance in the present and past form is the one in (5a) or (5b)?

(5)  a.  

<table>
<thead>
<tr>
<th>Present</th>
<th>Past</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sg</td>
</tr>
<tr>
<td>1</td>
<td>dance</td>
</tr>
<tr>
<td>2</td>
<td>dance</td>
</tr>
<tr>
<td>3</td>
<td>dances</td>
</tr>
</tbody>
</table>

b.  -d ← past  
[əz] ← 3sg  
Ø ← elsewhere

5.2.2 Inflectional paradigms in psycholinguistics

As much as the question as to whether paradigms are real mental objects or whether they are only artifacts of vocabulary items organized according to their features is a hot debate in morphological theory, it has been rarely tested with data from language disorders or using other psycholinguistic data. In one study, Clahsen et al (2001) conduct cross-modal priming experiments, by which they aim to find out whether a verbal stem marked with a given person and number feature would prime the same verbal stem marked with another person and number feature. They assume the general and sub-paradigm for German regular verbal inflection proposed by Wunderlich and Fabri (1995), given in (6). In this view, there is a general paradigm in (6a), which includes the sub-paradigm in (6b). The general paradigm, excluding the sub-paradigm, consists of agreement markers that get realized when the verbal stem is in the present, preterite and subjunctive form. The sub-paradigm, on the other hand, is only for the present verb stems.
Clahsen et al (2001) find that full priming only occurs from the general paradigm to the sub-paradigm, but not from the sub-paradigm to the general paradigm, or within the sub-paradigm itself. They claim that this latter finding results from competing forms in the sub-paradigm, which has an inhibitory effect.

In another study (Janssen and Penke 2002), it is shown that agreement substitution errors are not random, such that the errors produced by speakers with aphasia involve the exchange of a single morphosyntactic feature for another. It is claimed that this is because paradigms are real mental representations and act as access systems to only a single set of available forms. In other words, each paradigm is a unique access system to a given set of forms, and speakers with aphasia are thus restricted in such a way that they can only pick a form from that set, and thus exhibiting a single-feature exchange; a double-feature exchange error would have to have access to more than two paradigms. It is concluded that paradigms remain intact in speech but various forms within the same paradigm are subject to impairment. In a study with Hebrew-speaking children with SLI, it has been shown that when these children produce past tense verbs, which agree with their subjects in person, number and gender, 77% of the errors produced involved an error in only one of the three features (Dromi et al 1999).
We can conclude that the limited number of studies on the mental status of paradigms has shown that most agreement errors produced by individuals with language disorders include the exchange of a single feature, which might be because these speakers’ speech is constrained by paradigms. In the following sections, I present results from an experiment conducted with Turkish-speaking individuals with Broca’s and Conduction aphasia, which lead us to question this conclusion.

5.3 The experiment

In this section, I present the participants, materials and design of the experiment conducted. Because a single experiment was conducted to gather two sets of data (general agreement patterns and agreement errors in the context of a compound marker), results and discussion for these two are presented as two separate parts in the subsequent sections.

5.3.1 Participants

7 participants, 4 with Broca’s and 3 with Conduction aphasia, participated in this experiment, all of whom were receiving speech therapy and rehabilitation at the Neuropsychology Unit of Istanbul University Hospitals, in Çapa, Istanbul. Initially, the participants were given the GAT-2 (*Gülhane Afazi Testi* 2, Tanrıdağ et al. 2011). This is a standardized test used to diagnose aphasia types and specific problems (reading, repeating, naming, etc.) designed for Turkish-speaking individuals with aphasia. An additional participant with Conduction aphasia was excluded in the analysis in this chapter because his score in GAT-2 was significantly lower than other participants.

The participants were all right-handed and native speakers of Turkish.
5.3.2 Materials and design

As summarized in Table 8, Turkish has 4 agreement paradigms. In this experiment only three of them were used. The \( l \)-paradigm was excluded in the experiment since the use of the optative (to which agreement markers in the \( l \)-paradigm attach) is limited to a certain discourse function (desires in a given speech context), and it is, therefore, difficult to elicit sentences accordingly.

There were 4 groups of items, which were all written on flashcards: (1) sentences lacking a person agreement from the \( k \)-paradigm, (2) sentences lacking a person agreement from the \( z \)-paradigm, (3) possessive phrases where the possessee was an object modified by an adjective, (4) and possessive phrases where the possessee was an NN\%N compound. This latter group was excluded in the statistical analysis in Part 1, and errors occurring in this group were analyzed in Part 2. The subjects of the sentences and the

---

1 AVM stands for “arteriovenous malformation,” a congenital malformation of the connection between arteries and veins. When these malformed vessels rupture in the brain, the bleeding may cause a stroke.
possessive constructions were 1sg, 1pl, 2sg, 2pl and 3sg. There were 8 items for each sub-group. The items were controlled for frequency and randomized so that no agreement type, person or number appeared twice in a row in the list. (7-10) list an example in 1st person singular for each category (see Appendix A for the full list of items).

(7)  Ben şarki söyledi____  “I sing-PST____ songs”
(8)  Ben para harcar____  “I sing-AOR____ songs”
(9)  Benim kışlık şapka____  “My winter-ADJ hat____”
(10) Benim banyo perde____  “My bathroom curtain____”

The items all included 6 open or closed syllables, none of which had a complex onset or coda. The possessors in possessive phrases, by nature, are di-syllabic, but this was compensated for by the extra syllable in the k-paradigm and z-paradigm conditions because these would have to have a TAM marker in the verbal stem. The items were thus of equal length and complexity for all four conditions:

(7’) Pronoun + bare object + verb-pst
1    2    2    1 =6
(8’) Pronoun + bare object + verb-aor
1    2    2    1 =6
(9’) Pronoun + adjective + noun
2    2    2 =6
(10’) Pronoun + noun1 + noun2
2    2    2 =6

The experiment had a three-factor within items design where the three factors were agreement type (k-paradigm, z-paradigm, possessive), person (1, 2, 3) and number (singular and plural). The dependent variable was correct/incorrect. The affixes missing in the items were the following. (The 3rd person items had only singular subjects and no plural subjects because singulars and plurals are syncretized across the paradigms in the 3rd person.)
Note that there is a piece of inflection, -(i)z, which appears in most plural forms. For example, 2\textsuperscript{nd} person plural -niz seems to consist of two separate morphemes -n for 2\textsuperscript{nd} person and -iz for plurality. Traditionally, these have been analyzed as single affixes in Turkish. Therefore, in the experiment design, they were considered as such.

5.3.3 Procedure
The participants were asked to complete two sets of 80 sentences and phrases that only lacked the agreement marker. Three participants did both sets (two of them in their home environment) with a short break in-between while the remaining 4 participants did only the first set. This was either because there were time and space limitations rising from having to work in a hospital environment or because the participants got tired.

The participants were told that they can read either the whole sentence or phrase, only the last word, or just give the agreement marker. Test items were used before the start of each session to make sure that the participants understood the task. In cases where the subjects had any reading difficulties, the experimenter read the items along with the participants. This was done in order to avoid errors resulting from reading difficulties. Because the participants were not specifically instructed to avoid question forms, answers that were in the question forms were considered correct as long as they bore the correct morpho-syntactic feature. Because Turkish yes/no questions do not involve word-

\begin{tabular}{|c|c|c|c|c|}
\hline
& \(-k\) paradigm & \(-z\) paradigm & poss. paradigm \\
\hline
SG & PL & SG & PL & SG & PL \\
\hline
1 & -\(m\) & -\(k\) & -\(\hat{I}m\) & -\(\hat{I}z\) & -\((\hat{I})m\) & -\((\hat{I})m\hat{I}z\) \\
\hline
2 & -\(n\) & -\(n\hat{I}z\) & -\(s\hat{I}n\) & -\(s\hat{I}n\hat{I}z\) & -\((\hat{I})n\) & -\((\hat{I})n\hat{I}z\) \\
\hline
3 & \(\emptyset\) & \(\emptyset\) & \(\emptyset\) & \(\emptyset\) & -(s)\(\hat{I}(n)\) & -(s)\(\hat{I}(n)\) \\
\hline
\end{tabular}
order changes and are formed by a question particle, this did not affect the data collection procedure.

The participants were told that they can self-correct. The items self-corrected by the participants were considered correct in the statistical analysis in Part 1. However, all the errors they produced in the process even when they finally provided a correct answer were considered in the error analyses in Part 1 and Part 2.

5.4 Part 1: The mental status of agreement paradigms

5.4.1 Hypothesis

If we consider the three factors used in this experiment, we can see that each category consists of separate paradigms. The agreement type consists of three paradigms: $k$-paradigm, $z$-paradigm and $poss$-paradigm:

<table>
<thead>
<tr>
<th>(12)</th>
<th>-k</th>
<th>-z</th>
<th>poss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SG</td>
<td>PL</td>
<td>SG</td>
</tr>
<tr>
<td>1</td>
<td>-m</td>
<td>-k</td>
<td>-lm</td>
</tr>
<tr>
<td>2</td>
<td>-n</td>
<td>-nlz</td>
<td>-sln</td>
</tr>
<tr>
<td>3</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
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</tbody>
</table>

The person factor consists of three paradigms: 1st, 2nd and 3rd.

<table>
<thead>
<tr>
<th>(13)</th>
<th>-k</th>
<th>-z</th>
<th>poss</th>
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<tbody>
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<td></td>
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<td>PL</td>
<td>SG</td>
</tr>
<tr>
<td>1</td>
<td>-m</td>
<td>-k</td>
<td>-lm</td>
</tr>
<tr>
<td>2</td>
<td>-n</td>
<td>-nlz</td>
<td>-sln</td>
</tr>
<tr>
<td>3</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
</tbody>
</table>

And the number factor consists of two paradigms: singular and plural.
In other words, we can think of 8 different types of paradigms if we consider the items used in this experiment. If these paradigms have mental representations, such that each acts as a separate window to grammatical information and agreement marking mappings, then we would expect them to be subject to impairment in agrammatism or paragrammatism. If this is true, then we would be able to find evidence that any given paradigm among these 8 should be subject to impairment.

It is hypothesized that, (i) inasmuch as paradigms do not have any mental status in our theory, we would expect that this would never be the case. In other words, paradigms cannot be targets of impairment because they do not exist. (ii) Furthermore, if we look closely at the types of errors the participants make, we would see cases where substitution errors involve more than one feature type being replaced by another. To exemplify, errors of both types in (15) should be attested:

(15)  

\[ \begin{array}{|c|c|c|c|} 
\hline 
\text{SG} & \text{PL} & \text{SG} & \text{PL} \\
\hline 
1 & -m & -k & -lm & -lz \\
2 & -n & -nlz & -sln & -slnlz \\
3 & \varnothing & \varnothing & \varnothing & -(s)l(n) \\
\hline 
\end{array} \]

<table>
<thead>
<tr>
<th>Poss</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>-(l)m &amp; -(l)nlz</td>
<td></td>
</tr>
<tr>
<td>-(l)n &amp; -(l)nlz</td>
<td></td>
</tr>
<tr>
<td>-(s)l(n) &amp; -(s)l(n)</td>
<td></td>
</tr>
</tbody>
</table>


(14)  

a. single morphosyntactic feature substitution
{pl, 2\textsuperscript{nd}} \rightarrow \{sg, 2\textsuperscript{nd}\}

b. double morphosyntactic feature substitution
{pl, 2\textsuperscript{nd}} \rightarrow \{sg, 1\textsuperscript{st}\}
5.4.2 Results

A 3 x 3 x 2 factor repeated measures of variance was run using SPSS software individually for the three participants who completed the entire set of 160 items. The results are reported below separately for individual participants. The first two have Conduction aphasia while the last one has Broca’s aphasia.

**Participant 1**

There was a significant three-way interaction of paradigm, number and person \((F(2,118)=6.93, p<0.001)\). There was also a significant interaction of paradigm by person \((F(4,116)=9.51, p<0.001)\) and paradigm by number \((F(2,118)=4.38, p<0.02)\). There was no main effect of paradigm or person. These results indicate that this participant’s speech has an impaired agreement system but this impairment cannot be tied to a single paradigm. Lack of main effects for person, number or agreement types shows that we cannot refer to paradigms specifically when describing this person’s grammar. Note that we can talk about an agreement as an impaired system in its entirety in this person’s grammar, but we cannot refer to specific paradigms (e.g. number, person, z-paradigm) as an impaired inflectional paradigm.

The results for this participant were split for number. According to Figure 1, which shows the results for singulars, we can say that this participant performs significantly better in 1\(^{st}\) person in the k-paradigm, 2\(^{nd}\) person in the z-paradigm and 3\(^{rd}\) person in the poss-paradigm. We can conclude that none of the 8 possible paradigms is uniquely impaired in this person’s speech.
There was a significant interaction of paradigm by person ($F(4,116)=2.86$, $p<0.03$). This person’s agreement system seems to be largely intact except in 2nd person in the $z$-paradigm and the possessive paradigm as shown in Figure 2.
However, there was a main effect for number ($F(1,119)=18.51$, $p<0.001$) suggesting that a single paradigm may be impaired in this participant’s speech. The results were thus split for number. It was found out that this main effect for number results from plurals, which seem to be significantly more impaired than singulars as shown in Figure 3. Does that mean this participant has an impaired plural paradigm?

**Figure 2: Agreement type by person in Participant 3**

**Figure 3: Singulars and plurals in Participant 3’s speech**
A closer look at the errors produced by this participant reveals that a significant number of these at above-chance result form the lack of the -(l)z piece in the plurals. Recall that this piece was considered part of a larger unit in the experimental design and not a separate affix. These results show that the -(l)z unit should be analyzed as a separate affix. It also suggests that what appears to be an impaired paradigm in the speech of Participant 3 is in fact an impaired vocabulary item.

(16)

<table>
<thead>
<tr>
<th></th>
<th>-k</th>
<th></th>
<th>-z</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-m</td>
<td>-l</td>
<td>-(l)z</td>
<td>-(l)m</td>
</tr>
<tr>
<td>2</td>
<td>-n</td>
<td>-nlz</td>
<td>-(l)n</td>
<td>-(l)nlz</td>
</tr>
<tr>
<td>3</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>-(s)l(n)</td>
</tr>
</tbody>
</table>

**Participant 5**

There was a significant interaction of paradigm by person $F(4,116)=4.86$, $p<0.01$. (In order to find out what was causing this interaction, a multinomial logistical model was used to compute a full factorial comparison between the levels of the independent variable Paradigm (levels: k-paradigm, z-paradigm and poss-paradigm) and the percentage of correct responses for subject 5. There is a significant difference between the k- and z-paradigms ($\chi^2=4.73$, df=1, $p<0.03$), but there was no difference between the k- and p-paradigms (($\chi^2=0.05$, df=1, $p=0.82$).) The lack of any main effect in this person’s speech indicates that we cannot refer to a single paradigm in his speech as being uniquely impaired.

The results from the three participants, 2 individuals with Conduction aphasia and one with Broca’s aphasia, show that none of the possible 8 paradigms in the data is
uniquely impaired except the plural paradigm in Participant 3’s speech, which we have concluded results from an impaired vocabulary item, -(l)z.

5.4.3 Error analysis

In order to do an error analysis, the errors produced by the three participants were identified. In doing so, regardless of whether the participants self-corrected in the end, all the errors they produced in the meantime were considered. If a participant produced the same error more than once, it was only counted as a single error. However, if another participant produced the same error, it was counted as a separate token.

A closer look at errors produced by the three participants in this section shows that the participants produced both errors involving the exchange of a single feature and errors involving the exchange of two features (see Appendix B for the full list of error tokens produced by individual participants). Out of the total number of errors produced by the three participants (n=248), 42.7% of the errors were substitution of an agreement affix with another agreement affix (Participant 1: 34.2%; Participant 3: 65.2%; Participant 5: 33.8%). Out of the total number of such substitution errors, (n=106), 25.4% were agreement substitution errors in which two features were exchanged (most of which involved number and person). The remaining agreement substitution errors involved the exchange of a single feature.

5.4.4 Discussion

The results indicate that none of the three participants in Part 1 has an impaired agreement system in which a single paradigm can be ruled out as uniquely impaired. On the contrary, they show that there is a lot of interaction between such as number and
person, in the participants’ error patterns. We also see that a given vocabulary item, -\( l \)z, is independently subject to impairment. These results show that a given paradigm is not subject to impairment on its own.

If paradigms are not subject to impairment as a whole system but they constrain the production of speakers with aphasia, such that their production of inflectional material is constrained by these paradigms, then we would expect that the substitution errors they produce would include the exchange of a single feature. For example, we would expect that errors would include the exchange of a person marker with the singular feature with another person marker with the singular feature. The results indicate that the majority of the time this is what happens (74.6% of the substitution errors in which an agreement marker is replaced by another agreement marker), but we still need to explain why it does not happen all the time. Furthermore, a post hoc analysis of agreement substitution errors shows that if we throw in markedness into the equation, we see that this asymmetry between single versus double feature exchange errors disappears. For example, agreement substitution errors by Participant 1 and Participant 3 (who are both individuals with Conduction aphasia) involve the exchange of the plural with the singular significantly more than the exchange of the singular with the plural. Plurals are more marked than singulars (Harley and Ritter 2002). What this means is that part of the reason why single-feature substitution errors occur at a higher rate results from feature hierarchies, such that marked forms may be replaced by unmarked forms more often than the other way around.
These results indicate that theories considering paradigms just collections of related vocabulary items (e.g. Halle and Marantz 1993) better capture the agreement errors in aphasic speech than theories which give paradigms a privileged mental status.

5.5 Part 2: Error analysis of compound marker production

5.5.1 Hypothesis

In Chapter 3, we claim that the compound marker -(s)İ(n) cannot occur in the presence of a possessive agreement marker because it is of the same type competing for the same position of exponence. We maintain that the compound marker does not get realized in the presence of an agreement marker because in such cases where two vocabulary items of the same type are competing for realization, it is always the structurally higher one (the agreement marker) that gets realized. If this is true, then we can hypothesize that Turkish speakers with aphasia would produce errors where the wrong affix (compound marker) gets realized. This might be reinforced by the fact that the compound marker is the most local one and may thus win the competition for realization.

We can also hypothesize that the compound marker and the agreement marker should not occur together. This should be especially true for individuals with Broca’s aphasia, who do not typically produce non-words. If such errors are to occur, we would expect them to be produced by individuals with Conduction aphasia, who are paragrammatic. Related to this, we can hypothesize that omission errors, where neither the compound marker nor the agreement marker is produced, would be more likely to be produced by speakers with agrammatism (Broca’s aphasia) than speakers with paragrammatism (Conduction aphasia).
5.5.2 Results

In order to do an error analysis, all the participants who took this experiment were considered. This included the 3 participants (2 with Conduction aphasia, 1 with Broca’s aphasia) who answered the entire set of items \((n=160)\) as well as the 4 participants (1 with Conduction aphasia, 3 with Broca’s aphasia), who answered the first set of items \((n=80)\). Their answers to only the 4th condition (where they are expected to attach an agreement marker to a possesssee in the form of a primary compound) were considered. In doing so, regardless of whether the participants self-corrected in the end, all the errors they produced in the meantime were considered. As in Part 1, if a participant produced the same error more than once, it was only counted as a single error. However, if another participant produced the same error, it was counted as a separate token. Errors produced by participants with Broca’s aphasia \((n=92)\) and participants with Conduction aphasia \((n=72)\) were considered separately (see Appendix C for the full list).

Participants with Broca’s aphasia produced both omission and substitution errors. There was no error in which a non-word was produced. Also, there was no case where the compound marker -(s)(\(l(n)\)) was produced along with an agreement marker. (These are non-words, too, But for the purposes of the analysis in this section, they were considered as a separate group of errors). The percentages of these error types are listed in (17). ‘Other’ refers to errors in which words or phrases rather than affixes are inserted in the blank\(^2\).

\(^2\) e.g. Sizin banyo perdeniz “Your (pl) bathroom curtain\(2\text{pl}\)” → Sizin banyo perde \(\text{tak}\) “Your (pl) bathroom curtain hang”.
A closer look at the substitution errors indicated that more than half of such errors (57.6%) were substitution of an agreement marker with the compound marker -(s)İ(n).

Only 6.7% of the substitution errors involved the exchange of an agreement marker with another agreement marker. The remaining substitution errors were the exchange of an agreement marker with other types of inflection (case, plural affix, epistemological marker, etc.)

Participants with Conduction aphasia produced less omission errors and more substitution errors than participants with Broca’s aphasia. Furthermore, a single participant with Conduction aphasia (Participant 3) produced errors in which the compound marker -(s)İ(n) appears along with an agreement marker. This participant also produced some other non-words. The percentages of the type of errors produced by participants with Conduction aphasia are listed in (18):

(18) Error type  Percent
Omission            4.1%
Substitution        80.5%
Non-word            4.1%
-(s)İ(n)+AGR         5.5%
Other               5.5%

A closer look at the substitution errors indicated that 31% of these resulted from substituting the agreement marker with the compound marker. 29.3% of the time, the plural affix -İEr was inserted. This was done primarily by a single participant (Participant
1) as a compensatory strategy. There were some errors in which an agreement marker was replaced by another agreement marker (15.5%). These were mostly substitution of a plural agreement marker with its corresponding singular marker. All the remaining substitution errors were the exchange of an agreement marker with another marker (case, epistemological marker, etc.).

5.5.3 Discussion

The results show that individuals with Broca’s aphasia produce more omission errors than those with Conduction aphasia as expected. Furthermore, they verify that agrammatic speakers do not typically produce non-words unlike paragrammatic speakers, who may do so. The substitution error types show that even though a substantial portion of these involve the substitution of an agreement marker with another (more than half in Broca’s and about a third in Conduction aphasia), cross-categorical errors also occur, such that agreement markers can be substituted with non-agreement morphology, such as case (accusative, comitative, privative) and modality (epistemic marker), which shows that speakers with aphasia are not constrained by inflectional paradigms; any Vocabulary Item that can potentially be inserted in $f$-morpheme positions can compete for exponence. But, of course, those that share a certain number of features with the target Vocabulary Item are more likely to be produced by individuals with aphasia.

Furthermore, we have seen that in the substitution errors in which an agreement marker is substituted with another agreement marker, the exchange of more than one morphosyntactic feature occurs. Even though such errors are less frequently attested, they do in fact occur. This further supports the hypothesis that paradigms are not acting as
access systems to grammatical mapping, whereby a speaker is constrained by a single paradigm.

We hypothesized that the compound marker and an agreement marker, which cannot co-occur, should not be attested in aphasic speech in sequence because these two never get realized simultaneously. The results show that this hypothesis is largely accurate because such errors are not attested in agrammatic speech. However, they are attested (5.5%) in paragrammatic speech. In this respect, the results are inconclusive since we cannot determine the reason why these errors, though infrequent, occur. It may well be the case that because paragrammatic speakers tend to over-compensate, the two vocabulary items competing for exponence, the compound marker and the agreement marker, may both get realized. It may also be the case that, if the compound marker is deleted in the context of an agreement marker as claimed by Kharytonava (2011), then this deletion may have not occurred. Either way, we can conclude that speech of individuals with aphasia is largely constrained by well-formedness conditions on vocabulary items, such that ill-formed words are rarely produced in aphasic speech, even by speakers of a highly agglutinating language, Turkish.

5.6 Conclusion

In this chapter, we have looked at aphasic production of agreement morphology in Turkish, and claimed that the mental status of paradigms as access systems for establishing a mapping between morphosyntactic features and their corresponding vocabulary items is doubtful. We have seen that paradigms are neither targets of impairment nor constraints on vocabulary insertion. If this were the case, then cross-
categorical substitution errors and the exchange of more than one morphosyntactic feature would not be attested.

This leaves us with two potential targets of impairment, the morphosyntactic features themselves and their actual realizations, the vocabulary items. We have seen that in a paragrammatic speaker with Conduction aphasia, a single vocabulary item is impaired. It appears in general that Conduction aphasia is a type of aphasia that primarily affects vocabulary insertion. This is especially apparent when individuals with Conduction aphasia are aware of their production errors and thus show a constant effort to self-correct. On the other hand, agreement errors in agrammatic production by individuals with Broca’s aphasia, which can be identified by a larger amount of omission errors, may indeed result from underspecification of morphosyntactic features in syntax. This is a working hypothesis that needs to be further tested.

We have seen that -(s)İ(n) + agreement marker sequence is not a typical error type attested in aphasic speech in Turkish. This is not a surprising finding with respect to Broca’s speech since this sequence would form a non-word in Turkish, and non-words have been shown to be non-existent in agrammatic speech. However, in the speech of individuals with Conduction aphasia, which is identified with a much richer morphology compared to Broca’s speech, errors that involved the -(s)İ(n) + agreement marker sequence were vanishingly rare. This supports the claim constructed in Chapter 3 that the compound marker and agreement marker never forms a sequence in the grammar. A further study, which looks at a corpus of naturally-occurring aphasic speech of Turkish speakers, would strengthen (or weaken) this view since the error types produced in
naturally-occurring speech and during experimental procedures are potentially different from one another.
CHAPTER 6

CONCLUSION

In this dissertation, I have investigated two types of nominal compounds in Turkish, which can be identified as primary compounds and synthetic compounds. We have seen that the underlying structure of the primary compounds is similar to that of a possessive phrase. This is further supported by the fact that these compounds have a special marker that also happens to be the 3rd person possessive agreement marker, an observation noted by many linguists before. I reviewed this particular observation as well as several others in Chapter 2. In Chapter 3, I focused on two main questions that needed to be answered: (i) Is the compound marker an instance of an agreement marker? (ii) And, where in the grammar is it licensed? To answer these questions, I considered several possibilities in Chapter 2. I showed that a lexicalist approach that considers some types of vocabulary formation rules lexical (e.g. derivational) and some others syntactic (e.g. inflectional) fails to account for a majority of the observations about the compound marker. Such a lexicalist approach (e.g. Anderson 1992) is especially challenged by the fact that the presence or absence of the compound marker is determined by the syntactic environment as well as the fact that individual pieces of the compound can be modified by adjectives. I also considered three syntactic approaches. In the first two, I assumed that agreement is realized by means of an AgrP headed by the compound marker and by means of a checking relationship, respectively. In the third approach, following Kharytonava (2011),
I assumed that the compound marker is a Vocabulary Item inserted in nominalizing head positions when this head c-commands a √P. I showed that these syntactic approaches have certain advantages over a lexicalist approach, but they nevertheless fall short considering the entire list of observations outlined in Chapter 2. I therefore considered the third logical option, such that the compound marker may be realized post-syntactically as an agreement marker. It is in the morphological component commonly assumed in the DM framework that agreement morphology is realized, following syntax but preceding PF. This would make sense considering that the compound marker is sensitive to whether there is any other agreement trigger in its immediate environment. We saw that this final approach could explain the observations we made in Chapter 2.

In Chapter 4, I examined synthetic compounds. These are in a way similar to primary compounds on the surface because they are also made up of two nouns. They are, however, different in that the second noun is always a derived nominal and the first noun acts as an internal argument to it. It may be difficult to differentiate these two types from one another at first glance in some other languages like English; however, we saw that this is not the case in Turkish because true synthetic compounds are never marked with the compound marker. This further supported our hypothesis that the underlying structure of primary compounds and synthetic compounds must be different. In primary compounds, the semantic relation between the first noun and the second noun has to be learned or guessed by the speakers. For instance, an English-speaking child would have to learn that *dishcloth* is a type of cloth that is used to clean dishes while *tablecloth* is a type of cloth that is used to cover tables. On the other hand, in synthetic compounds, the
semantic relation between the first and the second noun is compositional; the first noun has to be the theme argument of the event the second noun entails. In Chapter 4, I examined three different nominalizers in Turkish and whether nominals headed by these could derive true synthetic compounds. I showed that those nominals derived directly from Roots can never form true synthetic compounds; these could only form primary compounds that would have to have the compound marker. This finding led me to question the status of Roots as projecting categories because, if they were projecting complement positions that could host theme arguments, then nominals derived directly from Roots would be able to derive true synthetic compounds.

Some questions still remain unanswered, especially those related to the relationship between synthetic compounds and noun incorporation. Turkish, as it appears, has true synthetic compounds, such that the first noun in a nominal compound can act as a true argument of the second noun. It is also a language that allows noun incorporation, in which bare nouns incorporate into verbs to form complex verbal stems, such as kitap oku- ‘book-read’ and araba sür- ‘car-drive’ as well as complex predicates, such as dans et- ‘dance-do’ (i.e. ‘dance’) and şikayet et- ‘complaint-do’ (i.e. ‘complain’). A study that investigates a variety of languages in order to see if there is a correlation between synthetic compounds and noun incorporation would therefore be very useful for a better understanding of the extent to which syntax plays a role in word-formation.

In Chapter 5, I investigated whether Turkish-speaking individuals with aphasia ever produce errors in which the compound marker and an agreement marker appear in sequence. I hypothesized that if there is any stage in the grammar where these two appear
in sequence but later undergo a deletion process where the compound marker was deleted, then individuals with aphasia would produce such errors. My hypothesis was that such errors would not be attested insofar as my claims in Chapter 4 were true, that these two are never in sequence in any stage of the grammar. I conducted a phrase/sentence completion task where participants with aphasia were instructed to fill the blanks with the missing marker. I examined data from 4 participants with Broca’s aphasia and 3 participants with Conduction aphasia. I found out that the first group never produced such errors. This was not a surprising finding because individuals with Broca’s aphasia have been shown not to produce non-words (Grodzinsky 1990); since the compound marker+agreement marker sequence would create non-words in Turkish, individuals with Broca’s aphasia would not produce such errors anyways. However, this is not necessarily true for individuals with Conduction aphasia, whose speech can be said to be highly paragrammatic, consisting of several non-words as they self-correct to approximate the target form. I found out that the participants with this type of aphasia also did not typically produce such errors. This supported the hypothesis that the compound marker and agreement markers compete for the same position of exponence and they thus never form a sequence at any stage in the grammar.

In the experiment design, I also included items in which the participants were expected to fill in the blanks with agreement markers from three different paradigms in Turkish. The items also had person features and number features as factors. I found out that the participants may or may not have significantly impaired agreement systems, but the impairment is not limited to a single paradigm only. In other words, a single
paradigm, such as the singular paradigm, the possessive paradigm, or the first person paradigm, is never uniquely impaired. This finding supports the view that inflectional paradigms are not real mental representations, but are simply epiphenomena resulting from various feature combinations. As much as these are convenient tools to the linguist or the second language learner, they do not seem to be real mental representations such that they determine what is an eligible vocabulary item for insertion and what is not. I am aware that this is a very strong claim since the experiment I conducted, of course, has a number of limitations. First, it is limited to the speech of only 7 participants with aphasia. It is always ideal to have greater number of participants. Second, the participants’ speech in experimental conditions is likely to differ significantly from naturally-occurring speech. However, as far as the results of this experiment are concerned, a further investigation of the mental status of inflectional paradigms, beyond doubt, is worthwhile.
APPENDICES

APPENDIX A: List of items used in the experiment

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<th>poss-par</th>
<th>compound</th>
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Ben duvar boyadı
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Sen mektup gönderir
Sizin banyo perde
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APPENDIX B: Full list of errors in Part 1

Participant 1
1. dergim → dergiler
2. izleriz → izler misin
3. boyardı → boyladılar
4. cezven → cezveler
5. okudu → okudular
6. yuфан → yufkalar
7. izlerim → izledim
8. sokładınız → sokladılar
9. sularınsın → sular
10. sularınsın → suları
11. sularınsın → suları
12. söyledi → söylediler
13. taşdı → taşdılar
14. cezveniz → cezveler
15. cezveniz → cezvedir
16. beklerсинiz → bekler
17. beklerсинiz → bekledim
18. çığneriz → çığner misin
19. şapkan → şapkalar
20. avladı → avlodılar
21. kapımız → kapıyı
22. kapımız → kapılar
23. anlatızır → anlatır misin
24. çantaz → çantasi
25. kokladık → kokladılar
26. doğrarsıniz → doğrar mıșın
27. söyledık → söylediğim
28. söyledık → söyledim
29. bekler → bekledim
30. turşun → turşusu
31. avladık → avladığım
32. avladık → avladım
33. kapı → kapılar
34. anlatır → anlatırm
35. taşdı → taşdılar
36. boyardım → boyladılar
37. boyardım → boyardı
38. şapkınız → şapkalar
39. hașladık → hașladım
40. boyardık → boyardalar
41. kapım → kapımız
42. anlatırsınız → anlatır mıșın
43. yufkam → yufkalar
44. izler → izler misin
45. kokladi → kokladılar
46. doğrarım → doğrar mıșın
47. kedim → kediler
48. oynadım → oynadı
49. oynadım → oynadılar
50. harcarız → harcar mıșın
51. gönderiliriz → gönderilir misin
52. yufkası → yufkalar
53. oynadın → oynadı
54. çığner → çığner misin
55. cezvemiz → cezvesi
56. cezvemiz → cezvesiler
57. söyledi → söylediğim
58. söyledi → söylediği
59. söyledi → söyledi
60. söyledi → söylediğim
61. bekleriz → bekledim
62. bekleriz → beklerdim
63. kokladın → kokladım
64. sularız → suları
65. haşladı → haşladım
66. kediniz → kediler
67. okudun → okudum
68. yufkamız → yufkalar
69. sularız → suları
70. ha → ladı → ha → ladım
71. kediniz → kediler
72. yufkanınız → yufkalar
73. kokladın → kokladım
74. sularınız → suları
75. harcar → harcar mısın
76. ha → ladın → ha → ladım
77. oynadınız → oynadım
78. avladınız → avladılar
79. kapımız → kapılar
80. sularınız → suları
81. ta → idi → ta → idi
82. tur → umuz → tur → usu
83. boyadınız → boyadılar
84. avladınız → avladiğimı
85. avladınız → avladılar
86. doğrur → doğrurum
87. derginiz → dergiler
88. gönderir → gönderirim
89. yufkanız → yufkalar
90. çiğnerim → çiğnerdim
91. şapkası → şapkalar
92. suları → suları
93. sularınız → suları
94. koşulsız → koşulsuz
95. bekleriz → bekledim
96. bekleriz → beklerdim
97. sularız → suları
98. sularınız → suları
99. sularınızı → suları
100. sularınızı → suları
101. sularınız → suları
102. sularınız → suları
103. sularınızı → suları
104. sularınız → suları
105. sularınızı → suları
106. sularınızı → suları
107. sularınızı → suları
108. sularınızı → suları

Participant 3
1. anlatırsın → anlatırız
2. gönderirsiniz → gönderirim
3. izleriz → izlerım
4. boyadın → boyadık
5. harcarınız → harcarınız
6. doğrarız → doğrarım
7. cezven → cezveyim
8. cezven → cezve
9. okudun → okudum
10. yufkan → yufka senin
11. yufkan → yufkası
12. kokladınız → kokladın
13. sularınız → suların
14. sularınız → suların
15. söylediniz → söyledik
16. göndeririz → gönderirdim
17. çiğnersiniz → *çiğner
18. çiğnersiniz → çiğnersin
19. çiğnersiniz → çiğner
20. çiğnersiniz → *çiğnerli
21. çiğnersiniz → çiğnerlin
22. çiğnersiniz → çiğnerler
23. cezveniz → cezvesi
24. cezveniz → *cezvesiniz
25. beklersiniz → beklersin
26. beklersiniz → beklersin
27. şapkan → şapkasin
28. şapkan → şapkasi
29. avladı → avladık
30. kapınız → kapıyı
31. kapınız → kapısı
32. çantanız → çantalar
33. kokladık → kokladınız
34. doğruarsınız → doğruarsın
şapkanız → şapkam
36. şapkanız → şapkan
37. hasladık → hoşladım
38. hasladık → hoşlandım
39. hasladık → hasnadım
40. boyadık → boyadım
41. anlatırsınız → anlatırsın
42. kedimiz → kedim
43. okudunuz → okudun
44. yufkasi → yufka
45. cezvemiz → cezvesiz
46. cezvemiz → cezvem
47. dergisi → dergi
48. sularız → suları
49. kediniz → kedin
50. oynadı → oynadık
51. kapısı → kapı
52. dergin → dergisi

Participant 5
1. doğrurız → doğuruz
2. okudu → *okurdu
3. okudu → okudun mu
4. yufkan → yufka
5. kokladınız → kokladı
6. sularınız → sularınız
7. cezveniz → cezve
8. bahçeniz → bahçe
9. okudum → okurum
10. okudum → okudun mu
11. çiğneriz → çiğner misiniz
12. şapkan → kış şapka
13. şapkan → şapka
14. anlatırsız → anlatır misiniz
15. beklər → beklede
16. turşun → turşu
17. avladık → avladi mı
18. şapkanız → şapka
19. şapkam → şapka
20. izler → izler misiniz
21. kokladı → kokladık
22. kedimiz → kedi
23. okudunuz → okudu

24. oynadım → oynadık
25. söyledi → söyledi
26. göndeririz → gönderir
27. göndeririz → gönderirdik
28. yufkasi → yufka
29. oynadın → oynadık
30. oynadın → oynadık
31. söyledi → söyledi
32. bekləriz → beklərdik
33. bekləriz → beklədik
34. kokladın → kokladık
35. sularız → suladık
36. sularız → sulardık
37. kediniz → *kedik
38. kediniz → kediğik
39. okudun → okuduk
40. yufkamız → yufkan
41. yufkamız → yufka
42. oynadı → oynadık
43. sularım → sularım
44. sularım → sular
45. kapısı → kapı
46. çantam → çanta
APPENDIX C: Full list of errors in Part 2

Broca’s
1. masamız → masa
2. masamız → masa
3. masamız → masayı
4. masamız → masam
5. masamız → masadır
6. perdem → perdesi
7. perdem → perde
8. perdem → perdesi
9. perdem → perdesi
10. bahçemiz → bahçesi
11. bahçemiz → bahçe var
12. bahçemiz → bahçeleri
13. bahçemiz → bahçe var
14. örtümüz → örtü
15. örtümüz → örtüsü
16. örtümüz → örtülerı
17. örtümüz → örtüyü
18. masam → masa
19. masam → masa
20. masam → masayı
21. masam → masayla
22. masam → masa
23. masam → masa
24. tarlamız → tarlası
25. tarlamız → tarla var
26. tarlamız → tarlasız
27. sehpası → sehpaları
28. sehpası → sehra
29. sehpası → sehpalar
30. bahçeniz → bahçesi
31. bahçeniz → bahçe var
32. bahçeniz → bahçe var
33. tarlam → tarlası
34. tarlam → tarla var
35. tarlam → tarlası
36. odan → odası
37. odan → oda var
38. odan → odalar
39. odam → odası
40. odam → oda var
41. odam → oda ve odalar
42. sehpamız → sehra
43. sehpamız → sehpalar
44. sehpamız → sehpalar
45. sehpamız → sehpalar
46. odanız → oda
47. odanız → oda var mı
48. odanız → odaları var
49. odanız → oda var
50. sirkem → sirke
51. sirkem → sirkesi
52. sirkem → sirkeler
| 53.  | sirkem → sirkemiz       | 73.  | sirkemiz → sirkesi    |
|      | sirkem → sirkeleri      | 74.  | sirkemiz → sirkesi var|
| 54.  | sirkem → sirke           | 75.  | sirkemiz → sirkesi var|
| 55.  | bahçesi → bahçeleri      | 76.  | sirkemiz → sirke ve   |
| 56.  | bahçesi → bahçedir       | 77.  | perdemiz → perdesi    |
| 57.  | perdeniz → perdesi       | 78.  | perdemiz → perdesi    |
| 58.  | perdeniz → perdesi       | 79.  | perdemiz → perde var  |
| 59.  | perdeniz → perde var     | 80.  | perdemiz → perde takıyor|
| 60.  | perdeniz → perde tak     | 81.  | örtüm → örtüsü       |
| 61.  | perdeniz → perde ver     | 82.  | örtüm → örtüsü       |
| 62.  | sirkeniz → sirkesi       | 83.  | örtüm → örtü var     |
| 63.  | sirkeniz → sirkesi       | 84.  | örtüm → örtü          |
| 64.  | sirkeniz → sirkesi       | 85.  | örtüm → örtüler       |
| 65.  | sirkeniz → sirkesi       | 86.  | tarlan → tarlași      |
| 66.  | sirkeniz → sirkesi       | 87.  | tarlan → tarla var mı |
| 67.  | odamız → odası           | 88.  | tarlan → tarlamız var |
| 68.  | odamız → odası           | 89.  | tarlan → tarla güzel  |
| 69.  | odamız → odalar          | 90.  | tarlanız → tarlamız    |
| 70.  | örtünüz → örtü kirli    | 91.  | sehpanız → sehpa var  |
| 71.  | örtünüz → örtüsü        | 92.  | siren → sırkesi       |
| 72.  | sirkemiz → sirkesi       |      |                      |

**Conduction**

1. masamız → masalar      23. bahçeniz → bahçesiniz  
2. masamız → *masasım      24. tarlam → tarlași        
3. masamız → masasınız     25. odan → odası          
4. masamız → masasız       26. sirkesi → sirkeler     
5. masamız → masasınız     27. odam → odası          
6. masamız → masanız       28. sehpanız → sehparalar 
7. perden → perdeler       29. sehpaniz → sehpasız  
8. perden → perdeyi        30. sehpaniz → sehpm     
9. bahçem → bahçeler       31. odanız → odası       
10. bahçem → bahçedir      32. sirkem → sirkeler    
11. bahçem → *bahçerim     33. sirkem → sirke        
12. bahçem → bahçe         34. sirkem → sirkesi     
13. örtümüz → örtüsüüz    35. bahçesi → bahçeler    
14. örtümüz → örtüyüz      36. perdeniz → perdeler  
15. örtümüz → örtüsüyüz    37. perdeniz → perden     
16. örtümüz → örtüsü      38. sirkeniz → sirkeler   
17. masam → masası         39. sirkeniz → sirken     
18. tarlamız → tarlași     40. sirkeniz → sirkesi    
19. tarlamız → tarlam      41. odam → odasi          
20. bahçeniz → bahçedir    42. örtünüz → örtüler    
21. bahçeniz → bahçesini   43. örtünüz → *örtüz     
22. bahçeniz → bahçesi     44. örtünüz → örtünüz    

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<th>Turkish Corrected</th>
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<td>örtünüz → örtün</td>
<td>örtün → örtülü</td>
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<td>örtünüz → örtünler</td>
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<td>sehpan → sehpam</td>
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