

Semantics of Nouns and the Specification of Number in Turkish

by

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Dissertation Submitted In Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy

in the

Department of Linguistics

Faculty of Arts and Social Sciences

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SIMON FRASER UNIVERSITY

Fall 2012

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Abstract

This thesis is an investigation of the semantic and morpho-syntactic properties of nouns and noun phrases in Turkish. Adopting a hybrid model of formal and lexical semantic views on noun semantics and nominal number as a theoretical basis, the primary objective of this work is to account for why nouns and noun phrases behave the way they do in the language. The arguments laid out in this work constitute an alternative to the claims that nouns in Turkish are no different from adjectives as they have the same distributional properties and are used interchangeably. Thus the current study aims to characterize the denotational and number related properties of nouns in a unified framework. The semantic as well as the morpho-syntactic characteristics of nouns in Turkish reveal the fact that nouns pattern with what is often referred to as *set nouns* as a nominal subtype within the broad typology of noun subcategories. The analysis also shows that certain grammatical elements that are generally regarded as typical number markers need to be reclassified as *nominal aspect markers* in the language. Moreover, a careful examination indicates that even though there is not much difference between nouns with respect to their morpho-syntactic distribution, it is also true that there are still some distinctions between nouns that should strongly suggest a count-mass distinction. Specifically, it is shown that the referential properties of NPs headed by set nouns and mass nouns are significantly different from one another in Turkish. The distinction is captured by proposing that there are in fact two processes that are relevant to number specification in Turkish, namely *singularization* which applies to NPs headed by set nouns and *unitization* that applies to NPs headed by mass nouns. Last but not least, the claim that languages with set nouns display number discord which occurs between plural subject NPs and verbs is also confirmed since cases of verbal number discord are found in Turkish as well. The conclusions not only show that number discord is correlated with the semantic/pragmatic parameters such as distinctness and topicality, but also provide further evidence for the classification of nouns in the language.

Keywords: Noun semantics; the count-mass distinction; number specification; nominal typology; Turkish

To my family

Acknowledgements

When I started my PhD studies, I was aware of the fact that it was going to be a serious task. What I did not know was it would require much more effort, time, determination and dedication than I initially thought. After a period of five years during which I literally put my life on hold, I am so happy that I was able to get my doctoral dissertation finished and defend successfully.

It would not have been possible to come this far without the help of some people. First of all, I would like to thank my senior supervisor Dr. Nancy Hedberg for her unfailing support and guidance. She is not only a great professor and a great source, but also a brilliant researcher who always asks good questions and never fails to find correct answers. I also would like to thank my committee members Dr. Chung-hye Han and Dr. Francis Jeffrey Pelletier for providing me with excellent comments, suggestions and constructive criticism at different stages of my thesis. Thanks are also due to my internal examiner Dr. Mark Blair and external examiner Dr. Hotze Rullmann for agreeing to be on my committee, asking the right question and giving pointers that ultimately pushed me to keep digging further. Needless to say, their contribution to my work turned out to be much more significant than I thought it would. Finally, I would like to thank Dr. Maite Taboada, the chair of my defense, for making the whole process trouble free.

During my studies at SFU, I had the chance to meet and work with distinguished professors and instructors that have a huge impact on my intellectual thinking as well as my views on life in general. My occasional visits to UBC made it possible to further widen my horizons and contribute to my academic success to a greater extent. In addition to the people mentioned above, I would like to thank Dr. John Alderete, Dr. Cliff Burgess, Dr. Henry Davis, Dr. Trude Heift, Dr. Lisa Matthewson, Dr. Dean Mellow, Dr. Keir Moulton, Dr. Panayiotis Pappas, Dr. Michael Rochemont, Dr. Juan M. Sosa and Dr. Yue Wang. Thanks are also due to Dr. Brendan Gillon who unknowingly inspired this work giving two talks about the count-mass distinction in languages at the CLA 2009.

I also had the chance to meet a great many of graduate students/fellows who have come and gone during my studies at SFU. Among many others, thanks go to Sam Al Khatib, Amber Blenkiron, Julian Brooke, Angela Cooper, Greg Coppola, Debopam

Das, Mali Dray, Nouredine Elouazizi, Lorna Fadden, Christina Galeano, Ashleigh Gonzales, Jennifer Hinnell, Meghan Jeffrey, Mayo Kudo, Vivian Li, Heidi Kent, Morgan Mameni, Kayleigh MacMillan, Emma Mileva, Mehran Norafkan, David Potter, Irina Presnyakova, Yasuko Sakurai, Dennis Storoshenko, Yueh Tu and Xiangua Wu. Thanks a lot for the great parties, fruitful conversations and occasional trips to conferences.

There are a number of people outside my linguistics circle that deserve special thanks too. First of all, a big thank you goes to my family: Beyhan Altınay, Sinem Sevinç, Sarper Sevinç, Pınar Görgülü, Irmak Dirlik, Şebnem Günaydın and Poyraz Sevinç. I also would like to thank my friends: Sarah Davidson, Aydın Demir, Hasan Ekim, İlyas Kayran, Dilara Koçbaş, Ademcan Vaner and everyone else for their constant support and friendship throughout.

I am indebted to my former linguistics professors in Istanbul and other places. Among others, I would like to thank Dr. A. Sumru Özsoy, Dr. Meltem Kelepir, Dr. Balkız Öztürk Başaran, Dr. Asli Göksel, and Dr. Jaklin Kornfilt. Thanks a lot for your efforts and constant encouragement. Also, special thanks go to Dr. Mübeccel Taneri for introducing me to linguistics for the first time and for being such a great role model for me.

Last but not least, I would like to thank all the baristas and other employees in Starbucks Coffee Shop in Chapters Book Store at Metropolis Shopping Mall. Thanks a lot for bearing with me and not asking me to leave in those long hours during which most of the ideas and arguments presented in this work came into existence or were otherwise sharpened. It was very encouraging to have all the books, notebooks magazines and stationery items on the one side (entities that count nouns generally designate!) and other things like coffee, tea, water and other liquids on the other side (stuff that mass nouns typically denote!).

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List of Abbreviations

1SG	First Person Singular
2SG	Second Person Singular
3SG	Third Person Singular
1PL	First Person Plural
ABL	Ablative Case
ACC	Accusative Case
AOR	Aorist
CLF	Classifier
COM	Comitative
COND	Conditional
CONV	Converb
DAT	Dative Case
DER	Derivational Affix
EVID	Evidentiality Marker
F	Female
FUT	Future Tense
GEN	Genitive Case
LIN	Linker
LOC	Locative Case
M	Male
MOD	Modality
N	Neuter
NEG	Negation
OP	Object Participle
PART	Partitive Case
PAST	Past Tense
PERF	Perfective
PL	Plural Marker
POSS	Possessive Marker
PROG	Progressive Aspect
Q	Question Particle

REDUP Reduplication
SING Singulative Marker

Chapter 1

Introduction

So it begins...

- King Théoden of Rohan. The Lord of the Rings.

The purpose of this dissertation is to investigate certain properties of nouns and noun phrases (NPs henceforth) in Turkish. Considering previous studies, one could argue that the main focus is on how to distinguish between word categories and dwell on the distinction between verbal and non-verbal categories. One of the conclusions of these studies is that nouns and adjectives should be classified as nominals because of their distributional properties. Thus nouns and adjectives are viewed as interchangeable and inseparable from each other. This means that the analyses of the past four decades have centered on how to distinguish between lexical categories rather than closely examining one particular category. In other words, comparing and contrasting nouns and verbs on the one hand, and nouns and adjectives on the other, has prevented nouns from being examined. The issues including the denotational properties of nouns, their status within the typology of nouns, the specification of nominal number and other related topics remain almost untouched. The current work, on the other hand, pursues a different path and expands upon the idea that nouns deserve a special treatment as a distinct category in the nominal domain. To do that is important since it will shed light on the exact nature of nouns in the language as well as reveal their place from a cross-linguistic point of view, not to mention the other important matters that will ensue along the way.

Nouns in Turkish display certain characteristics that are significantly different from those of their counterparts in other languages. One of the main claims of this study is that the way nouns behave as well as their interaction with quantificational elements in NPs is best accounted for by referring to their lexical characteristics. More specifically, based on the semantic and morpho-syntactic properties of nouns, the thesis aims at explicating their true nature, thereby specifying which noun subcategory or subcategories they belong to. There are a number of topics that need to be looked into in order to be able to address the issues given above. Among other things, the denotational properties of bare nouns, the interaction between nouns and other elements inside NPs, the count-mass distinction and verbal number discord between subject NPs and verbal elements are to be investigated. A thorough analysis of these issues will shed light on the characteristics of nouns in the language and have certain implications for the typology of noun subtypes.

In the remainder of this chapter, I provide a brief overview of various approaches to lexical category distinctions in the language. It is important to look at these issues since they form the basis of most of the earlier work done on this particular topic in Turkish. Then I turn to previous studies on the lexical categories in Turkish, paying particular attention to lexical expressions in the nominal domain. After that I briefly introduce the theoretical framework upon which this dissertation is built and discuss why it provides a good groundwork for the analysis to be presented. Lastly, I conclude this chapter by giving a roadmap for the thesis.

1.1 Approaches to Word Categories

The question of whether there are individual lexical categories such as ‘noun’, ‘verb’, ‘adjective’ and ‘adverb’ in the languages of the world and how one should distinguish between these categories has quite a long history. There is a significant body of descriptive and theoretical work on how to classify words into distinct categories or ‘parts of speech’, going as far back as Ancient India and Greece (cf. Robins 1997, Baker 2003 and Vinokurova 2005 among others). It is often noted that there are a number of diagnostic tests that are used to determine lexical categories in language. One of the ways to specify a category is using notional or semantic criteria. Basically, semantic criteria are used to distinguish lexical entities in terms of what they actually denote or

designate. Therefore, nouns are defined as expressions signifying physical objects and abstract concepts. Verbs are different from nouns in that they denote activities, events performed as well as states experienced or undergone. On the other hand, adjectives pattern differently since they give information about the qualities of entities. The second criterion relies more on the morpho-syntactic distribution of individual expressions. It distinguishes lexical items from one another with respect to what kind of grammatical information they carry as well as what syntactic position they appear in within a phrasal or sentential structure. For instance, nouns typically inflect for number, case and definiteness and generally occur with elements such as articles, demonstratives and quantifiers. Unlike nouns, verbs generally inflect for tense, aspect, modality and negation. Also, they often carry markers that show agreement with other elements in the structure. Adjectives, on the other hand, typically occur with markers that indicate comparison. They are usually modified by degree words and may also show agreement with nouns they modify. Last but not least, it is the functional criterion that specifies categories as prototype concepts with unclear boundaries. The distinctions between the lexical expressions are defined by four semantic criteria which are considered to be the most generic or classificatory semantic features of the lexicon. These features are (i) temporal stability (rate of change over time), (ii) complexity (number of defining sub-features), (iii) concreteness (physicality) and (iv) spatial compactness (degree of spatial scatter). Accordingly, nouns are associated with entities that have long temporal duration and occupy the most time-stable end, whereas verbs are regarded as expressions denoting dynamic and short-term state of events. Adjectives, on the other hand, signify states of temporally medium duration (cf. Givon 1984:49-103).

More recently, the main focus of the theoretical analyses within the generative framework has shifted to the question of whether words are specified for category distinctions in the lexicon or in syntax. The proponents of the lexical view argue that lexical expressions of a language are specified for their categories in the lexicon (cf. Di Sciullo and Williams 1987, Grimshaw (1990) and Levin and Rappaport Hovav 1995 among others). Those who accept this view generally make use of a system that contains lexical features such as 'N' for nouns, 'V' for verbs and 'A' for adjectives which are assigned to lexical items in the lexicon. On the other hand, others entertain the idea that lexical expressions do not inherently carry any information in terms of what category

they belong to (cf. Marantz 1997 and Borer 2003, 2005). This view holds that lexical items are basically roots that are devoid of any category specification in the lexicon and are assigned their respective category in syntax. However, this idea was also challenged by Baker (2003) who proposes a hybrid model containing a syntactic component and a lexical feature system for category assignment in language. In this model nouns differ from other word classes since they have the semantic criteria of identity which indicates that nouns can serve as standards of sameness. What this means is that they carry a referential index in syntactic terms. On the other hand, verbs are different from other word categories in that they have a (syntactic) specifier position. Adjectives differ from the former categories as they do not have a specifier position, nor do they have a referential index. This view also holds that nouns and adjectives need a predicate head to project a specifier position. This is basically the syntactic part of Baker's account of lexical category distinctions. The terms 'specifier' and 'referential index' are syntactic notions that nouns are argued to have. On the other hand, Baker's model has room for category specification of lexical entities before syntactic insertion takes place. For instance, a word like *table* should be specified for some category prior to syntactic operations so that it is inserted under a node with a referential index (i.e. N node). Thus both the lexicon and syntax play important roles for category specification in Baker's model.

Based on the apparent discrepancies between the analyses discussed above, one could argue that there is no consensus regarding how to account for the issues in question. More specifically, neither the analyses that rely on the lexicon for the categorization of lexical entities, nor the proposals that offer a more syntactically-driven account fully capture the true nature of the lexical items. For instance, arguing for a strict syntactic approach would mean that lexical entities completely lack semantic content and syntax is the only level at which they are assigned a category. Furthermore, this approach mainly relies on functional elements for category specification; however, cross-linguistic studies indicate that a majority of lexical items inherently belong to a category without the need to be associated with any functional element. Similarly, the analyses that propose a split model for category specification are not exempt from certain drawbacks in that it is not clear how, say, the analysis proposed by Baker makes a distinction between lexical and functional categories. For instance, the properties that

are inherently associated with lexical categories such as referential indices are also attributed to functional categories as well. Thus one gets uncertain as to where to draw the line between lexical and functional elements. On the other hand, lexically-oriented accounts hold the idea that lexical items already have the information with respect to what category they belong to. However, it should also be noted that it is necessary to address the issues concerning different properties specific categories like nouns exhibit across languages. In other words, it is important to capture the similarities and differences between particular categories and why they behave the way they do cross-linguistically. Therefore, an analysis in which the properties of particular lexical categories are thoroughly investigated should be a more preferred one. This would make it possible to have a better understanding of their behavior and lay out their differences in a systematic manner. More importantly, since the current work is primarily concerned with the semantic and morpho-syntactic properties of nouns and nouns phrases in Turkish and other languages that are typologically different, I will be considering the approaches to nouns rather than verbs and adjectives in order to grapple with the issues in question. In the next section I provide an outline of previous work in which special emphasis is given to lexical categories and especially category specification in the language. As will be clear from the discussion below, the analyses generally concentrate on the comparisons between and across different categories. However, I will argue that even though this is a useful way of identifying lexical categories, it is still not the most effective approach to investigate a specific category in its entirety.

1.2 The Specification of Word Categories in Turkish

When we consider earlier studies dealing with lexical categories in Turkish, we usually observe that the focus is on the question of how to categorize them into separate classes. This is mainly done by comparing and contrasting the morpho-syntactic properties of lexical entities. Therefore, there are not many theoretical analyses that are specifically devoted to the investigation of a particular word class in the language. A majority of these studies hold the idea that there is a sharp distinction between the category known as ‘nominal’ that contains nouns and adjectives and the category ‘verbal’. On the other hand, it is often argued that there is not a clear-cut distinction between such categories as nouns and adjectives in Turkish. In other words, verbs and

nouns are distinguished through morphological and syntactic criteria since they occur with only certain types of affixes. Specifically, there are a number of grammatical markers such as tense, aspect, mood and negation that are typically attached to verbs. On the other hand, they are not compatible with affixes that show case and number. This is exemplified in (1).

- (1) a. O gel-iyor / gel-meli / gel-me-z
s/he come-PROG / come-MOD / come-NEG-AOR
'S/he is coming / must come / does not come.'
- b. *O gel-ler / gel-den
s/he come-PL / come-ABL

The ungrammaticality of (1b), as opposed to the grammaticality of (1a), is taken to indicate that verbs are associated with only a certain set of grammatical markers in the language.¹ In contrast to that, nouns generally occur with case and number markers; however, they are not compatible with elements that are typically attached to verbs.² Consider (2).

- (2) a. kitap-ın / kitap-ta / kitap-lar
book-GEN / book-LOC / book-PL
'book's / in the book / books'
- b. *kitap-ıyor / kitap-malı / kitap-ma-z
kitap-PROG / book-MOD / book-NEG-AOR

The data in (2) are considered to illustrate that nouns are only compatible with nominal markers. Therefore, the upshot is that there is sufficient evidence to make a distinction between verbs and nouns in Turkish. On the other hand, when the noun-adjective

¹ Note, however, that the plural marker -lAr is able to be attached to the verb in certain cases. This issue will be discussed at length in Chapter 4.

² There are no markers that specify gender in Turkish.

distinction is considered, it is often noted that the distinction is not as straightforward as one might think. The idea here is that it is the syntactic environment that determines whether a given element is a noun or an adjective (cf. Grønbech 1936, Sebüktekin 1964, Kornfilt 1997, Braun and Haig 2000). This claim follows from the fact that a majority of adjectives may function as nouns and are able to take case and number markers. This is illustrated in (3) and (4).

(3) a. *Güzel* bir kadın
beautiful one woman
'a beautiful woman'

b. *Pahalı* bir araba
expensive one car
'an expensive car'

(4) a. *Güzel-ler-i* ve *yakışıklı-lar-ı* gör-meli-sin.
beautiful-PL-ACC and handsome-PL-ACC see-MOD-2SG
'You must see the beautiful (ones) and handsome (ones).'

b. *Pahalı-yı* tercih et-ti-k.
expensive-ACC prefer do-PAST-1PL
'We preferred the expensive (one).'

The word 'güzel' *beautiful* in (3a) is an attributive adjective modifying the noun 'kadın' *woman*. Similarly, 'pahalı' *expensive* in (3b) is also an adjective modifying the noun 'araba' *car*. On the other hand, 'güzel' in (4a) functions as an argument referring to individuals and takes both the case and plural marker. This is also true for 'yakışıklı' *handsome* in the same sentence. The example in (4b) further provides evidence that adjectives may function as arguments that are typical of nouns. Also, they take markers that are usually attributed to nouns. In addition to that, it is often noted that there are not any derivational suffixes that would differ nouns from adjectives in Turkish. This is in sharp contrast with the fact that there are a number of derivational

affixes that only nouns can take and there are certain derivational affixes that can only be attached to verbs.

The distributional similarities that nouns and adjectives exhibit led quite a number of researchers to come up with the conclusion that adjectives and nouns must belong to the same category. Uygun (2009:33-36) reports that Grønbech (1936), Emre (1945) and Swift (1963) note that the existence of adjectives as a separate category in Turkish should be rejected altogether since there are practically no differences between nouns and adjectives in terms of their distribution. Therefore, adjectives and nouns should be regarded as the members of the category known as nominal. On the other hand, some maintain the idea that adjectives should be considered to be a sub-class of nouns rather than having the same status as nouns (cf. Deny 1941, Banguoğlu 1986 and Ergin 1993). Last but not least, there are other proposals that put forward the idea that there should be a line drawn between nouns and adjectives regardless of how similar they are in their distribution (cf. Lewis 1967, Kornfilt 1997, Braun and Haig 2000). Braun and Haig's (2000) work is particularly relevant to the issues raised in this work and therefore is worth having a closer look at this point.

Braun and Haig investigate in what ways nouns and adjectives are similar and different from each other in Turkish. They mainly refer to morphological criteria in order to distinguish between nouns and adjectives in their analysis. Basically, they argue that the nominal class forms a continuum ranging from prototypical nouns to prototypical adjectives in Turkish (2000:91). The distribution of these prototypical lexical items is quite different from one another in that prototypical nouns are able to appear in Noun-Noun compounds and take the derivational suffix -lı whereas prototypical adjectives cannot. This is shown in (5a) and (5b).

- (5) a. *masa ayağı*-ı
table foot-3SG.POSS
'leg of a table'
- b. *masa*-lı
table-DER
'with table(s)'

In (5a) 'masa' *table* is a prototypical noun since it may be part of a noun compound. This is also supported by the fact that it may take the suffix -l' as shown in (5b). On the other hand, Braun and Haig propose another diagnostic test in order to determine prototypical adjectives in the language. They argue that prototypical adjectives are compatible with 'X bir N' construction, as in (6a). In addition to that, prototypical adjectives are able to take the derivational suffix -llk and appear in intensifying reduplication constructions. This is exemplified in (6b) and (6c) respectively.

- (6) a. *büyük* bir araba
big one car
'a big car'
- b. *büyük-lük*
big-DER
'bigness'
- c. *büs-büyük*
REDUP-big
'very big'

The data in (6) show the morpho-syntactic distribution of prototypical adjectives in Turkish.³

Braun and Haig's analysis is important since it is one of the few attempts that aim to identify lexical entities that are unambiguously nouns and unambiguously adjectives based on their morphological and syntactic distribution. However, a closer look at some of their arguments reveals the fact that their analysis is not exempt from certain drawbacks. First of all, as pointed out by Uygun (2009:36), certain words like 'büyük' *big* and 'siyah' *black* that Braun and Haig treat as prototypical adjectives in Turkish may also

³ Note that the suffix -llk may be attached to nouns as well as adjectives in Turkish. However, it has a different function depending on whether it is attached to a noun or an adjective. I will discuss this issue later in this chapter.

function as arguments and take number and case marking. Uygun provides the following to illustrate this point.

- (7) a. Ben *büyük*-ler-i al-acağ-ım.
I big-PL-ACC take-FUT-1SG
'I will take the big (ones).'
- b. *Siyah* san-a yakış-m-ıyor.
black you-DAT look good-NEG-PROG
'Black does not look good on you.'

What is important here is that if these words were prototypical adjectives, then they would only act as modifiers and would not be able to function as arguments. Moreover, Uygun notes that the prototypical approach does not fully explain how certain words act as prototypical nouns only. In other words, the question of what makes a word a true noun still needs to be answered.

In addition to the facts outlined above, another issue that needs to be mentioned at this point is that when dealing with nouns and adjectives in Turkish, previous analyses have largely overlooked the reading that adjectives are assigned. A careful examination will reveal the fact that the way adjectives are interpreted is somehow restricted in the sense that they always refer to human beings or contextually salient entities. This is illustrated in (8).

- (8) a. *zengin* bir adam / ülke / aile
rich one man / country / family
'a rich man / country / family'
- b. Bir *zengin* biz-e yardım et-ti.
one rich 1.PL-DAT help do-PAST
'A rich (person) helped us.'

(8a) shows that an adjective like 'zengin' *rich* may modify different nouns like 'adam' *man* and 'ülke' *country*. However, the sentence in (8b) illustrates that when 'zengin' is

functioning as a noun, it obligatorily refers to a human being. A similar point would be made for the adjective in (9a) and (9b).

- (9) a. *Kahverengi kazağ-ı* giy, san-a daha çok yakış-ıyor.
brown sweater-ACC wear you-DAT more much suit-PROG
'Wear the brown sweater, it suits you better.'
- b. *Kahverengi-yi* giy, san daha çok yakış-ıyor.
brown-ACC wear you-DAT more much suit-PROG
'Wear the brown (one), it suits you better.'

The word 'kahverengi' *brown* in (9a) is an adjective and modifies the head noun 'kazak' *sweater*. On the other hand, when we consider the sentence in (9b), the same head noun is absent from the structure and the case marker is attached to the adjective.⁴ Nevertheless, the adjective still keeps its primary function as a noun modifier in this case since it is interpreted as modifying a null noun whose actual referent can be derived from the context. In fact, similar views were suggested by Gencan (1975) and Demircan (1999) but are mostly overlooked by others. However, one could argue that adjectives are not the true heads of the phrase in cases like these but modify null nouns and carry nominal morphology in their absence. The referent of the null noun, on the other hand, is still understood from the context. This idea is supported by the fact that there are no cases in which an adjective functions as a noun and carries nominal morphology in the absence of a noun whose reference is not accessible in the context. Consider the scenario in (10).

[On the way to a store]

- (10) A: Parti için ne al-acak-sın?
party for what buy-FUT-2SG
'What are you going to buy for the party?'

⁴ Note that attributive adjectives never get nominal morphology in Turkish when there is an overt noun head inside the NP.

B: Beyaz elbise ve kırmızı ayakkabı al-acağ-ım.
white dress and red shoe buy-FUT-1SG
'I'll buy (a) white dress and red shoes.'

B': *Beyaz ve kırmızı al-acağ-ım.
white and red buy-FUT-1SG
Intended: 'I'll buy white (one) and red (ones).'

B'': *Beyaz-ı ve kırmızı-yı al-acağ-ım.
white-ACC and red-ACC buy-FUT-1SG
Intended: 'I'll buy the white (one) and the red (ones).'

The responses in B' and B'' are not acceptable as there is no way the referents of the conjoined NPs are accessible in the context.

Furthermore, one could also argue for other differences between nouns and adjectives in Turkish. It was mentioned previously that it is possible to attach the derivational suffix *-lık* to both nouns and adjectives. However, there are certain distinctions between nouns and adjectives derived from their respective roots. In other words, words derived from nouns denote concrete or physical objects whereas those derived from adjectives denote abstract concepts or properties. This is exemplified in (11) and (12).

(11) ayakkabı-lık / kitap-lık / kalem-lik / çiçek-lik
shoe-DER / book-DER / pencil-DER / flower-DER
'shoe cabinet, book shelf, pencil case, flower pot'

(12) iyi-lik / büyük-lük / sağır-lık / çabuk-luk
good-DER / big-DER / deaf-DER / prompt-DER
'goodness, bigness, deafness, promptness'

As is clear from the examples in (11), nouns derived from other nouns all designate physical entities, denoting some kind of storage or a container for a particular object.

This is typical of nouns that generally denote entities. On the other hand, the nouns in (12) are different in that they denote qualities rather than concrete objects. This is also what is expected from adjectives. Thus one could argue that there is more to the noun-adjective difference than meets the eye in the language.

It is obvious that arguing for the claim that nouns and adjectives belong to the same category in Turkish is far from capturing the facts about their nature. More specifically, it would make it difficult to investigate nouns in terms of their denotational properties, nominal number and other related issues. The discussion up to this point shows that previous analyses mainly considered the morphological and syntactic distribution of nouns and adjectives and focused on apparent similarities between them. However, most of these studies fail to look into the properties of nouns themselves. In other words, the interest has not been in cases where nouns that would be categorized as count like 'kitap' *book* and 'araba' *car* and mass such as 'su' *water* and 'şeker' *sugar* in earlier analyses. That is why it is necessary to explore the areas of inquiry including, but not limited to, the semantic and morpho-syntactic properties of nouns and whether these properties will necessitate proposing a new noun subtype within the typology of noun subcategories. Moreover, it is also important to look into the specification of nominal number and see whether it patterns with its counterparts in other languages. Finally, the issues concerning the count-mass distinction in Turkish require a careful investigation even though the consensus among the work done so far is that there is no such distinction. This justifies the need to have a fresh look at these issues. However, in order to be able to address the questions asked above it is necessary to have a system that would offer necessary tools for analysis. In the next section I will briefly introduce two approaches to nouns that are substantially different from one outlined above. I will then elaborate on them in the following chapter.

1.3 A New Analysis for Nouns

There is another line of research on the topics being dealt with which takes a rather different approach than those discussed. The advocates of this approach offer accounts that are more semantically-driven in nature. The properties of lexical entities such as nouns are analyzed by making reference to their denotational and number related properties. More specifically, different nouns types like singular count nouns, plural count

nouns, mass nouns, collective nouns and others are investigated in terms of what they actually denote. The distinctions between these noun types are considered to be mainly stemming from their semantic properties. This approach and its variants were adopted by researchers working in the formal semantic framework such as Link (1983), Bunt (1985), Landman (1989, 1991, 2000), Chierchia (1998ab, 2003, 2010) and Rothstein (2010) who offer formal analyses and employ set-theoretic methods in order to account for the issues regarding noun semantics. It proved to be a powerful approach and was adopted in a considerable number of analyses. However, most work on noun semantics generally centers on the count-mass distinction in English, so it is sometimes necessary to supplement this approach to accommodate nouns in other languages. On the other hand, there are a number of researchers including Rijkhoff (1991, 2002ab, 2008) and Seifart (2009) who offer an analysis of nouns where the variation in their semantic and morpho-syntactic characteristics are due to the fact that they actually belong to different noun subcategories. Each noun subtype is argued to be specified for a set of lexical/spatial features. This line of reasoning makes it possible to capture the fact that nouns exhibit different patterns of quantification and systematically classify them into different subcategories. Therefore, a combination of these two approaches provides us with the tools to make an investigation of the issues that need answering. However, there are certain distinctions between these two approaches with respect to the conceptualization of noun denotations even though it is true that they are comparable in other respects. As it will be clearer in the subsequent discussions, it is necessary to find a reconciliation of the two in order to have a better understanding of noun semantics, the specification of number and other issues. The question of how these approaches should be coalesced will be discussed in detail in the following chapter and forms the theoretical basis of this thesis.

It should be noted at this point that some of these studies do include the semantics of nouns and other related phenomena in Turkish. However, the problem seems to be that these issues are usually discussed in passing or nouns in Turkish are not considered to be worth of a thorough analysis. For instance, when we look at recent studies investigating nouns and noun phrases cross-linguistically, we observe that they support the idea that nouns do not form a separate category in Turkish. Rijkhoff (2002ab, 2008) maintains that nouns are 'flexible' in the sense that nouns and adjectives

are used interchangeably in the language. Therefore, he does not include nouns in his typological classification of noun subcategories. Moreover, based on one of Rijkhoff's (1991) earlier work on noun semantics, Schroeder (1999) offers an analysis in which the properties of nouns are explained by referring to lexical features. However, the problem with this account is that the features Schroeder proposes are generally associated with nouns in classifier languages such as Chinese and Thai.⁵ In addition to that, there are a number of formal semantic analyses including Krifka (1995), Rullmann and You (2006), Bale (2010) and Bale et al. (2011) that investigate the semantics of nouns and nominal number. However, Rullmann and You's analysis does not make a distinction between nouns in Turkish and their counterparts in other languages. As will be discussed in detail, the semantic and morpho-syntactic characteristics of nouns in Turkish are significantly different from those of their counterparts. This should be reflected in any analysis dealing with these issues. On the other hand, more recent studies such as Bale (2010) and Bale et al. (2011) propose an account where certain facts about the denotational properties of nouns as well as nominal number are captured in a unified manner. However, their analysis is restricted to what is often referred to as 'count' nouns (i.e. nouns generally denoting discrete spatial entities) and does not address the issues with respect to 'mass' nouns in the language. Therefore, I argue at this point that we need a more comprehensive analysis in order to have a better understanding of nouns and noun phrases in Turkish. To that end, I will propose an analysis in the following chapters that is mainly based on the formal and lexical semantic views on nouns. I conclude this introductory chapter with a roadmap for the thesis.

1.4 The Outline of the Thesis

In Chapter 2, I start off by looking at certain morpho-syntactic and semantic properties of nouns in English. I provide some descriptive facts about count nouns and mass nouns as well as in what ways they are different from each other in the language. Then I give an outline of different approaches where the characteristics of these nouns are formalized using various methods. After that I turn to the issues regarding nouns in Turkish. I begin by considering the morpho-syntactic and semantic properties of nouns

⁵ This issue will be discussed in Chapter 2.

and in what respects they are different from their counterparts in other languages. This is followed by the discussion of how previous analyses fail to provide a satisfactory account of the facts regarding nouns and noun phrases in the language. Lastly, I introduce an approach to noun semantics that I adopt as a theoretical basis and expand upon in this work.

Chapter 3 includes a more detailed analysis of the characteristics of nouns in Turkish. Basically, I propose a hybrid model combining formal and lexical approaches in order to account for why nouns behave the way they do in the language. The analysis leads to the conclusion that there are two different types of nouns, namely set nouns and mass nouns in Turkish. Moreover, the grammatical markers that are generally referred to as number markers are in fact nominal aspect markers in the language.

In Chapter 4 I investigate the interaction of plural subject NPs with verbal elements in terms of number discord. The claim that number discord is observed in languages that have set nouns is investigated. The analysis shows the fact that the claim also holds for Turkish.

In Chapter 5, I conclude the dissertation by underscoring the main findings of this thesis and its contributions to the area of noun semantics in general. In this chapter, I also underline certain limitations that the current work has and provide some pointers for future work.

Chapter 2

Background on the Semantics and Morpho-syntax of Nouns, and Number Marking

It is not what it looks like.

- Penny. The Big Bang Theory.

I begin this chapter with an overview of basic morpho-syntactic facts about nouns in English. First of all, I consider how singular, plural and mass nouns are distinguished in terms of their grammatical distribution and compatibility to appear with certain grammatical elements, their ability to appear in their bare form as well as whether they trigger singular or plural verb agreement. It includes the combinability of nouns with certain quantifiers and determiners as well. This is followed by the discussion of the grammatical and semantic approaches proposed to account for the characteristics of nouns, nominal number and the count-mass distinction in the language. I will also consider the advantages and drawbacks of these analyses. After that I shift my attention to Turkish nouns and look at their morpho-syntactic characteristics. More specifically, the interaction of nouns with certain grammatical markers will be considered. This also includes a review of earlier analyses proposed to explicate the nature of nouns in the language and in what respects they are different from their counterparts in other languages. This is followed by the discussion of how previous analyses fall short of capturing certain facts and the conclusion that a more comprehensive study on the topic is necessary. This leads to the introduction of typological work that proposes a more

lexical/conceptual semantic account of noun semantics and nominal number. I argue that an analysis in which different approaches are reconciled is warranted in order to have a better understanding of nouns and their characteristics. Finally, I propose a novel analysis that addresses the question of why nouns behave the way they do in Turkish and in other languages, based on the ideas and assumptions made within the formal and lexical semantic analyses.

2.1 The Morpho-syntax of Singular, Plural and Mass Nouns

When we consider previous work on nouns and noun phrases in various languages, we observe that there are a number of issues that researchers have drawn serious attention to for quite a long time. As noted elsewhere, the question often asked and answered is how to account for certain properties that nouns exhibit. Another related issue is in what respects nouns differ from one another within and across languages. For instance, earlier analyses concerning nouns in English center on the morpho-syntactic and semantic characteristics of singular, plural and mass nouns. Consider the examples in (1) that illustrate the basic properties of singular, plural and mass nouns respectively.

- (1) a. John bought a *book*.
b. John bought *books*.
c. John bought *asparagus*.

The data above show that a noun like *book* in (1a) co-occurs with the indefinite marker in an NP and it refers to only one entity. In contrast to that, the noun *books* in (1b) combines with the plural marker and it refers to multiple entities that are books. On the other hand, the grammatical distribution of a noun like *asparagus* in (1c) is different in that it generally appears in its bare form without the requirement to take certain grammatical markers. Furthermore, its referential properties are different from that of the previous two in the sense that it does not necessarily refer to one or more than one entity. Therefore, one could argue that there are certain differences between nouns like *book* and *asparagus* in English since the former can appear in the singular form as well as the plural form whereas the latter generally occurs without grammatical markers indicating singularity or plurality. Nouns of the former type are often referred to as *count*

nouns while nouns of the latter type are considered to be *mass nouns*. Note also that semantically count meanings are generally taken as being true of entities and individuals while mass meanings are true of stuff. However, one could also find cases where these nouns are modified by the same quantifier. Consider the examples in (2).

- (2) a. John bought *some* book.
- b. John bought *some* books.
- c. John bought *some* asparagus.

The distinctions between count and mass nouns are not restricted to their ability to occur with certain grammatical markers in English. Another distinction is that these nouns often appear with different quantificational elements in the language. This is exemplified in (3) and (4).

- (3) a. John read *a few / many / two* books.
- b. *John read *a little / much* books.⁶

- (4) a. John bought *a little / much* asparagus.
- b. *John bought *a few / many / two* asparagus(es).

The difference between the examples in (3a) and (4a) on the one hand, and the examples in (3b) and (4b) indicates that count nouns and mass nouns generally combine with different quantifiers. Note also that the examples above also show that numerals are compatible with count nouns in general. However, there are a number of quantifiers that occur with both count and mass nouns, as shown in (5).

- (5) a. There are *some / no / a lot of* books on the table.
- b. There is *some / no / a lot of* asparagus in the fridge.

⁶ The asterisk ‘*’ in these examples should not be taken as total ungrammaticality. As noted in Chierchia (1998a:55), it indicates an awkwardness that sometimes can be overcome by superimposing on nouns non-standard interpretation.

Furthermore, it is often noted that only count nouns may function as an antecedent for the pronominal *one* (cf. Baker, 1978). However, in some cases the use of *some* with count nouns is also possible. On the other hand, mass nouns may be an antecedent only for *some*. This is illustrated in (6) and (7).

- (6) a. John gave Jim *a book* and Susan gave him *one* as well.
b. John gave Jim *a book* and Susan gave him *some* as well.
- (7) a. John gave Jim *information* and Susan gave him *some* as well.
b. *John gave Jim *information* and Susan gave him *one* as well.

In addition to the differences in the combinability of count and mass nouns with certain quantifiers and pronominal elements, singular and plural count nouns exhibit certain distinctions with respect to agreement with verbal elements. In other words, verbs agree with singular and plural count nouns in terms of number. Mass nouns, on the other hand, generally pattern with singular count nouns in terms of verb agreement in the language. Consider the sentences below.

- (8) a. There *is*/**are* a book on the table.
b. There *are*/**is* books on the table.
c. There *is*/**are* (some) asparagus on the counter.

As is clear from the examples in (8) singular count nouns and mass nouns trigger singular number agreement whereas plural count nouns trigger plural number agreement on the verb.

The discussion above shows that there are certain similarities as well as notable differences between singular count nouns, plural count nouns and mass nouns in English. This is by no means an exhaustive list showing all the distributional differences between the nouns in question. One could add more in order to show further similarities and distinctions. The characteristics of these nouns prompted a significant number of researchers to look into this particular phenomenon, and various accounts have been

proposed. In the next section I provide an overview of previous approaches and diverse views on the topic.

2.2 Approaches to Nouns

2.2.1 *The Grammatical Approach*

As noted earlier, the investigation of the characteristics of count and mass nouns as well as in what respects they differ from each other is not a recent enterprise. The attempts to explicate their true nature have a long history. When we consider the work done in the past century, we see that one of the earliest grammatical analyses goes as far back as Bloomfield (1933:266). Bloomfield notes that the distinctions between these nouns are purely grammatical. More specifically, the differences are observed only in the morpho-syntactic distribution of these nouns and do not have to do with their meaning. Thus words like *wheat* and *oats* differ from one another since the former is grammatically singular while the latter is plural.⁷ In that sense, meaning distinctions do not play a role in the apparent variation. A similar view is advocated by Palmer (1971:34-35) who notes that it is necessary that grammar and meaning be considered to be independent of each other and not be confused in any way. In his view, the difference between *foliage* and *leaves* in English is primarily grammatical. This is also true for the distinction between nouns in different languages in that *hair* is a mass noun in English but *cheveux* 'hair' is a plural noun in French. Palmer goes on to say that the differences do not directly correspond to any categories of meaning, indicating his strictly grammatical stance on these matters.

Other studies have showed, however, that the 'mass' nature of nouns like *water* and *flour* as opposed to the 'countability' of such nouns as *table* and *cat* cannot be only a coincidence. As Joosten (2003) points out, the general tendency to use mass nouns to refer to substances on the one hand, and count nouns to refer to objects and animate

⁷ Interestingly, the noun *oats* is perhaps not the best example of a count noun in English. Even though it can appear with plural marking, it does not appear in the singular form (e.g. **an oat*), nor is it freely modified by numerals (e.g. *four oats*). In this respect, *oat* behaves more like *wheat* than true count nouns such as *car* and *pencil*.

beings on the other, does not appear to be completely unrelated to the meaning of nouns. In other words, not only should one take into account the morpho-syntactic properties of nouns but also their semantics should also be carefully investigated. This point leads to the introduction of another prominent approach in which the apparent differences between nouns is considered to be related to nouns and the real-world properties of entities they denote. This view is often called the ontological approach which I turn to in the next section.

2.2.2 The Ontological Approach⁸

We saw above that there are only a handful of analyses that offer a strictly grammatical account of the issues in question. In sharp contrast to that, there are a significant number of analyses that argue in favor of a more semantically-oriented approach to the investigation of nouns, nominal number and the count-mass distinction. One of the earliest analyses goes as far back as Jespersen (1909, 1924) who notes that there are quite a number of words “which do not call up the idea of some definite thing with a certain shape and precise limits” (1924:198). He calls these ‘mass-words’ and notes that they may be material, denoting substances like ‘water’, ‘butter’, ‘air’ and ‘gas’ or immaterial such as ‘leisure’, ‘success’ and ‘traffic’. A more recent account was proposed by Quine (1960) who not only acknowledges certain grammatical differences between nouns but also argues that there are important semantic distinctions. Specifically, Quine discusses the grammatical differences between what he calls ‘general terms’, ‘singular terms’ and ‘mass terms’ and argues that mass terms are different since they resist pluralization and articles. In addition to the grammatical differences, he notes that “so-called *mass* terms like ‘water’ and ‘footwear’ have the semantical property of referring cumulatively: any sum of parts which are water is water” (1960:91). To put it differently, *water* is a mass noun since it is unbounded or non-individuated. Thus adding more water to water will not change the fact that we still have

⁸ Note that even though there are a number of analyses considered in this sub-section, it does not necessarily mean that all of these analyses are strictly devoted to the *Ontological Approach* in its strictest sense. It would be more appropriate to say that there are certain common ideas and assumptions shared by them and they employ similar mechanisms as a representational means.

water. This property came to be known as the ‘cumulative reference’ in the more recent work and is often regarded as one of the distinguishing properties of mass nouns. The idea of cumulative reference was later formalized by Krifka (1989, 1992:32) as follows:

Cumulative reference

A predicate P is cumulative if and only if the sum of two instances of P is also an instance of P .

$$\forall P [CUM(P) \leftrightarrow \forall x, y [P(x) \wedge P(y) \rightarrow P(x \sqcup y)]]$$

The definition above correctly captures the fact that mass nouns like *sugar* and *coffee* are cumulative in reference whereas it is not the case for singular count nouns like *bicycle* and *house* in English.

In addition to the property of cumulative reference, mass nouns are argued to have other properties too. For instance, Cheng (1973:287) notes that mass nouns have the property of distributive reference: “any part of the whole of the mass object which is w is w ”.⁹ If we take an entity like, say, *butter* and divide it into two parts, we have two pieces of the same entity that are still in the meaning definition of the word *butter*. These two properties of mass nouns form the property of Homogeneous reference (c.f. ter Meulen 1981:111). Basically, water has a homogeneous structure since parts of water can be called water as well. On the other hand, Homogeneous reference does not hold for entities like spoon in that it does not inherently have the property of cumulative and distributive reference. In other words, when a spoon is cut into two or more pieces, it is not the case that each piece counts as a spoon. Therefore, singular count nouns like *spoon* and *table* are known as having the property of Quantized reference. Krifka (1992:32) defines the property of Quantized reference as follows:

Quantized reference

A predicate P is quantized if and only if no proper part of an instance of P is also an instance of P .

⁹ Distributive reference is sometimes referred to as ‘divisivity of reference’ in several studies.

$$\forall P [QUA(P) \leftrightarrow \forall x, y [P(x) \wedge P(y) \rightarrow \neg y \sqsubset x]]$$

Recall that this is an ontological distinction in the sense that the three properties discussed above have real-world relevance. In other words, in this model the properties of entities in the physical world play an important role in characterizing count and mass nouns. The question of why a noun like *milk* is mass while a noun like *book* is count is accounted for by taking into account the actual referents of nouns.

It should be noted at this point that more recent studies point out the fact that the property of cumulative reference does not hold only for mass nouns. Plural count nouns are argued to share certain properties with mass nouns. For instance, Link (1983:303) states that plural nouns also have the property to refer cumulatively like mass nouns: “If the animals in this camp are horses, and the animals in that camp are horses, then the animals in both camps are horses”. Therefore, the property of Cumulative reference is true of plural count nouns as well as mass nouns. On the other hand, referring cumulatively is not true of singular count nouns. This could be demonstrated by an often used example: suppose that you have an apple in your right hand and another apple in your left hand. When you put them together, what you have is not an apple but apples.

As noted earlier, there is a significant body of work that addresses the issues concerning singular count nouns, plural count nouns, mass nouns as well as others such as collective nouns. One of the commonly used methods in these studies is to use formal tools and mechanisms to represent nouns semantics. The main reason behind this idea is that the characteristics of nouns can be represented through algebraic structures like lattice and set theory. This idea and its variants have been entertained by Link (1983, 1991), Bunt (1985), Krifka (1989, 1992, 1998), Pelletier and Schubert (1989, 2003), Landman (1989ab, 1991, 2007), Gillon (1992, 1999), Chierchia (1998ab, 2003, 2010) and Rothstein (2010a). Note that these studies display significant differences in terms of how they approach the issues. However, they also share certain characteristics that make it possible to discuss them together in the following sections. One of the earliest forerunners of this approach is Link (1983, 1991) who offers a formal/logical analysis for noun semantics in English. Basically, Link proposes a formal semantic account of plural nouns and mass nouns and what they actually denote. In the next section, I will give an outline of Link’s proposal and its contributions to the understanding

of noun semantics, number and the count-mass distinction. I will then turn to more recent work on the topic that pursues similar ways to approach the issues being investigated.

2.2.3 Noun Denotations and Number

2.2.3.1 *Link's Sums*

In his seminal paper, Link (1983) aims to develop a theory of plural and mass expressions in natural languages that has its roots in logic and formal semantics, especially lattice theory. Specifically, Link proposes an account of plural semantics, the count-mass distinction and the issues concerning noun semantics in English. Note also that his work has significant implications for the denotation of singular count nouns in languages like English although the analysis is mainly concerned with plural and mass semantics. Basically, Link argues that the set of objects from which nouns get their denotations has structure. However, plural and mass nouns refer to entities with different structural properties even though plural and mass denotations are often argued to have structural similarities such as referring cumulatively. This means that there are actually two separate domains from which count and mass nouns get their denotations. In this model, the domain of entities associated with count nouns is best represented by an *atomic semilattice* which is a partially ordered set that contains entities with discrete or atomic parts. The atoms in the domain are singulars while non-atomic elements are sums. On the other hand, the domain for mass noun denotations is a *non-atomic semilattice* that is a partially ordered set containing stuff or substances with no discrete or atomic parts.¹⁰ The meaning of a count noun is provided by the meaning of the singular form of that noun in the atomic domain. This means that nouns like *table* and *car* have atomic entities in their denotations. In order to derive the plural form of these nouns Link proposes an operator called the plural operator ' \oplus ' that applies to singular

¹⁰ Formally speaking, a join semilattice is a partially ordered set of elements where elements in the set do not need to precede or follow each other. A poset is also an ordering $\langle A, \leq \rangle$ which is reflexive, antisymmetric and transitive. This is different from a set with a total order where the order each element with respect to any of the other elements is significant.

forms and derives plural nouns. In other words, a plural noun like *tables* or *cars* is derived from the singular *table* or *car* by applying the plural operator.¹¹ In that sense the semantics of the plural operator is the function that maps a set of atoms in the domain to its complete \sqcup -closure based on sum. This can be represented as in Figure 2.1.

$$\begin{array}{cccc}
 & a \oplus b \oplus c & & \\
 a \oplus b & a \oplus c & b \oplus c & \\
 a & b & c & = \text{Atoms}
 \end{array}$$

Figure 2.1: An atomic complete join-semilattice

As illustrated by Figure 2.1 above, the domain of quantification (aka. the universe of discourse) contains three atoms. A singular noun denotes a set of atoms shown in the bottom line. On the other hand, a plural noun denotes the sum of individual atoms. More specifically, if the atoms in the bottom line illustrate tables in the domain, the singular noun *table* denotes the property of being one of the atoms and the plural noun *tables* denotes the sum of those atoms. Note also that the plural operator ‘ \oplus ’ is somewhat different from ‘+’ in the sense that $a \oplus b$ always gives the individual sum or plural object of a and b whereas $a + b$ is still a singular object in the domain, namely the material fusion of a and b . Therefore, in Link’s theory $a + b$ in a sense constitutes $a \oplus b$ but is not quite the same as $a \oplus b$. For instance, if a and b are two rings recently made out of old Egyptian gold, then *the rings*, $a \oplus b$, are new, *the stuff*, $a + b$, is old.

Another important point in Link’s analysis is that the relationship between atoms and their sums should be understood as ‘being a part of’ which is represented by the symbol ‘ \leq ’. The sum should be thought of as consisting of atomic entities like a , b and c . Similarly, the sum b, c is part of the sum a, b and c . Consider (9).

¹¹ Note that this view of Link is different from that of his predecessor Scha (1981) who assumes that singulars and plurals have the same interpretation.

- (9) a. $a \leq a \oplus b \oplus c$
b. $a \oplus b \leq a \oplus b \oplus c$

As mentioned above, another issue that Link notes is the close resemblance between collective predication and predication involving mass nouns. The point here is that the similarity between these nouns does not appear to be purely coincidental. Link provides the following to illustrate that.

- (10) a. *The children* gather around their teacher.
b. *The water* gathers in big pools.

- (11) a. If *a* is water and *b* is water, then the sum of *a* and *b* is water.
b. If the animals in this camp are horses and the animals in that camp are horses, then the animals in both camps are horses.

The sentences in (10) display the similarities between plural and mass nouns. The examples in (11) also show that plurals and mass terms both have the property of cumulative reference. This property excludes singular count nouns since they do not refer cumulatively.

This analysis of Link's gave rise to quite a number of subsequent analyses concerned with the semantics of nouns, the count-mass distinction, nominal and verbal number as well as plurality in the verbal domain. These studies take Link's approach as a theoretical basis and generally expand upon this work. However, there are also considerable differences between these studies that need to be carefully laid out here. In the following sections, I will consider some of these analyses, looking particularly into work by Landman (1989ab), Chierchia (1998ab, 2003) and Gillon (1992, 1999) since these analyses have proven to be very influential in this area of research.

2.2.3.2 Landman's Groups

In addition to his work on plurality and mass terms, Link (1984) provides an analysis in which he proposes an operation of group formation to accommodate what he calls the *group interpretation* of certain plural NPs in English. For our purposes, a group

can be roughly defined as an NP that denotes a singular entity that somehow corresponds to multiple entities. Link argues that certain NPs shift their interpretation from a plural entity to an entity often referred to as *a group atom*. Following Link, Landman (1989ab) develops a theory of plurality that also deals with the group interpretation of NPs by proposing an operation of group formation ‘↑’. More importantly, Landman observes close similarities between nominal and verbal predicates in terms of collectivity and distributivity. That is to say, the same operation of pluralization in the nominal domain is also available in the verbal domain. Therefore, Landman reduces distributivity to semantic plurality: if we apply a pluralized verbal predicate to a semantically plural interpretation of a noun phrase, we get a distributive interpretation. As he points out in his recent work, there are in fact two modes of interpretation: singular predication, which applies a predicate to singular things, individuals or groups, and plural predication, which applies a plural predicate distributively to a sum of singular individuals (Landman 2000:155).

On the other hand, Landman (1989a) proposes a modified account of the issues concerning nominal conjunction and the representation of plural entities (i.e. sums vs. sets). Note that Link argues that sets are abstract objects whereas plural individuals should be regarded as concrete entities, an idea which is the epitome of the *sums* approach. Moreover, sets inherently contain atomic entities but the idea of atomicity does not seem to be compatible with mass nouns since they are not true of entities with minimal parts. In that regard, a set theoretic representation would make it difficult to keep the structural analogy between plurals and mass nouns intact. Thus Link does not adopt a set-theoretic approach to explain the characteristics of plurals and mass nouns. In his work Landman is also concerned with whether the set theory would not be the best representational means. He provides the example below in order to illustrate the problems that a set-theoretic account would have (1989a:565).

(12) *John, Paul, and Mary *has* three elements.

What is important here is that if *Mary, Paul and John* were really a set, then the sentence above would be grammatical. However, it certainly is not. Therefore, the

conclusion here is that we cannot actually capture the facts about plurals by offering a set-theoretic account.

However, Landman (1989a:566-567) points out that this is not actually a good reason why one should not consider the domain of individuals as a set-theoretic structure. Following Cresswell (1985), he argues that Link's view of plural objects as concrete entities rather than abstract is different from the view in which each plural entity is concrete. The point here is that quantification is not done over sums. Landman illustrates this with an example: "Suppose that Link has three children and his children messed up the living room. Now let us ask: how many concrete entities were involved in messing up Link's living room? One answer that is clearly correct is: three counting the singular individuals. Another correct answer might be: one group. This might seem to be quantification over plural individuals in the sense meant here (1989a:566-567). Thus one of the differences between the *sums* and *groups* approach is that Link treats plurals as sums in the count domain whereas Landman argues that they are sets of individuals. The latter idea was later adopted by other researchers as well. For instance, Chierchia (1998ab, 2003) argues for a set theoretic approach to singular, plural and mass nouns in English and Italian. He, unlike his predecessors, argues for a single domain in which both count and mass nouns get their denotations. A similar idea is entertained by Gillon (1992, 1999) in which he argues for a lexical semantic account of noun semantics and the count-mass distinction in English. I turn to these analyses in the following sections and highlight their main points.

2.2.3.3 Chierchia's atomistic view

Expanding upon work by Link (1983) and Landman (1989ab), Chierchia (1998ab, 2003) proposes an alternative analysis in order to account for the count-mass issues in languages including English, Italian and Chinese. However, there are certain differences between his characterization of noun semantics and the count-mass distinction and that of his predecessors. For instance, the way he characterizes the domain of discourse from which nouns get their denotations is not the same as Link's conceptualization of the discourse domain. He argues that it is not necessary to argue for two distinct domains, one being for count nouns and another for mass nouns. Instead, he develops his theory

of the count-mass distinction and noun denotations, proposing a simplified model that includes only one domain of discourse.

Chierchia goes on to say that mass nouns come from the lexicon already pluralized. Therefore, the presupposition in this model is that mass nouns are treated as being inherently or lexically plural. It is for this reason that there are significant resemblances between plural count nouns and mass nouns. In other words, both plural nouns and mass nouns denote sets of pluralities. Note that the argument that mass nouns denote pluralities is only possible assuming that mass nouns denote entities that consist of minimal (i.e. atomic) parts. In that respect, they have the same properties as count nouns. The denotation of a mass noun like *change* is similar to that of a plural count noun like *coins* in that both refer to sets of pluralities. More specifically, a mass noun denotes a set of individuals and all the pluralities thereof. For instance, the mass noun *change* denotes single coins and all the possible sets of those coins. Chierchia notes that this way of investigating mass nouns is an *atomistic* one: “we are committed to claiming that for each mass noun there are minimal objects of that kind, just like for count nouns, even if the size of these minimal parts may be vague. The main difference between count and mass nouns thus comes to the following: while count nouns single out in the lexicon the relevant atoms or minimal parts, mass nouns do not” (Chierchia 1998a:54). Thus singular count nouns denote singular countable objects (i.e. those with atomic parts) and count plurals are derived forms by way of pluralization. Similarly, mass nouns denote entities that have atomic or minimal parts although they may be somewhat vague and not well-defined. Chierchia’s idea of atomistic view can be illustrated as in Figure 2.2.

$$\begin{array}{cccc}
 & \{a, b, c\} & \dots & \\
 \{a,b\} & \{a,c\} & \{b,c\} & \dots \\
 a & b & c & \dots = At
 \end{array}$$

Figure 2.2: An atomic join-semilattice closed under sum

The atomic entities in the bottom line represent the set of singularities or atoms. For instance, if the domain is composed of male individuals, then the bottom line

represents individuals: *John*, *Jack* and *Jim*. These individuals are the building blocks for singular NPs like *the man*. On the other hand, the other lines represent sets of pluralities. Chierchia also argues that one needs to refer to *the set forming operator* in order to get the plural denotation of a count noun. Thus while the denotation of a singular is a set of atoms, the denotation of a plural is a subset of pluralities. This is represented in Figure 2.3.

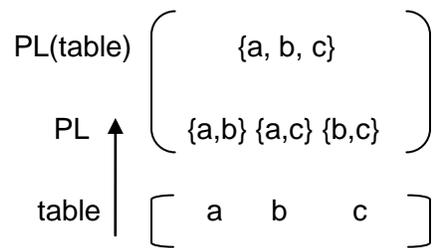


Figure 2.3: Plural formation and the representation of sets of pluralities

On the other hand, the denotation of mass nouns can also be represented by a similar structure. The idea here is that mass nouns denote atomic entities as well as pluralities thereof. To recapitulate, while the denotation of a singular count noun is a set of atoms and the denotation of a plural count noun is a set of pluralities, the denotation of a mass noun includes both atoms and sets of pluralities. For instance, if we think of a domain in which *a*, *b*, and *c* are the pieces of furniture, then the denotation of the noun *furniture* can be illustrated as in Figure 2.4.

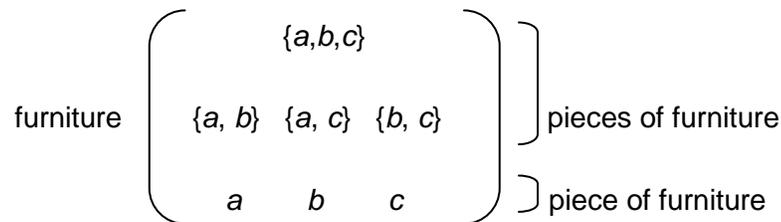


Figure 2.4: An atomic set representing mass meanings

The basic idea here is that any single piece of furniture such as *that chair* is furniture and it is also true for any plurality of pieces that can be characterized as furniture like *this*

wardrobe and *that dresser*. The point there is that although the minimal parts of furniture are sometimes vaguely determined, this does not necessarily mean that they are atomless entities. For instance, the denotation of the noun *table* should be considered to be an atomic or minimal element of the denotation of *furniture*. It is made up of discrete sets of singularities with atomic parts. However, Chierchia's idea of atomicity being true of both count nouns and mass nouns has been put into question in the subsequent studies. For instance, it is often noted that this approach is not ideal since it does not capture the fact that not every noun has atomic entities in its denotation (i.e. abstract nouns). In other words, this model makes correct predictions so long as we take into account mass nouns that do denote atomic entities like *furniture* and *change*. However, it would be difficult to accommodate those that do not have atomic entities in their extension.

In addition to Chierchia, Gillon (1992, 1999) is also often cited as one of the proponents of the atomic approach that presupposes only one domain both for count and mass nouns (cf. Rothstein 2010). However, the ideas that Gillon comes up with display important differences from those of his predecessors. I will have a closer look at Gillon's proposal in the next section.

2.2.3.4 Gillon's Common Semantics

Gillon argues that cumulativity and divisivity of reference proposed in the earlier studies do not systematically capture the count-mass distinction in languages. The property of cumulativity is also true of plural count nouns and divisivity does not make a clear distinction either. For instance, there is a large set of nouns such as *water*, *sugar* and *furniture* which pattern morpho-syntactically with mass nouns but their denotations have parts which do not fall within the same noun's denotation. In other words, the leg of a chair does not qualify as furniture. Similarly, there are a significant number of nouns like *stone*, *rock*, *ash* and *rope* that pattern morpho-syntactically with count nouns but their denotations have parts which also fall within the same noun's denotation (1999:20-21).

Gillon goes on to say that the minimal parts hypothesis does not have an important role in determining the count-mass distinction. His claim is that grammar does not care about whether the denotation of mass nouns involves minimal parts or not.

Instead, he proposes an account that approaches the count-mass distinction in terms of non-specification. Gillon (1992 and 1999) argues that while count nouns denote individuals with minimal parts, mass nouns are simply not specified for whether they denote atomic or atomless individuals. One of his main claims is that common nouns have lexical features that are associated with them and these features determine what kind of phrasal features nouns have in the syntax. More specifically, nouns are assigned exclusively the lexical features \pm CT (i.e. +count and -count) and lexical phrasal features \pm PL (i.e. +plural, -plural) in English. Count nouns are naturally assigned the feature +CT and they always denote well-defined objects. Mass nouns, on the other hand, are specified with the feature -CT and they denote the largest individual which is the sum of all the individuals in the domain. If a noun has the lexical feature +CT, it can be assigned the features +PL or -PL. Therefore, this difference systematically captures the distinction between singular and plural count nouns. This distinction also shows why count nouns must agree with determiners in English in terms of number. Consider the examples below.

- (13) a. a book / a car / that car [+count], [-plural]
b. books / cars / those cars [+count], [+plural]

On the other hand, mass nouns are different in that they are lexically assigned the feature -CT. It is for this reason that mass nouns have the phrasal feature -PL. This is illustrated in (14).

- (14) a. furniture / water / sand [-CT, -PL]
b. *furnitures / *waters / *sands [-CT, +PL]

However, it should also be noted that certain mass nouns are assigned the feature +PL in their lexical entry. That is, their pluralization is not phrasal but lexical. Determiners modifying this type of nouns must show agreement with them in terms of number. Consider (15).

- (15) a. annals / dues / effects [-CT, +PL]
b. The club requires *these* dues to be paid immediately.

To sum up, the difference between count nouns and mass nouns is that the former have the lexical feature +CT and generally denote atomic individuals. On the other hand, mass nouns have the lexical feature -CT and denote the set containing the largest individual in the domain of which they are true. They are not specified in terms of whether they have minimal parts or not.

As the discussion above shows, there are a number of influential analyses dealing with nominal semantics, number and the count-mass distinction. Another important issue often found in the analyses of nominal semantics and the count-mass distinction is the ability of count nouns to function as mass nouns and vice versa. In other words, a count noun like *car* can be used in a mass sense and a mass noun such as *beer* can be used in a count sense. It was noted elsewhere that there are certain mechanisms or operations that are responsible for the semantic shift whereby a count noun has a mass sense and a mass noun has a count sense, namely the *Universal Grinder*, *Universal Packager* and the *Universal Sorter*. I discuss these processes in the next section.

2.3 The Count-to-Mass and Mass-to-Count Shift

The fact that a count noun may be used as in a mass sense and a mass noun may assume a count sense is well-known and widely discussed elsewhere. It is often noted in studies dealing with the count-mass issues that count-to-mass shift is a more common process than the mass-to-count shift across languages. The mechanism that takes a count noun and turns it into a mass noun is referred to as the Universal Grinder, introduced by Pelletier (1975).¹² The Universal Grinder is defined as in the following: “Take an object corresponding to any (apparent) count noun he wishes (e.g. ‘man’), put the object in one end of the grinder and ask what is on the floor (answer: ‘There is man all over the floor)’ (Pelletier 1975:456). This mechanism is considered to be universal in that it applies to any count noun and gives rise to a reading in which it is interpreted as a mass noun. This is shown in (16).

¹² Pelletier (1975) notes that the term *Universal Grinder* was suggested by David Lewis.

- (16) a. A mother termite complaining about her son: “Johnny is very choosy about his food. He will eat *book*, but he won’t touch *shelf*.” (Gleason, 1965)
- b. There was *car* all over the garage floor.

The typical count nouns *book* and *car* in (16a) and (16b) are used to refer to some kind of substance that does not have a bounded structure rather than an object with a well-defined shape. In other words, they do not seem to denote an individuated entity.

However, the universality of this mechanism has been put into question in recent studies such as Cheng et al. (2008) and Rothstein (2010b) among others. The claim here is that the shift from a count sense to a mass sense is possible in certain contexts only. What is also important is that nouns that undergo a semantic shift are often considered to have a *non-standard* interpretation. This is exemplified by Rothstein (2010b).

- (17) a. #*Boy* walked into the room.
- b. #I read *book* about *giraffe(s)*.

The examples in (17) show that not all count nouns can freely turn into a mass noun as there are certain contextual restrictions at work. In addition to that, Doetjes (1997) argues that it is also true for nouns that denote abstract concepts such as *characteristic* and *mile*. More importantly, Doetjes notes that the way the count-to mass shift and the mass-to-count shift work shows that there must be a lexical distinction between count nouns and mass nouns because there are quite a number of count nouns and mass nouns that resist conversion. This is taken as indicating that it is not the case that count nouns are derived from mass nouns and vice versa.

Note also that it is possible to derive a count sense of a mass noun in languages. One way to do that is what Jackendoff (1991:24) calls the Universal Packager which takes a mass noun and turns it into a count nouns. More specifically, it gives rise to a reading in which a mass noun is interpreted as referring to a unit, serving or an instance of the entity or substance. In addition, a mass noun can get a count sense by way of the mechanism called the Universal Sorter (cf. Bunt 1985:11). This process assigns a kind

or type interpretation to mass nouns. Wiese and Maling (2005:5) provide the following examples to illustrate each process, showing the distinction between them in terms of the reading they have.

- (18) a. Two *beers* and a *coffee*, please.
b. The best *wines* are from Chile.

The example in (18a) shows that the Universal Packager yields a *portions of N* interpretation and the sentence (18b) indicates that the Universal Sorter gives rise to a *sort or type N of* interpretation. However, it should be noted that these operations do not work the same way in all languages. For instance, Doetjes (1997) shows that having a *type of N* reading does not necessarily imply that mass-to-count shift has taken place. The evidence comes from Dutch, exemplified in (19).

- (19) Ze verkopen dit *hout* al jaren.
they sell this wood since years
'They have been selling this (type of) wood for years.'

According to Doetjes, the word 'hout' *wood* cannot be interpreted as a count noun in the *type of mass N* reading since it cannot be pluralized. This indicates that the operations discussed above do not produce similar results in every language.

The discussion of different analyses above provides us with a general idea about the nature of the approaches to nouns, nominal number, the count-mass distinction and other related phenomena in different languages. The question that arises at this point is how nouns in Turkish would fit into this picture. More specifically, the questions that need to be addressed are what are the properties of nouns, how is the specification of number done and whether there is a count-mass distinction in the language. In the next section, I will review previous approaches to some of these issues in Turkish.

2.4 Noun Denotations and Nominal Number in Turkish

When we consider previous work done on the semantics of nouns, nominal number and other related phenomena in Turkish, we notice that there are only a small

number of studies that are exclusively devoted to the investigation of these matters. More importantly, there is almost no analysis that offers a theoretical account of the count-mass distinction or lack thereof in the language. Nevertheless, it was noted repeatedly that the characteristics of Turkish nouns are significantly different from those of their counterparts in English in certain respects and Chinese in others. The view that is widely accepted is that nouns are *transnumeral* in their bare form.¹³ This characteristic of Turkish nouns sharply contrasts with that of their counterparts in languages such as English since singular count nouns like *chair* and *bicycle* denote singular entities only in their bare form. On the other hand, plural count nouns like *chairs* are derived forms through a pluralization process. In the following sections, I provide an overview of the morpho-syntactic and semantic properties of nouns as well as previous work proposing a variety of analyses for these matters in the language.

2.4.1 Previous Analyses of Nouns and Nominal Number

One of the most influential analyses regarding these issues is found in Schroeder (1999). Schroeder specifically focuses on the properties of nouns and noun phrases in spoken discourse in Turkish. He mainly investigates nominal and verbal number, referent introduction in discourse as well as quantification in the language. In his analysis he argues that bare NPs are transnumeral in nature (1999:57-96). Transnumerality is often defined as stating that the meaning of the noun can be expressed without referring to number (Corbett 2000). In that sense there is a significant distinction between nouns in Turkish and their counterparts in English in the sense that in the latter number is obligatorily expressed in at least count nouns. In addition to Schroeder, Corbett (2000:14) and Bliss (2004) also note the transnumeral nature of nouns in the language. This property of Turkish nouns can be illustrated in (20) where a bare noun does not specify anything in terms of number.

¹³ There are several terms that have been used to refer to transnumeral nature of nouns in various languages. As noted by Corbett (2000:10), the most commonly used terms are *general number* (cf. Andrzejewski, 1960 and Corbett, 2000), *unit reference* (cf. Hayward, 1979) and *transnumeral*. In this work I use the term *number-neutral* in order to refer to this property of nouns in Turkish.

- (20) a. adam
man/men
- b. araba
car/cars

The examples in (20) shows that a noun like 'adam' means either *man* or *men* without specifying any number value (i.e. singular or plural) for the noun. When these nouns appear inside NPs without any grammatical marker that indicates number, they are interpreted as transnumeral. This can be taken as indicating that number does not need to be obligatorily expressed in languages like Turkish. In that sense, Turkish nouns are different than nouns in languages in which number is obligatorily represented as a grammatical category. However, this does not necessarily mean that number is not expressed at all. In those cases when reference is made to a single entity, the noun appears with 'bir' *one* which has at least two main functions in the language. It is used as the indefinite determiner and a numeral in the language. Consider (21).

- (21) a. *bir* adam
one man
'a man'
- b. *bir* araba
one car
'a car'

The difference between (20a) and (21a) could be explained by arguing that the former denotes a particular type of entity without indicating any specific number whereas the latter refers to one particular entity. On the other hand, when a noun combines with the plural marker '-lar',¹⁴ the reference is obligatorily made to more than one entity. This is shown below.

¹⁴ The vowel in the plural suffix is subject to vowel harmony. Its form is either [-ler] or [-lar] depending on the quality of the vowel preceding it.

- (22) a. *adam-lar*
man-PL
'men'
- b. *araba-lar*
car-PL
'cars'

Consistent with the examples in (21) where NPs refer to single entities when modified by the indefinite determiner, the examples in (22) show that when the plural marker is attached to nouns, the reference is made to plural entities only. To sum up, it was shown in the above discussion that the way nominal number works in Turkish is not the same as its counterparts in other languages such as English in which this phenomenon has been widely investigated. It is well-attested that there is a clear distinction between (count) nouns in English in the sense that they generally take one form or the other (i.e. singular or plural). However, when we look at a language like Turkish, it appears that there is a three-way distinction between nouns as they may appear in the number-neutral, singular or plural form.

On the other hand, when we consider nouns like 'su' *water*, 'un' *flour* and 'zaman' *time* and 'para' *money* that are generally categorized as *mass nouns*, we observe that they also appear in their bare form in NPs and their morpho-syntactic properties are similar to nouns such as 'çocuk' *kid/kids* and 'ev' *house/houses*. More specifically, these nouns can freely co-occur with the indefinite determiner and the plural marker in the language. This is shown in (23) and (24) respectively.

- (23) a. *bir su*
one water
'a (glass of) water'
- b. *bir şeker*
one sugar
'a (cube of) sugar'

- (24) a. su-lar
water-PL
'units of water'
- b. şeker-ler
sugar-PL
'units of sugar'

The question that arises is how to formalize the three-way distinction between nouns in Turkish what its implications would be for noun semantics in general. It appears that there needs to be an analysis that should address these issues. As noted earlier, there are only a few analyses that are concerned with the semantics of nouns and nominal number. However, their focus is generally on nouns like 'kitap' *book* which denote an entity with a well-defined outline whereas nouns like 'su' *water* that denote unbounded stuff remain mainly untouched. I will look at these analyses in the next section.

2.4.2 The Semantics of Bare Nouns

The issues concerning nominal semantics and the properties of bare nouns in Turkish have been recently investigated. For instance, Bliss (2004) analyzes noun phrases consisting of only a noun without any modifying elements like determiners, quantifiers or plural marking. She proposes that bare nouns project noun phrases whereas their non-bare counterparts are always associated with functional elements and project determiner phrases.¹⁵ Similarly, Rullmann and You (2006) investigate nominal reference and number in a number of typologically different languages such as Turkish, Chinese, English, Korean and Hungarian. However, they adopt a semantic framework similar to one proposed by Link (1983) and Landman (1989a) and expand upon it in order to accommodate different number systems. Based on the properties of bare nominals in various contexts, Rullmann and You argue that the number system of Turkish, Chinese, Korean and Hungarian significantly differs from the number system in English in some respects. More specifically, they argue that bare nouns in the former set

¹⁵ See Öztürk (2005) against the idea of *determiner* as a functional node in Turkish.

of languages have general number (i.e. number-neutral) as opposed to the number system with a strict singular/plural distinction. Unlike their counterparts in English, bare nouns can appear without function words like determiners or affixes like the plural marker in these languages. This is illustrated in (25).

- (25) a. Zuótiān wǒ mǎi le shū (Chinese; Rullmann and You 2006:179)
yesterday I buy ASP book
'Yesterday, I bought one or more books.'
- b. *Kitap* al-dı-m. (Turkish; Bliss 2004:21)
book buy-PAST-1SG
'I bought a book / books.'
- c. Mari *verset* olvas. (Hungarian; Farkas and de Swart 2003:12)
Mari poem-ACC read
'Maria is reading a poem/poems.'

The ability of nouns to appear bare in these languages is often taken as evidence that the way their nominal number system works is different. In other words, while nouns are obligatorily specified for a particular number (i.e. either singular or plural) in languages like English, it is not the case in the languages in question. This means that every occurrence of a noun should indicate number in languages like English.¹⁶ In sharp contrast, there are typologically unrelated languages in which nouns may appear unmarked for number. Rullmann and You argue that the difference between Turkish and Chinese-type languages and English-type languages can be best accounted for by utilizing formal semantic tools. Following Link (1983), they propose a formal model in which the domain of entities constitutes a complete free atomic semilattice that contains both singular entities (i.e. atoms) and their sums (i.e. pluralities). However, unlike Link they model atoms as singleton sets and their pluralities as their non-singleton

¹⁶ Note that it is not true for *mass nouns* in English since they can appear in their bare form. However, the distinction here is made between singular count nouns like *book* in English and its number-neutral counterpart in languages like Turkish.

counterparts, a view also shared by Landman (1989a) and Chierchia (1998a). Rullmann and You (2006) provide the following to illustrate noun denotations.

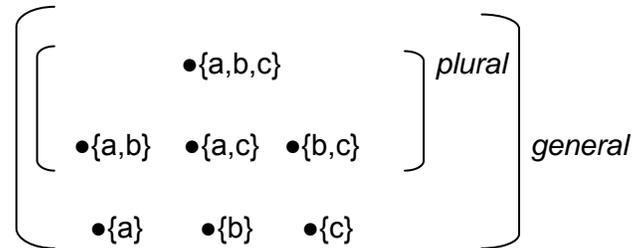


Figure 2.5: The denotation of nouns with general number

What Figure 2.5 shows is that nouns denote both singularities and pluralities in their bare form in Turkish, Chinese and Hungarian.¹⁷ On the other hand, Singular NPs denote only singular entities and plural NPs denote only plural entities. For instance, if we assume that the atoms *a*, *b* and *c* in Figure 2.5 represent all the kids in the domain of discourse, then the bare noun like ‘çocuk’ *kid* is then true of atoms (i.e. singularities) of kids as well as pluralities thereof. This clearly shows that bare singulars do not lexically specify number in terms of singularity and plurality in Turkish. In other words, nouns are neutral in terms of number in their basic form. On the other hand, the plural noun ‘çocuklar’ *kids* is only true of pluralities. Therefore, its denotation does not include singularities. Recall that this property of bare nouns is significantly different from that of nouns in English since a singular count noun like *chair* denotes only singularities while *chairs* denotes pluralities.

Rullmann and You’s (2006) analysis shows the differences in terms of nominal number in languages like Turkish on the one hand, and languages like English on the other. Nouns are lexically specified for number in the latter in that every occurrence of a noun is either singular or plural. In other words, they do not have the property of number-neutrality. On the other hand, nouns are inherently number-neutral in the former type of languages. This idea was entertained in recent studies such as Görgülü (2010ab), Bale (2010) and Bale et al. (2011). It was also noted in these studies that the number-neutral nature of Turkish nouns is observed by their interaction with numerals. More specifically,

¹⁷ Note that the dots indicate that sets contain atomic entities.

when nouns co-occur with numerals, they are not marked with the plural marker -lAr. In fact, the presence of the plural marker in these cases yields ungrammaticality. Compare the example in (26a) with the one in (26b).

- (26) a. bir / iki / üç elma
one / two / three apple
- b. *bir / iki / üç elma-lar
one / two / three apple-PL

The example in (26a) shows that a morphologically unmarked noun like 'elma' *apple* can occur with numerals greater than one without having to take the plural marker. This again contrasts with the same phenomenon in English in which nouns obligatorily take plural marking. For instance, while *two books* is grammatical, *two book* is not. On the other hand, in partitive constructions the head noun obligatorily takes plural marking when there is a numeral. This is shown below.

- (27) a. elma-lar-ın bir-i / iki-si / üç-ü
apple-PL-GEN one-POSS / two-POSS / three-POSS
'one / two / three of the apples'
- b. *elma-nın bir-i / iki-si / üç-ü
apple-GEN one-POSS / two-POSS / three-POSS
'one / two / three of the apples'

The ungrammaticality of the structures in (27b), as opposed to the grammaticality of (27a), indicates that the presence of the plural marker is necessary in partitive constructions.

It is obvious that the analyses outlined above have proposed a systematic approach to number semantics and nominal reference in Turkish. The differences in the way the number system works in different languages is captured in a unified manner. However, there are still a number of remaining issues that need to be addressed

carefully. For instance, Rullmann and You's analysis provides an account for the denotational properties of nouns with atomic parts but does not deal with the issues with respect to mass noun denotations. Recall that Chierchia (1998a) maintains the idea that both count nouns and mass nouns denote atomic entities and for each mass noun there are minimal objects just like count nouns, even if the size of these minimal parts may be vague. First of all, Rullmann and You do not discuss the denotational properties of nouns like 'su' *water* and 'şeker' *sugar*, so it is not clear whether they take an approach similar to Chierchia's in this matter. This is also observed in the recent studies such as Bale (2010) and Bale et al. (2011) since no attempt was made to address the issue of whether there is a semantic distinction between the two types of nouns in Turkish. This is probably because the distribution of nouns like 'kitap' *book* and 'su' *water* does not show any significant grammatical differences. They may also appear in their bare form in sentences. Consider the examples in (28).

- (28) a. Raf-ta *kitap* var.
 shelf-LOC book exist
 'There is a book / are (some) books on the shelf.'
- b. Masa-da *su* var.
 table-LOC water exist
 'There is (some) water on the table.'

The point here is that both 'kitap' and 'su' can freely appear inside phrases. On the one hand, the first NP refers to an entity that qualifies as a car even though the number of cars is not specified, namely indeterminate with respect to singularity and plurality. On the other hand, the second NP refers to some substance that qualifies as water. As it was the case in the previous example, the number of the entity is not marked.

However, when these nouns co-occur with other elements such as determiners and quantifiers and the plural marker, the interpretation they are assigned is quite different from each other. Consider the examples in (29).

- (29) a. Raf-ta *bir kitap* var.
shelf-LOC one car exist
'There is a book on the shelf.'
- b. Masa-da *bir su* var.
table-LOC one water exist
'There is a (unit of) water on the table.'

The example in (29a) shows that the presence of 'bir' has an important effect on the interpretation of the NP since it refers to an entity which is singular in terms of number. Therefore, the function of 'bir' should be regarded as singularizing the referent of the noun that would otherwise remain number-neutral without the presence of the determiner. On the other hand, the example in (29b) is different in the sense that 'bir' has a function which is not totally identical with the previous one. More specifically, 'bir' does not singularize the entity in question but rather it acts like a unitizer in this case. The sentence would be grammatical in cases in which the referent of the NP is, say, a *glass* of water, a *jug* of water or any countable amount of water. Therefore, a distinction between the process of *singularization* which applies to nouns like 'araba' *car* and 'kitap' *book* that have atomic individuals in their extension and the process of *unitization* that applies to nouns like 'su' *water* and 'un' *flour* in Turkish. The properties of these nouns and the double function of 'bir' will be explored at length in the following chapter.

Another point is that when dealing with the properties of nouns, it is crucial that reference be made to the typological classification of nominal types. To do this is important since previous analyses do not systematically address the issues with regards to the morpho-syntactic and semantic distinctions between nouns in typologically different languages. However, languages make use of different systems that are relevant to nominal reference and number semantics. When we consider the majority of the earlier work, we realize that there is no mention of this issue at all. On the other hand, there are a number of analyses in which nouns in Turkish are not categorized as properly as they should be. For instance, Rullmann and You (2006) classify nouns in Turkish, Chinese, Hungarian and Korean into the same category because of their number-neutral nature. This works to a certain extent since this property is one of those

that distinguish them from their counterparts in languages like English. However, a closer look will reveal that there are important differences between nouns in languages like Turkish and nouns in languages like Chinese. For instance, when nouns co-occur with numerals in the latter type of languages, they need the presence of special grammatical elements called *classifiers* whereas this is not the case for languages of the former type. The presence of classifiers is crucial in these cases since their absence will yield ungrammaticality. Consider the Chinese examples in (30).

- (30) a. yì bǎ sǎn
one CLF umbrella
'an umbrella'
- b. wǔ běn shū
five CLF book
'five books'

The classifier 'bǎ' in (30a) co-occurs with nouns referring to entities with a handle like umbrellas, spoons and teapots. On the other hand, the classifier 'běn' in (30b) generally appears with nouns referring to books and dictionaries. Therefore, we can roughly say that these classifiers semantically contribute to the meaning of the nouns in question and in a sense provide a spatial outline. In addition, the languages of the latter type are known as not having an ordinary plural marker. The use of the so-called plural marker is restricted to certain contexts in these languages. On the other hand, plural marking is used when reference is specifically made to multiple entities in languages like Turkish. However, as noted earlier, there is no plural marking on nouns when they are modified by numerals. These characteristics of Turkish nouns remain undiscussed even in the most recent analyses of noun semantics and the count-mass distinction. In a recent work Chierchia (2010) provides an insightful analysis of the count-mass distinction across languages. He argues that there are three types of languages that display variation in dealing with these issues. The first type is number marking languages that have overt number markers. These markers are attached to nouns obligatorily. A good example of this type is English and other Indo-European languages. In these languages the count-mass distinction has strong morpho-syntactic realizations, surfacing on nouns

directly. In the second type of languages there is no obligatory number marking on nouns. These are often called as classifier languages. Lexical nouns are regarded as mass even though there are some studies that point to some sort of count-mass distinction in these languages. These languages are Chinese, Thai and Korean that were discussed at length above. In the final type of languages there is no number marking and a classifier system at all. These are mostly South American and Austronesian languages and they are argued to not have a count-mass distinction. This is a helpful distinction that Chierchia comes up with. However, it does not include the type of languages that should include Turkish. It is established that Turkish and English are different in many respects. Moreover, Turkish is not a classifier language in that there are no classifiers as a grammatical category. Also, unlike the last type of languages, there is number marking in the language. Therefore, this kind of typological classification of languages based on how they deal with noun semantics and the count-mass distinction is not as exhaustive as it should.

The arguments above indicate that we need a more comprehensive analysis that should capture the morpho-syntactic and semantic properties of nouns in Turkish and also provide a nominal typology that accounts for the differences between noun types in languages. To that end, I argue that the studies mentioned above need to be modified and supplemented by a more comprehensive analysis. One of these approaches is found in Rijkhoff (1991, 2002ab, 2008) who initiated and subsequently developed a more conceptual/lexical semantic framework in order to grapple with the issues concerning nominal reference, number semantics and the morpho-syntax of nouns. Basically, Rijkhoff (2002a) investigates different types of nouns in more than fifty languages in his typological study and proposes a classification of noun subcategories based on their lexical semantic features. In the next section I will give a detailed outline of this approach and argue why the formal semantic approach and the conceptual/lexical semantic approach should be reconciled.

2.5 Rijkhoff's Noun Subcategories

In his typological study, Rijkhoff (2002a) investigates NPs which are headed by underived nouns and which are used to refer to single, discrete, first-order entities or to single individuals. These entities are spatial that exist in three-dimensional space such

as human beings, animals and physical objects. Therefore, this analysis does not include second-order nouns that designate events and processes that exist in time such as *weather*, *storm* or *sunset*, nor does it dwell on third-order nouns designating unobservable entities like *faith*, *happiness* and *belief*. Rijkhoff argues for the idea that the referents of NPs are mental constructs whose properties need not coincide with the properties of their ontological correlates in the external world, if they exist. In other words, noun phrases are referring expressions, but the entities they refer to are not entities in the external physical world. In that sense referents of NPs are mental representations of entities as they are created, stored and retrieved in the minds of the speech participants. Rijkhoff notes that this can be shown by the fact that people talk about entities that are not actually present in the speech situation (e.g. the Great Wall), entities that never existed (e.g. unicorns, the monster of Lochness) and fictional characters (e.g. Don Quixote, Tom Sawyer). The point here is that a distinction must be made between a referent (i.e. a mental construct) and the ontological (i.e. real-world entity) counterpart of it in the physical world. Rijkhoff goes on to say that since referents of NPs are in fact mental constructs that are construed on the basis of linguistic material rather than real-world objects, this allows for the possibility of aspectual distinctions between properties of referents and properties of their real-world counterparts. It is for this reason that it is possible for different noun types to be used in languages to refer to entities whose *Sein-correlate* in the external world is a single and discrete spatial object: singular object nouns, set nouns and general nouns.

It is clear from the above discussion that there are significant differences between the ontological approach and its variant on the one hand, and the conceptual/lexical semantic approach on the other. Recall that the presupposition held by the forerunners of the ontological approach is that there is a one-to-one relationship between the referent and the entity in the physical world. However, Rijkhoff proposes a strictly linguistic analysis in that the classification of noun subtypes is a linguistic classification rather than an ontological one. More specifically, it is purely based on the morpho-syntactic and semantic properties of nouns rather than their referents. Therefore, the two approaches seem to be not so incompatible with each other. However, it should be noted that there are also certain overlaps and formal mechanisms that are shared by both approaches. Moreover, the conceptual/lexical semantic

approach provides us with the toolbox to systematically capture the typological variation between noun types across languages. In the next section, I will discuss these issues and provide a detailed outline of Rijkhoff's framework.

2.5.1 A Typology of Nouns

Rijkhoff notes that an in-depth investigation of nouns in a language as well as across languages shows that first order nouns (i.e. nouns used for discrete objects in the real world) do not all share the same semantic and morpho-syntactic properties. Languages differ in terms of (i) whether or not first order nouns appear with the plural marker when modified by a numeral greater than one, and (ii) if the first order nouns directly co-occur with a numeral or whether the numeral needs to appear with a classifier. This basic classification gives rise to four possibilities, as illustrated in Table 2.1. This classification does not reflect the word and morpheme order differences in particular languages but it is possible to derive all other permutations and capture the correct order of numerals, classifiers and nouns in a language.

Table 2.1: Preliminary Nominal Classification

-
- (1). numeral + noun + plural (no classifier)
 - (2). numeral + noun (no plural, no classifier)
 - (3). numeral + classifier + noun (no plural)
 - (4). numeral + classifier + noun + plural

Rijkhoff goes on to say that previous studies have convincingly shown that there are only very few (probably no) languages of type (4). This means that it is almost impossible to find a language where nouns occur with a classifier and take plural marking when modified by a numeral. Note that we are talking about true classifiers here that form a separate word class in languages that have them. Therefore, NPs like *five boxes of books* or *two bunches of bananas* that would seem to be counterexamples to the fourth types of nominal do not in fact pose a problem. This is because of the fact that *box* and *bunch* are lexical entities that have their own meaning and can be modified by certain

elements such as adjectives. In sharp contrast, other types of noun classification are very common across languages. In his analysis Rijkhoff provides a significant number of examples from a wide variety of languages of the world. This is illustrated in (31), (32) and (33) (Rijkhoff 2002a:29).

Dutch: numeral+noun+plural

- (31) twee boek-en
two book-PL
'two books'

Oromo (Stroemer 1987:59): numeral+noun

- (32) gala lamaani
camel two
'two camels'

Thai (Hundius and Kölver 1983:172): numeral+classifier+noun

- (33) rôm sãam khan
umbrella three CLF:long, handled object
'three umbrellas'

The example in (31) shows that in a language like Dutch when a noun is modified by a numeral greater than one, it takes plural marking. The presence of the plural marker is obligatory in this case as its absence would lead to ungrammaticality. This is of course true for nouns in English. Therefore, Dutch and English constitute a good example of this type of languages. On the other hand, the example in (32) shows that things work quite differently in languages like Oromo. More specifically, when a noun is modified by a numeral, there is no plural marking on the noun. In fact, the presence of a plural marker in these cases would yield ungrammatical structures. It was already shown above that nouns in Turkish have the same properties. Last but not least, the example in (33) indicates that in the so-called classifier languages nouns need to co-occur with grammatical elements known as classifiers whenever they are modified by a numeral. Similar to the languages of the previous type, nouns themselves do not take plural

marking when they co-occur with numerals. Thai is a language of this type and Chinese was also shown to have similar properties.

The difference in the morpho-syntactic behavior of nominals in languages prompts Rijkhoff to argue that there must be some kind of fundamental distinction between nouns. In order to lay down these differences Rijkhoff proposes a classification of nominal subcategories based on their characteristics in various languages. This classification is morpho-syntactic and semantic in nature and is suggested to account for language particular characteristics of different nouns. In this classification, nouns in the type of languages like Dutch are considered to be *singular object nouns* as they denote singular entities in their bare form. On the other hand, nouns in languages like Oromo are classified as *set nouns* since they denote sets which include singular and plural entities. Nouns in languages such as Thai are referred to as *sort nouns* in that they denote *concepts* or *kinds*. It is crucial to have a good grasp of the function of classifiers and the way the number system works in classifier languages and classifiers in order to have a better understanding of noun sub-types. Therefore, I start by considering different kinds of classifiers in classifier languages.

Rijkhoff investigates the properties of nouns in classifier languages in which a noun must appear with a classifier in the presence of a numeral. He notes that there are certain differences with respect to the nature of classifiers. There are two main types of classifiers. The first type is generally known as *mensural classifiers* and the second type is often called *sortal classifiers*.¹⁸ What mensural classifiers do is that they indicate size, volume or weight. Moreover, they generally appear with nouns that denote non-discrete spatial entities. This type of classifier also co-occurs with mass nouns as in *a cup of coffee* and *a pound of meat* in languages like English. This is shown in (34).

¹⁸ Note that sortal classifiers are also called *numeral classifiers* in the literature.

Mensural Classifiers

Thai (Hundius and Kölver 1983:168-170)

- (34) a. náamtaaan sǎam *thûaj*
sugar three CLF:cup
'three cups of sugar'
- b. dinnǎaw sǎam *kɔɔn*
clay three CLF:lump
'three lumps of clay'

The classifiers 'thûaj' *cup* and 'kɔɔn' *lump* in (34) specify the amount of the entities that the NPs respectively refer to. On the other hand, sortal classifiers are different in the sense that they usually combine with nouns referring to discrete entities. They generally indicate notions related to shape rather than size or volume. This is exemplified in (35).

Sortal Classifier

Thai (Gandour et. al. 1984:455)

- (35) a. pèt hâa tua
duck five CLF:body
'five ducks'
- b. thian sîi lêm
candle two CLF:long, pointed object
'two candles'

As can be seen from the examples above, the classifiers 'tua' *body* and 'lêm' *long object* in (35) are dissimilar to the ones previously mentioned in the sense that they appear inside NPs referring to entities with a certain outline. Based on this nature of classifiers, Rijkhoff (2002a:48) makes a distinction between nouns that co-occur with mensural nouns on the one hand and nouns that appear with sortal nouns on the other. In his classification, nouns such as *water* and *gold* that take mensural classifiers are referred to as mass nouns. On the other hand, those that co-occur with sortal classifiers are called sort nouns. Interestingly, in languages like Yucatec Maya the distinction between

sort nouns and mass nouns is not so clear since there is not a generalized sortal versus mensural distinction. In other words, the distribution of classifiers in this type of language does not change depending on noun type. Therefore, nouns of this type are referred to as *general nouns* and classifiers that co-occur with these nouns are known as *general classifiers*. Consider the example below.

Yucatec Maya (Lucy 1992:74, 2000:329)

- (36) a. 'un-tz'íit há'as 'one/a 1-dimensional banana (i.e. the fruit)'
b. 'un-wáal há'as 'one/a 2-dimensional banana (i.e. the leaf)'
c. 'un-kúul há'as 'one/a planted banana (i.e. the plant/tree)'
d. 'un-kúuch há'as 'one/a load banana (i.e. the bunch)'
e. 'um-p'íit há'as 'one bit banana (i.e. a bit of fruit)'
a/one-CLF banana

The examples in (36) show that Yucatec Maya does not distinguish between mensural and sortal classifiers in that they both appear with the same noun 'há'as' *banana* in NPs. As Lucy (1992:83) points out, "...in Yucatec all nouns are neutral with respect to logical unit or shape". He goes on to say that "outside of the restriction on compatibility with other classifiers, little in the grammar of Yucatec appears to hinge on, or correlate with, this "sortal" [...] versus "mensural" distinction [...]". Therefore, the conclusion here is that there is no distinction between nouns in Yucatec Maya with respect to what kind of classifier they co-occur with.

This discussion leaves us with the preliminary classification of four different types of nouns used to refer to spatial entities in the external world. This is illustrated in Table 2.2.

Table 2.2: Preliminary classification of noun sub-types

Noun type	Characteristics	Language
Singular object nouns	direct co-occurrence with a numeral, obligatory plural marking with or without numerals	Dutch, English
Set nouns	direct co-occurrence with a numeral, number marking is absent (if existent at all) in the presence of a numeral	Oromo, Georgian
Sort nouns	no direct co-occurrence with numerals, obligatory combination of numerals with sortal classifiers, no plural marking	Thai, Chinese
General nouns	no direct co-occurrence with numerals, obligatory combination of numerals with general classifiers, no plural marking	Yucatec Maya

In addition to these noun types, there are yet two more to be introduced in order to complete the picture of the nominal classification. The remaining two noun types are *collective nouns* and *mass nouns* and they need to be elaborated in order to give a full picture of Rijkhoff's noun classification. Mass nouns and their properties have been discussed in some detail in the previous sections. Collective nouns, on the other hand, are a new type and we need to look into the details of Rijkhoff's account in order to have a better understanding of this type of nouns.

Based on the distinct morpho-syntactic and semantic properties of each noun type, Rijkhoff argues for a more inclusive and more semantically-oriented classification of noun subcategories. He proposes two lexical semantic features that are associated with each type of nouns lexically. These features are spatial in nature and are referred to as [Shape] and [Homogeneity]. In the following sections, I elaborate on these two

features and then discuss why it is necessary to refer to them in order to distinguish between noun types and their respective properties.

2.5.1.1 The Feature Shape

Roughly, this feature distinguishes nouns that are specified for a countable entity from nouns that are not. It has a binary value, namely [+Shape] and [-Shape] and nouns are specified for one of these features in their lexical specification. This is the feature that distinguishes singular object nouns and set nouns both of which are associated with the feature [+Shape] on the one hand, and sort nouns and general nouns which are specified for the feature [-Shape]. The noun subcategories with either value of this feature are illustrated in Table 2.3.

Table 2.3: [+Shape] and [-Shape] Noun Subcategories

[+Shape]	Singular object nouns and set nouns
[-Shape]	Sort nouns and general nouns

The origins of this idea go as far back as Hundius and Kölver (1983) and Lucy (1992) who worked on the behavior of nouns in Thai and Yucatec Maya respectively. They propose the idea that the meaning definitions of nouns in these languages do not involve the notion of *spatial boundedness* or *discreteness*. They note that nouns denoting discrete spatial entities designate properties that are not characterized as having a definite shape in the spatial dimension. In other words, there is a mismatch in that part of the lexical meaning of nouns does not include the notion *shape* even though what they denote are inherently discrete in the real world. It is for this reason that numerals need to combine with a classifier in these languages. The basic function of classifiers is then to act like an *individualizer* or *unitizer* since only discrete entities can be counted (i.e. enumerated). Therefore, the feature [-Shape] correlates with the obligatory use of numeral classifiers and [+Shape] correlates with the absence of classifiers. The second important feature is [Homogeneity] which distinguishes further noun types. I introduce this feature and discuss its function in the next section.

2.5.1.2 The Feature Homogeneity

The second feature that is in the meaning definition of nouns is [Homogeneity]. This feature distinguishes singular object nouns and sort nouns from set nouns and general nouns. Following Goodman (1966), Rijkhoff argues that this feature is similar to notions such as *Likepartedness* or *Dissectiveness*. The term *dissective* is defined as the property of a predicate if that predicate is satisfied by every part of every individual that satisfies it (Goodman 1966:53). In that sense, it resembles the property of Divisivity in nature. The feature [Homogeneity] is especially important for defining the two noun subcategories, namely mass nouns and collective nouns since they both have the feature [+Homogeneity] in their lexical specification.

Rijkhoff argues that mass nouns like *flour* and *oil* define homogeneous entities since they are both cumulative/agglomerative and dissective.¹⁹ For instance, if some flour is added to a pile of flour, the bigger pile is also referred to as flour. This gives the property of cumulativity. If some flour is removed, the remaining would still be referred to as flour. Therefore, this type of noun has the feature [+Homogeneity] based on these two properties. On the other hand, singular object nouns like ‘bicycle’ in English, ‘*puisi*’ *seal* in West Greenlandic and ‘*thian*’ *candle* in Thai define non-homogeneous entities since one cannot refer to something as *a bicycle*, *a seal* or *a candle* if they are more or less than one bicycle, one seal or one candle. This means that a referent defined by a mass noun consists of *portions* while an entity defined by a singular object noun or a sort noun consists of *components* or *parts*.

The last noun subcategory in this classification is collective nouns which are different from mass nouns in certain respects even though they share some characteristics. Collective nouns such as *family* and *committee* have the value [+Shape] and they can appear with a numeral as in *four families* and *two committees*. Unlike mass nouns, collective nouns are obligatorily marked for plural number. However, this is not

¹⁹ Goodman (1966:55) notes that being cumulative is the same as being agglomerative in that all cumulative predicates are by definition agglomerative. However, there are certain non-cumulative predicates that are agglomerative such as ‘has as a proper part or is a proper part of’. In this work the terms *agglomerative* and *cumulative* are used interchangeably.

the case for mass nouns unless there is a meaning shift from mass to count as in *three beers* (i.e. three types of beer or three bottles of beer). However, both collective nouns and mass nouns share the feature [+Homogeneity] in that the space for which the property holds is divisible. More specifically, collective nouns designate a property of several discrete entities that are conceived as a unit. For instance, when someone dies in a family, the other members still constitute family. Another example would be that when one flower is removed from a bunch, the rest of the flowers are still a bunch. Rijkhoff goes on to say that as there is a lower limit on the number of individuals that make up a collective entity, a collective or a mass should therefore be called cumulative/agglomerative. A collective or a mass can be expanded with members or portions of the same sort or kind even though this would change the size of the collective or the volume or the size of the mass.

The addition of mass and collective nouns completes the classification of noun subcategories based on the features [Shape] and [Homogeneity]. If the property designated by a noun is coded as having shape, this means that the property and, by extension, the referent of the NP is characterized as having a definite outline in the spatial dimension. That is why set nouns, singular object nouns and collective nouns can occur with a numeral. In contrast, if the property designated by a noun is coded as being homogeneous, the space for which this property holds and, by extension the referent of the NP is characterized as being cumulative/agglomerative. In other words, the referent of an NP headed by a noun coded as being homogeneous consists of *portions* of a mass or *members* of a collective. On the other hand, general nouns and set nouns are neutral with respect to the feature [Homogeneity] in this classification. The subcategorization of the six noun types based on these two features is illustrated in Table 2.4.

Table 2.4: The classification of major noun subcategories across languages

	-Homogeneity	+Homogeneity
-Shape	general noun	
	sort noun	mass noun
+Shape	set noun	
	singular object noun	collective noun

Table 2.4. provides the exhaustive list of noun sub-types in Rijkhoff's classification of nouns. Each noun in the table can be defined as follows:

- (i). Singular object noun [+Shape, -Homogeneity]: The noun designates a property that is characterized as having a definite outline and as being not cumulative/non-agglomerative.
- (ii). Set noun [+Shape, ±Homogeneity]: The noun designates a property that is only characterized as having a definite outline.
- (iii). Collective noun [+Shape, +Homogeneity]: The noun designates a property that is characterized as having a definite outline and as being cumulative/agglomerative.
- (iv). Mass noun [-Shape, +Homogeneity]: The noun designates a property that is characterized as not having a definite outline and as being cumulative/agglomerative.
- (v). Sort noun [-Shape, -Homogeneity]: The noun designates a property that is characterized as not having a definite outline and as being not cumulative/non-agglomerative.
- (vi). General noun [-Shape, ±Homogeneity]: The noun designates a property that is only characterized as not having a definite outline.

Note also that Rijkhoff argues that it is not so clear why the feature [Shape] plays such an important role and is relevant to all noun types. However, he cites Friedrich who notes that “the category of shape appears to be a typological universal in grammar..., and of not inconsiderable significance for a theory of semantics in grammar” (1970:380). He goes on to say that the fact that the feature [Shape] is more important than the feature [Homogeneity] may also be because of the idea that spatial orientation is primary in human cognition.

Now that the discussion of the typology of noun subcategories based on the two lexical semantic features is complete, we could turn to the issue of how to reconcile the two approaches so that we have a firm ground to investigate nouns in Turkish and other languages.

2.5.2 *The Reconciliation of the Competing Views*

It was noted earlier that previous analyses do not provide a complete account of the reasons why nouns behave the way they do and differ from each other with respect to the morpho-syntactic and semantic variation they exhibit within and across languages. It was also pointed out that one way of approaching these issues is to offer an analysis in which different views are reconciled in such a way that they have the ability to provide more explanatory power. However, the question one might ask at this point is whether it is an easy task, if possible at all, to merge formal and lexical semantic approaches given that the motivations behind each view are not as compatible as they seem. For instance, formal semantic analyses concerned with nouns and nominal number mainly hold that the reason why there are certain distinctions between nouns, especially between count and mass nouns, is closely related to the ontological properties of entities nouns denote. These analyses offer lattice and set-theoretic mechanisms as a means to best represent the characteristics of nouns in language. They also offer notions such as atomicity, atomlessness to represent whether an entity is atomic or not, and cumulative and distributive reference (i.e. the homogeneous reference) to represent the part-whole structure. More specifically, the proponents of this view presuppose a close relationship between nouns and the properties of their referents in the real world. For instance, the notion of atomicity is the property of an object. In that sense the noun *book* denotes an atomic entity and no part of it can be defined as such. Thus the idea of real world

relevance between lexical entities and their respective real-world correspondences is one of the most significant aspects of this view. However, it should be noted that this view is often criticized by others since it does not address the issues with respect to the apparent morpho-syntactic and semantic variation nouns exhibit cross-linguistically. The point here is that it is important to explicate the differences between nouns although they look otherwise similar or even the same in other respects. Moreover, the question of why some abstract nouns pattern with count nouns in terms of their grammatical distribution whereas others pair with mass nouns still remains answered. For instance, *advice* is a mass noun while *suggestion* is count but the reasons behind this difference are not easily explained by only referring to ontological properties of the nouns in question (cf. Joosten 2003, Pelletier 2012ab). Thus it is not unreasonable to argue for a modification of this view so that it can better offer solutions to the issues raised in this work.

On the other hand, when we consider the views that are lexically-oriented in nature, we observe that they favor a linguistic stance rather than a strictly ontological point of view. It is possible in this approach to acknowledge the existence of a broad typology of nouns within and across languages and characterize them based on their linguistic properties. The advocates of this view hold the idea that the distinctions between nouns lie in the meaning definitions of nouns themselves and do not have much to do with the properties of their referents. Therefore, the lexical features [Shape] and [Homogeneity] that were proposed to account for the characteristics of various noun types should be regarded as the lexical properties of nouns themselves. In that sense, the feature [Shape] that includes the notion of spatial boundedness and discreteness does not characterize the properties of the entity in the physical world. Thus an entity may be atomic in the outside world but the noun denoting that entity may still have the feature [-Shape]. This is what we mostly observe in classifier languages. However, the property of homogeneous reference (i.e. cumulativity and divisivity) is more comparable to the lexical semantic feature [Homogeneity]. Recall that cumulativity and distributivity are the properties of predicates over such entities in the outside world. The feature [Homogeneity] is also the property of nouns themselves. This view is often argued to provide a better explanation for why a noun like 'capello' *hair* is count in Italian but mass in English. This difference can be captured by arguing that we are dealing with their lexical properties and not the entities that denote. In addition, a careful investigation

would reveal that Rijkhoff (2002a:52, 2002b:133, 2008:734-735) himself makes use of ontological criteria to characterize mass nouns and their apparent distinctions from other noun subcategories. He defines the notion of cumulativity and being dissective in a way that suggests an ontological characterization rather than strictly linguistic. Although a lexical semantic account is proposed in this work, it does not necessarily mean that ontology or real-world relevance has nothing to do with the cross-linguistic understanding of noun semantics. Nevertheless, there are certain issues the lexical semantic view cannot readily deal with. As noted elsewhere, it is not clear how it would deal with the issues regarding the semantic shift (i.e. coercion) between nouns. It is well-known that quite a number of count nouns may be used in a mass sense and vice versa. Therefore, this is one of the issues this view should pay close attention to.

The discussion above shows that both views have their own merits and certain drawbacks. On the one hand, the formal semantic analyses put more emphasis on the relationship between language and the physical world. On the other hand, lexical semantic views place stress on how the mind conceptualizes the external world. Thus one could argue that what we deal with is the ontological categorization versus the linguistic categorization of nouns. Since formal and lexical semantic approaches form the basis of quite a number of analyses on the topic and offer accounts that have proven to be effective and influential, it would not be reasonable to underestimate their significance when dealing with these linguistic issues. In conclusion, these two views provide us with the necessary toolbox to embark upon an investigation of noun semantics and nominal number in Turkish.

Now that we have supplemented previous analyses with a typology of noun subcategories and are equipped with a more powerful approach to grapple with the issues, the question that arises is what noun subcategory nouns belong to in Turkish. This is an important question to answer since it will reveal the facts about the nature of nouns in the language. In the next section, I will revisit the characteristics of nouns in Turkish which will form the basis for the analysis that I will propose in the next chapter.

2.6 The Specification of Noun Types in Turkish

As shown earlier, nouns are number-neutral (i.e. transnumeral) in their bare form in Turkish as they do not specify the number of entities in terms of singularity and plurality. It was also pointed out that when nouns co-occur with a numeral, they are not marked with plural marking. In other words, numerals and the plural marker are in complementary distribution in the language. Note that nouns do not need classifiers when they are in the presence of numerals.

- (37) a. araba
 ‘car/cars’
- b. çocuk
 ‘kid/kids’
- (38) a. araba-lar
 car-PL
 ‘cars’
- b. çocuk-lar
 kid-PL
 ‘kids’

In that respect the semantic and morpho-syntactic properties of nouns in Turkish are comparable to their counterparts in languages such as Oromo and Georgian. Recall that this subcategory of nouns is called *set nouns* in Rijkhoff’s nominal classification. One of the most notable features of these nouns is that they are number-neutral as the unmarked form of nouns is unspecified for number, as shown in (39).

Oromo (Stroemer 1987:76-77, 84-85)

- (39) a. nama
 ‘man/men’

- b. nad'eeni
'woman/women'

On the other hand, in cases where reference is made to a singular entity, there are two *singulative* markers that are used. The first one of markers is '-ica' which is attached to masculine nouns and the other is '-ittii' that is used with feminine nouns.²⁰ Roughly speaking, the function of these markers is to specify what kind of *set* is being referred to. Consider (40).

Oromo (Stroomer 1987:76-77, 84-85)

- (40) a. nam-ica
man-SING
'a/the man'
- b. nad'ittii
woman-SING
'a/the woman'

Moreover, when the reference is made to more than one entity, the noun is marked with the plural suffix '-oollee' and '-llee' that specifies what kind of set is referred to by the speaker.²¹ This is shown below.

- (41) a. farda
'horse/horses'
- b. fardo-ollee
'horses'

²⁰ More specifically, the singulative marker is the suffix '-ca' for masculine nouns and '-ttii' for feminine nouns. Both are preceded by the epithetic vowel *i*.

²¹ Note that the number system of Oromo is more sophisticated than presented here in that there are fourteen plural suffixes in the language. See Stroomer (1987:82-83) for details.

- (42) a. saree
 'dog/dogs'
- b. saree-lee
 'dogs'

Rijkhoff argues that the plural suffix should be regarded as a *collective* marker as its function is in a sense different from the plural marker in English. Furthermore, in Oromo nouns do not take plural marking when they combine with numerals. This is illustrated in (43).

- (43) gaala lamaani
 camel two
 'two camels'

The data above show that nouns in Turkish and Oromo have properties in common. First of all, unmarked nouns are number-neutral in both languages as they are unspecified for singularity and plurality. Therefore, there are in fact two ways to specify the number of nouns in Turkish and Oromo, namely by singularization and pluralization. In that sense, number specification in these languages is different from the specification of number in languages like English. Secondly, nouns are not marked for plural when they are modified by numerals, nor do they require the presence of classifiers. Thus the morpho-syntactic and semantic evidence strongly indicate that nouns in Turkish have a lot in common with set nouns.

Interestingly, in his typological study of noun subcategories Rijkhoff notes that Turkish as one of those languages without a distinct class of nouns (2002a:42). He argues that there are no clear distinctions between nouns and adjectives in Turkish and Quechua among others, and categorizes this type of nouns as *flexible nouns*. Therefore, nouns in Turkish do not fit into any noun subcategory in his classification. However, nouns in Turkish were shown to exhibit all the characteristics of set nouns. In other words, there is sufficient morpho-syntactic and semantic evidence that nouns in Turkish should be classified as set nouns. Moreover, as discussed in the previous chapter, there

is convincing evidence that not all nouns and adjectives are interchangeable in the language. Note also that the fact that adjectives being used as nouns is a cross-linguistic phenomenon and is not restricted to languages like Turkish. What is also important is that the claim that nouns in Turkish should be regarded as set nouns is compatible with the proposals made in the formal semantic analyses since unmarked nouns are argued to have singular sets and plural sets in their denotation. The idea of *set nouns* is also similar as they denote a set which may have any cardinality including one.

It should be noted at this point that following the earlier work of Rijkhoff (1991), Schroeder (1999:45-46) argues that nouns should be regarded as sets in Turkish. However, there is a significant distinction between Schroeder's discussion of sets and the one proposed here. This is probably due to the conceptualization of the feature [Shape] in his analysis. He claims that only those nouns that have some type of number marking such as the indefiniteness marker, the plural marker or other quantifiers are marked for "shape". On the other hand, those that do not appear with one of these elements are not marked for "shape". Therefore, in Schroeder's system bare nouns are considered to have no "shape". This would mean that nouns in Turkish should behave like their counterparts in Chinese; but in fact that they do not. Unlike this claim, I argue in Chapter 3 that nouns, at least those that are used for discrete, spatial objects, are lexically specified for the feature [+Shape]. I also argue that the grammatical markers in Turkish should be considered to be singulative and collective markers, just like their counterparts in Oromo. On the other hand, I argue for the idea that mass nouns should be treated differently even though they have the same morpho-syntactic distribution as number-neutral nouns in Turkish.

2.7 Conclusion

In this chapter I started out by looking at certain properties of nouns in English. The fact that nouns exhibit distinct morpho-syntactic properties in the language led the researchers to argue for the count-mass distinction between nouns in the nominal domain. First I discussed earlier analyses including the grammatical and ontological approaches that were proposed to account for different properties of nouns. Then I took a close look at subsequent work, especially formal semantic analyses that deal with the

semantics of nouns and nominal number in English as well as in other languages. The discussion also included the consideration of certain advantages and drawbacks of the proposals made. This led to the introduction and discussion of the morpho-syntactic and semantic properties of nouns in Turkish. Then I reviewed previous work on nominal reference and number. I showed that the current analyses do not fully provide a satisfactory account of the characteristics of nouns in the language. Therefore, I argued that they need to be supplemented by a more comprehensive framework. I motivated a hybrid approach to the issues concerning noun semantics in Turkish and other languages. In the following chapters, I propose a novel account based on the assumptions and views developed in this chapter.

Chapter 3

Noun Semantics, the Specification of Number and the Count-mass Distinction

Don't argue semantics with me!

- Charlie Harper. Two and a Half Men.

In this chapter I mainly focus on the issues concerning nouns and noun phrases in Turkish. The topics discussed are the semantics of nouns and certain properties of the constituents of NPs. These are important matters to investigate since they enable us to have a better understanding of noun semantics, the specification of number and the count-mass distinction in the language. Based on the analysis of nouns with respect to their semantic and morpho-syntactic properties, one of the main arguments is that nouns in Turkish should be classified as *set nouns* within the typology of noun subcategories. More specifically, I argue that nouns that are generally referred to as transnumeral or number-neutral in fact belong to the category of set nouns. Thus they are specified for the lexical features [+Shape] and [\pm Homogeneity]. However, I also argue that the latter feature has strong implications for the number of the entity or entities that nouns denote. Therefore, it can also be represented by another lexical feature is [\pm Singular] which characterizes the number-neutrality of set nouns. However, note that the feature [\pm Singular] and its variants, namely [+Singular] and [-Singular] are compatible only with nouns that are specified for the feature [+Shape]. I also argue that the grammatical markers like the indefinite determiner 'bir' *one* and the plural marker '-lar' should be

regarded as significantly different from their counterparts in English since they are actually not number markers. Instead, they are in fact *singulative* and *collective aspect* markers respectively. This means that when 'bir' co-occurs with a set noun, it functions as a marker of *singularization*. The combination of a set noun and the indefinite determiner constitutes an NP which unambiguously refers to a singular entity. In that sense, reference is made to a set which contains only one individual or object (i.e. a singleton set). On the other hand, in cases in which the plural marker is attached to a set noun inside a phrase, then the NP unambiguously refers to more than one entity. Reference is made to a set with multiple entities (a collective set) in this case.

Furthermore, I put forward the idea that mass nouns should be treated differently from set nouns. This is due to the fact that the way mass nouns are interpreted inside phrases is different from that of set nouns although mass nouns combine with the same grammatical markers as set nouns in the language.²² Therefore, I argue that this is due to the lexical semantic specification of mass nouns which is not the same as that of set nouns. More specifically, the claim is that mass nouns are specified for the features [-Shape] and [+Homogeneity]. When 'bir' combines with mass nouns inside phrases, it functions as a marker of *unitization* or *individuation* rather than singularization. In that sense 'bir' has a dual function in the language just like the plural marker that not only marks the plurality of nouns but also indicates verbal number agreement.²³

The analysis proposed here has a number of advantages in that it offers an account in which the morpho-syntactic and semantic properties of different noun types are accounted for in a unified manner and the differences between them are explicated straightforwardly. It is also compatible with previous accounts that highlight the fact that there is no grammatical difference between the two noun subcategories. However, I also show that there are certain difference between set nouns and mass nouns with respect to how they are interpreted.

²² This is only partly true though as the morpho-syntactic distribution of set nouns and mass nouns exhibits important differences.

²³ Verbal number agreement will be discussed in Chapter 4.

3.1 Number-neutral and Mass Nouns in Turkish

3.1.1 Root Nouns, Bare NPs

It was briefly shown in the previous chapter that certain properties of nouns in Turkish significantly differ from the properties of their counterparts in languages such as English and Dutch. More specifically, nouns are number-neutral or transnumeral in Turkish in that they are semantically neither singular nor plural in their base form (cf. Schroeder 1999, Corbett 2000, Rijkhoff 2002a, Acquaviva 2005 and Rullmann and You 2006). On the other hand, nouns in languages like English are often referred to as *singular object nouns* or simply *singular count nouns*, and therefore are considered to be singular in terms of their number value. Let us recall the properties of nouns in Turkish by considering the examples below.

- (1) a. çocuk
 ‘child/children’
- b. kalem
 ‘pencil/pencils’

The point here is that the forms in (1a) and (1b) do not establish any number themselves and the number contrast is made by means of other elements. They may occur inside NPs in their bare form and remain unspecified with respect to number. This sharply contrasts with the behavior of nouns in English and Dutch in the sense that they need to be either singular or plural.

Moreover, nouns are not marked with the plural marker when they are modified by numerals. This is also considered to be evidence for the number-neutral nature of nouns in the language (cf. Krifka 1995, Görgülü 2010ab and Bale et. al. 2011). This is exemplified in (2) below.

- (2) a. *bir* adam
 one man
 ‘one man’

- b. *iki / üç / beş adam*
 two / three / five man
 ‘two / three / five men’

The example in (2b) clearly shows that a numeral greater than one co-occurs with a noun which is not itself plural-marked. This property of nouns in Turkish is also in contrast with that of nouns in English where nouns need to be marked for plurality when they co-occur with a numeral. Furthermore, nouns also significantly differ from their counterparts in languages like Chinese in which nouns require the presence of classifiers when they are modified by numerals.

As mentioned earlier, when the plural marker is attached to a noun which is itself modified by a numeral, the resulting NP is strictly ungrammatical.²⁴ Consider the difference between (2b) above and (3).

- (3) **iki / üç / beş adam-lar*
 two / three / five man-PL
 ‘two / three / five men’

Note also that bare NPs in certain constructions maintain their number-neutral nature since they are not specified for number in these cases (cf. Schroeder 1999:69 and Keleşir 2001:175). This is illustrated in (4).

- (4) a. *Aşağı-da adam var.*
 down-LOC man exist
 ‘There is a man / are men downstairs.’

²⁴ There is one environment in which the plural marker -lAr appears with a NP which is in the presence of a numeral in Turkish. These NPs generally refer to well-known groups in stories such as ‘Kırk Haramiler’ *The Forty Thieves*, ‘Üç Silahşörler’ *The Three Musketeers* and ‘Yedi Uyuyanlar’ *The Seven Sleepers*. However, these are isolated cases and the plural marking is lexicalized in these NPs. In other words, the plural marker is strictly lexical and not inflectional.

- b. Sepet-te *keci* var.²⁵
 basket-LOC cat exist
 ‘There is a cat / are cats in the basket.’

The examples above show that the ability of bare NPs in existential structures sharply contrasts with those cases in which nouns such as *man* and *cat* in English do require the presence of grammatical markers in existential constructions unless there is a semantic shift from a count sense to a mass sense.

In addition to the data presented so far, the earlier studies have also shown that bare NPs in Turkish may act as a predicate of plural NPs functioning as the subject of a sentence. This is also considered to be evidence, indicating that bare NPs are number-neutral (cf. Kan 2010 and Bale et al. 2011). Consider the difference between (5a) and (5b) below.

- (5) a. Aydın *rehber*.
 Aydın guide
 ‘Aydın is a guide.’
- b. *Aydın *rehber-ler*.
 Aydın guide-PL
 ‘Aydın is guides.’

The example in (5a) shows that it is possible for a bare NP to be a predicate of a singular subject NP. In contrast, the ungrammaticality of the sentence in (5b) indicates that a plural predicative NP cannot be a predicate for a singular NP in the subject position. On the other hand, the same bare NP may also be a predicate for a plural subject NP, as shown in (6a). Moreover, when the subject NP is plural, then the predicative NP may also be plural, as exemplified in (6b).

²⁵ Note that some of the informants have indicated that they get a strictly singular (i.e. exactly one) reading in structures like (4) while others have noted that the NPs are number-neutral.

- (6) a. Hüseyin-le Aydın *rehber*.
Hüseyin-COM Aydın guide
'Hüseyin and Aydın are guides.'
- b. Hüseyin-le Aydın *rehber-ler*.²⁶
Hüseyin-COM Aydın guide-PL
'Hüseyin and Aydın are guides.'

Therefore, the conclusion here is that the fact that the bare NP in (6a) can function as the predicate of a plural subject NP illustrates its number-neutral nature.

The discussion above has shown that the morpho-syntactic and semantic properties of nouns in Turkish are different from those of nouns in languages like English on the one hand and Chinese on the other. The main characteristics of nouns can be summarized as follows:

- (i). Bare nouns are unspecified for number
- (ii). Nouns do not take the plural marker when they are modified by numerals
- (iii). Nouns do not require the presence of a classifier when they co-occur with numerals

In that sense nouns in Turkish differ from their counterparts in typologically different languages such as English and Chinese in certain respects. Nevertheless, when we consider the cross-linguistic studies on nominal reference and number, we see that nouns in Turkish are usually paired with nouns in languages like Chinese and Korean in spite of the significant distinctions they exhibit. The general tendency is that nouns in these languages are considered to be transnumeral (cf. Wiese 1997, Schroeder 1999, and Acquaviva 2005, among others). Although this captures certain differences between nouns in Turkish, Chinese and Korean and their counterparts in languages like English, it still does not account for why nouns in Turkish do not need classifiers when they appear with numerals. Moreover, it does not address the question of why there is a

²⁶ Note that plural marking on the predicative NP is possible only when the referent of the subject NP is human, as in (4a). On the other hand, the use of plural marking on the non-verbal predicates with non-human subject NPs is not possible. See Kornfilt (1997) and Göksel and Kerlake (2005) for details.

productive plural marker in Turkish whereas this is not the case in languages where nouns are argued to be transnumeral. Therefore, I argue that even though nouns have certain common properties in these languages, they are still important distinctions between them. That is why their true nature should be explicated in a systematic way. It was already shown above that the properties of nouns in Turkish are so different from those of languages like Chinese, Thai and Korean which are classified as sort nouns based on their semantic and morpho-syntactic characteristics. It was also pointed out that nouns are similar to their counterparts in languages such as Oromo and Georgian which are categorized as set nouns. Interestingly, nouns in Turkish do not fit into any noun subcategories in Rijkhoff's system since they are treated as flexible, making them no different from adjectives in the language. However, it was shown in Chapter 1 that there are significant differences between nouns and adjectives. In the next section, I elaborate on this issue, showing more evidence that nouns and adjectives are not as similar as they are argued to be.

3.1.2 Nouns are not *flexible* in Turkish

As noted previously, Rijkhoff's (2002a, 2008) claim is that nouns and adjectives are used interchangeably and, therefore nouns do not constitute a separate lexical category in Turkish. Instead, nouns and adjectives are argued to constitute a *nominal* class whose morpho-syntactic properties are different from that of elements in the *verbal* class. This view is also adopted by other researchers working on lexical classes in the language. Therefore, the general tendency is that nouns are not considered to be a category to work on. However, this is not a strong reason to not investigate nouns. First of all, this line of reasoning prevents us from analyzing the properties of nouns and other elements that constitute NPs. Moreover, there is ample evidence that there are significant distinctions attested between nouns and adjectives. For instance, Göksel and Haznedar (2007:12-13) provides a list of arguments indicating the ways of unambiguously distinguishing nouns from adjectives in Turkish:

- (i). Predicative adjectives and some complex adjectives do not denote entities.
- (ii). Adjectives used as nouns are lexicalized in meaning. When an adjective like 'güzel' *beautiful* is used as a noun, it has a lexicalized and animate reference: *a beautiful*

woman or *man*' and never *a beautiful house* or *a beautiful book*. Thus such terms cannot refer to any object which has the property described by the adjective.

(iii). Even though adjectives carry nominal inflectional morphemes, they are not 'inflected' with nominal inflection. Since there is no overt pronominal form denoting nouns (e.g. *one* in English) and NPs can be headless in Turkish, inflectional markers are attached to adjective in cases where there is no noun head in the construction. Thus adjectives appear to be inflected for number, person and case in the absence of an overt noun.

(iv). There are certain affixes which unambiguously mark a lexical entity as an adjective or a noun. This also makes it possible to determine whether a particular constituent is a noun or an adjective. For instance, the derivational suffix *-sAl* is attached to noun forms and creates adjectives that indicate the notion of relationship to the concept denoted by the root noun (cf. Göksel and Kerslake 2005). Some examples are the adjective 'tarih-sel' *historical* which is derived from the noun 'tarih' *history* and the adjective 'kuramsal' *theoretical* that is derived from the noun 'kuram' *theory*. On the other hand, the suffix *-DAş* is attached to nouns in order to create nouns only. For instance, the noun 'meslektaş' *colleague* is derived from the noun 'meslek' *profession* and the noun 'kardeş' *sibling* is derived from the noun 'karın' *abdomen*.

In addition to the arguments made so far, one can also claim that there are certain distinctions between nouns and adjectives when they are used predicatively. Consider the difference between (7) and (8).

- (7) a. Ahmet rehber.
Ahmet guide.
'Ahmet is (a) guide.'
- b. Ahmet çalışkan / iyi / küçük.
Ahmet hardworking / good / small
'Ahmet is hardworking / good / small.'

- (8) a. Ahmet *bir* rehber.
 Ahmet one guide
 ‘Ahmet is a guide.’
- b. *Ahmet *bir* çalışkan / iyi / küçük.
 Ahmet one hardworking / good / small
 ‘Ahmet is a hardworking / good / small.’

The noun in (7a) and the adjectives in (7b) function as predicates. On the other hand, the sentences in (8a) and (8b) include the indefinite determiner ‘bir’ whose presence leads to the ungrammaticality of the sentence in (8b). This shows that predicative adjectives are not compatible with the indefinite determiner that typically co-occurs with nouns. Therefore, based on the facts shown in this work and the arguments made elsewhere, I argue that nouns and adjectives in Turkish are not as interchangeable as their having similar morpho-syntactic distribution leads some to assume. The fact that adjectives may assume a *nouny* role is well-attested in other languages. Consider the example in (9).

- (9) a. This is not the *red* color I wanted for my garden.
 b. This is not the *red* I wanted for my garden.

The examples in (9) indicate that a true adjective like *red* may have the same distribution as a true noun in a language like English. Considering the parallels between nouns and adjectives across languages, the observation that adjectives may act like nouns in their absence is true for quite a number of languages. In other words, it is not the case that it is only restricted to adjectives in Turkish. Therefore, there is no reason not to investigate nouns in terms of reference and number.

The semantic and morpho-syntactic properties of nouns in Turkish indicate that so-called transnumeral nouns pattern with set nouns in Rijkhoff’s typology of noun subcategories. Based on that, I argue that this type of nouns should be referred to as set nouns. This not only captures their exact nature but also enables us to make a sharp distinction between them and other so-called transnumeral nouns. The question that

arises at this point is how set nouns are specified for number given the fact that they are not lexically marked as singular or plural. Moreover, the argument that nouns should be classified as set nouns would also mean that grammatical markers that are generally considered to be number markers are in fact nominal aspect markers. The use of nominal aspect markers is optional in languages that have them and in certain languages they are totally absent. They encode or specify the number of entities in which case we are talking about the process of singularization or collectivization / pluralization. On the other hand, number marking is different in the sense that number markers are obligatory in languages that have them. They generally mark singularity and plurality. These issues are discussed in detail in the following sections.

3.1.3 'Bir' and its Various Functions

Now that it is established that nouns in Turkish are number-neutral in their unmarked form and pattern with set nouns in important respects the question that arises at this point is in what ways does an NP refer to singular entities or individuals? Recall that it was shown earlier that in order to make a singular reference a noun must co-occur with the indefinite determiner 'bir' in the language. It was also pointed out that the indefinite determiner is derived from a numeral.²⁷ As noted by Givón (1981:35) and Schroeder (1999:55), an indefinite determiner deriving from a numeral is a common phenomenon in languages that have an overt indefinite marker. However, it should be noted at this point that there are certain syntactic and prosodic differences between the numeral and the determiner 'bir' in Turkish. For instance, Kornfilt (1997:106) notes that the indefinite determiner follows adjectives in the NP and precedes the noun whereas the numeral is phrase-initial.

- (10) a. Güzel, olgun *bir* elma
beautiful ripe one apple
'a nice, ripe apple'

²⁷ Note that Turkish does not have a definite determiner that would correspond to the definite determiner *the* in English.

- b. *Bir* güzel, olgun elma
 one beautiful ripe apple
 'one nice, ripe apple'

In that sense, the indefinite 'bir' is close to the noun head inside the NP whereas the numeral one occupies the peripheral position. On the other hand, other researchers (cf. Tura-Sansa 1973 and Sezer 1991) point out that 'bir' is realized in two different forms. The first one is the unstressed form yielding the indefinite reading. The second one bears stress and gives the numeral interpretation. Öztürk (2005:69) provides the following to illustrate that.

- (11) a. Ali kırmızı *bir* kitap al-dı.
 Ali red one book buy-PAST
 'Ali bought a red book.' (an indefinite book)
- b. Ali *BİR*/**bir* kırmızı kitap al-dı.
 Ali one red book buy-PAST
 'Ali bought one red book.' (not two)
- c. Ali *iki* kırmızı kitap al-dı.
 Ali two red book buy-PAST
 'Ali bought two red books.'

The example in (11a) shows that the unstressed 'bir' comes after the adjective while in (11b) the stressed 'BİR' comes before the adjective. Unstressed 'bir' would be ungrammatical in this position. Finally, the example in (11c) indicates that the distribution of 'BİR' is the same as other numerals in the language. Note that this also holds for the example in (10) above. Öztürk goes on to say that stressed 'BİR' and unstressed 'bir' have other differences in terms of distribution. She gives the following to illustrate this point (2005:69-70).

- (12) a. Ali iki kırmızı kitap oku-du, ben de BİR [~~kırmızı kitap oku-dum~~]
 Ali two red book read-PAST, I too one red book read
 'Ali read two red books, and I read one.'
- b. Ali kırmızı bir kitap oku-du, *ben de yeşil bir [~~kitap oku-dum~~]
 Ali red one book read-PAST, I too green one book read
 'Ali read a red book, and I read a green one.'
- c. Ali iki kitab-ı oku-du, *ben de bir [~~kitab-ı okudum~~]
 Ali two book-ACC read-PAST, I too one book-ACC read
 'Ali read two of the books, and I read one.'

Öztürk argues that it is possible to strand the stressed 'BİR' when VP is deleted under identity as in (12a). In contrast, the sentence in (12b) shows that stranding 'bir' by way of deletion is impossible. Furthermore, (12c) indicates that it is not possible to strand the numeral when it is part of a case-marked object.

The data above convincingly show the significant differences between the two realizations of 'bir'. What we are more interested in here is unstressed 'bir' rather than stressed 'BİR' since I argue that it is the one which is singulative aspect marker.²⁸ More specifically, it is the one that specifies that set of the referent to a single entity. On the other hand, stressed 'BİR' functions as a pure numeral marker in the language. In previous studies unstressed 'bir' is often considered to have more than one function. For instance, Tura-Sansa (1973:94) and Schroeder (1999:60) argue that 'bir' marks the number of the referent of the NP as singular. In addition to that, it introduces a new pragmatic referent into the discourse. Schroeder gives the following examples to illustrate this point (1999:64-70).²⁹

²⁸ Rijkhoff (2002a:319-320) suggests that 'bir' could be seen as a singulative aspect marker in Turkish.

However, this obviously is a counterargument of his earlier treatment of nouns in Turkish as flexible and not set nouns, given the fact that only set nouns take nominal aspect markers.

²⁹ Note that 'bir' has some other functions in Turkish. For instance, Schroeder (1999:59) provides some data in which 'bir' is used adverbially.

(13) a. *Abi-m de bir ut al-dı Arabistan'dan.*
brother-POSS.1SG and one lute get-PAST Arabia-ABL

o ut-u çal-ıyor.
that lute-ACC play-PRES

'And my brother got a lute... from Arabia... He plays that lute.'

b. *bir adam gel-iyor... onun adı da Yahya Kemal*
one man come-PROG his name and Yahya Kemal
'There comes a man... and his name is Yahya Kemal.'

In (13a) the NP 'bir ut' a lute is a new referent introduced into the discourse. Moreover, it is overtly specified for number, indicating that reference is made to only one entity. Note also that it may also be an antecedent for overt anaphoric reference, as shown by the following sentence. Similarly, the example in (13b) illustrates the function of 'bir' as marking the referent as singular as well as introducing a new referent that can be referred to in the subsequent discourse. In that sense 'bir' is needed for both semantic and pragmatic reasons and the two functions seem to overlap in most cases. However, it should be noted that 'bir' does not necessarily introduce new referents. Schroeder (1999:92-94) shows that 'bir' functions as an individualizer in certain contexts. Consider the example below.

(14) *Nazım Hikmet bir şair.*
Nazım Hikmet one poet
'Nazım Hikmet is a poet.'

In the example above 'bir' co-occurs with a predicative noun and indicates a "class membership". More specifically, it indicates that the referent is an "individual member" of the referent of the bare noun. This shows that the primary function of 'bir' is to mark the referent of an NP as singular or an individual out of a class. It also serves other important purposes as already shown. There are yet other functions of 'bir' which are going to be discussed in this chapter.

Now that we have established various functions of ‘bir’, the question to ask at this point is what is the status of the plural marker ‘-IAr’ and if it is really is collective aspect marker in Turkish. I address these issues in the next section.

3.1.4 The Plural Marker ‘-IAr’

As mentioned previously, the plural marker in Turkish -IAr is and it is the only number marker that is attached to nouns. It was also pointed out that the plural marker has another function as it is used to mark verbal number as well. The plural marker is historically classified as a collective suffix in the earlier studies. It only appeared on words referring to older female relatives and sovereigns in Old Turkish (sixth/seventh century). It was then used to mark the collective plurality of nouns denoting animate entities, and finally of all nouns (cf. Grønbech 1936:61, Schroeder 1999:112 and Rijkhoff 2002a:43).³⁰ In that sense the basic function of the plural marker is considered to make reference to plural individuals or entities. Consider (15).

- (15) a. adam-*lar*
man-PL
‘men’
- b. kalem-*ler*
pencil-PL
‘pencils’

³⁰ In her analysis of Old Turkic, Kerslake (2004:158) notes that nominal number is a binary category, with ‘plural’ as marked member: “Plural entities are commonly marked with +IAr but the absence of this element does not signify that the reference is to a singular entity”. She underlines the fact that in the runiform inscriptions (7th to 10th century) nominal plurality was expressed only with humans. See also Tekin (2003:101) who points out that the inscriptions apply +IAr to the social class of ‘the lords’ and to names for family members.

Recall that the plural marker is in complementary distribution with numerals since its presence would yield ungrammaticality if there is a numeral in the structure and vice versa, as shown below.

- (16) *iki adam-lar
two man-PL
'two men'

However, the presence of the plural marker is obligatory in cases where nouns co-occur with certain quantifiers such as 'bazı' *some*, 'kimi' *certain* and 'birtakım' *a number of* in the language. This is exemplified in (17).

- (17) a. Bazı / birtakım / kimi insan-lar
some / a number of / certain person-PL
'Some / a number of / certain people'
- b. *Bazı / birtakım / kimi insan
some / a number of / certain person
'Some / a number of / certain person'

On the other hand, there are a number of quantifiers like 'bütün' *all/the whole* and 'tüm' *all/the whole* that may appear with or without a plural-marked noun. The interpretation they may have depend on whether they modify a singular or plural-marked noun. Moreover, their ability to co-occur with a plural-marked noun depends partly on the noun. Consider the difference between (18a) and (18b).

- (18) a. Tüm / bütün çocuk-lar
all all kid-PL
'All the kids'
- b. *Tüm / bütün çocuk
all all kid
'All the kid'

The difference in the ungrammaticality between (18a) and (18b) shows that the quantifiers ‘tüm’ and ‘bütün’ quantify over pluralities in this example. On the other hand, the same elements may also co-occur with singular nouns, having a different meaning in this case. Consider (19).

- (19) a. Tüm / bütün kitap-*lar*
all all book-PL
‘All the books’
- b. Tüm / bütün kitap
whole whole book
‘The whole book’

Note also the plural marker co-occurs with the so-called indefiniteness marker ‘bir’ in certain contexts. This appears to contradict the argument that the plural marker and the indefinite determiner cannot occur together in a structure since ‘bir’ requires a singular noun. This is illustrated below.

- (20) a. Bir şey al-dı-m.
one thing buy-PAST-1SG
‘I bought something’
- b. Bir şey-*ler* al-dı-m.
one thing-PL buy-PAST-1SG
‘I bought some things’

However, the interpretation of ‘bir’ is somewhat different in this case since it is used as a quantifier meaning *some*. Therefore, it does not create a problem for the arguments made earlier.

After this brief discussion of different purposes the two grammatical entities serve the question to ask at this point is whether it is possible to classify the indefinite determiner and the plural marker as the singulative and collective aspect marker

respectively. More specifically, if nouns are to be classified as set nouns in Turkish, then one should expect that these elements are not *true* number markers as their counterparts in languages such as Dutch and English. Following the arguments built up so far, I argue in the next chapter that it is in fact the case.

3.2 A Novel Account

It was pointed out several times that nouns are not lexically specified for number in Turkish as they are neither singular nor plural in their basic form. Moreover, the data presented above convincingly show that nouns exhibit a number of crucial semantic and morpho-syntactic features that are attributed to set nouns within the cross-linguistic typology of nouns. As nouns are neutral with respect to number, the way reference is made to singular entities is by way of the so-called indefinite determiner ‘bir’ in the language. On the other hand, the presence of the plural marker -lAr on nouns indicates that the reference is made to multiple entities excluding singulars. More importantly, it was pointed out that these two grammatical elements function in a way quite different from their counterparts in some languages. In other words, they function as specifying the type of the set (i.e. singleton vs. collective), rather than being strict number markers whose presence is obligatory in languages in which they occur. Based on these facts, I propose that nouns should be classified as set nouns in Turkish. Being set nouns, they are specified for the lexical feature [+Shape]. Also, I propose that they are specified for the feature [\pm Singular] rather than [\pm Homogeneity] since the former better characterizes their lexical specification. Moreover, this accounts for the nature of the so-called indefinite marker as a singulative aspect marker, and the plural marker as a collective aspect marker in a unified manner. I take a close look at these issues in the next subsection.

3.2.1 Set Nouns in Turkish

3.2.1.1 Bare Nouns

One of the most important arguments made in the previous chapter is that each noun subcategory is associated with two lexical features, namely [Shape] and [Homogeneity]. The former has a binary value indicating whether a noun designates a property that has

a certain shape or outline. Any noun subcategory is obligatorily specified for either [+Shape] or [-Shape]. On the other hand, the feature [Homogeneity] is somewhat different in the sense that it comes with three values associated with it. Specifically, a noun may have the feature [+Homogeneity] in which case it designates a homogeneous property or [-Homogeneity] which means that it does not designate a homogeneous property. Moreover, it may be specified for the feature [\pm Homogeneity] when it designates a property that is neither homogeneous nor nonhomogeneous. One of the main arguments in this work is that Turkish nouns pattern like set nouns in many respects and set nouns are specified for the features [+Shape, \pm Homogeneity]. The former indicates that they always designate a property which has a well-defined outline. In other words, they designate an entity that is inherently countable. It was also shown that set nouns are not specified in terms of whether the property is homogeneous (i.e. having parts or portions) or not. Therefore, I propose that nouns that designate discrete entities as in (21a) and (21b) are specified for the two lexical features in (22).

- (21) a. adam
man/men
- b. kedi
cat/cats

(22) [+Shape, \pm Homogeneity]

The nouns in (21) designate a discrete entity and they do not need the presence of a classifier in the structure. This is captured by the feature [+Shape]. On the other hand, the feature [\pm Homogeneity] indicates that nouns in Turkish are neutral in terms of homogeneity. They designate or denote singular entities in which case we talk about a singleton set or plural entities in which case we talk about a collective (i.e. plural) set.

Note also that the feature [\pm Homogeneity] has strong implications for the number of entities set nouns denote. More specifically, this feature indicates that what a set noun designates is neither singular nor plural. That is why they are referred to as number-neutral. That is why I argue that the neutrality of set nouns in terms of this feature can also be characterized by another feature, one that perhaps better captures the number-

neutrality of set nouns. I argue that the lexical feature [\pm Singular] could also illustrate the fact that nominal number works differently in languages. Recall that singular object nouns like *car* and *tree* in English is specified for the feature [-Homogeneity] since they are typical nouns that are singular in reference.³¹ On the other hand, collective nouns such as *family* and *team* are specified for the feature [+Homogeneity] and they are always plural in reference. They designate a property of a group of individuals. Since a set noun may designate any number of entities including singular and plural, they are neutral with respect to this feature. If the set contains more than one entity, it can be divided into as many singleton sets as there are individuals. If the set is a singleton set, it cannot be further divided. Thus nouns like ‘kitap’ *book* and ‘araba’ *car* are different from singular object nouns and collective nouns in that respect. In that sense, one could argue that a singular object noun is lexically specified for the lexical features [+Shape, +Singular]. On the other hand, a collective noun would be characterized by the lexical features [+Shape, -Singular]. This idea would be captured in the table below.

Table 3.1: A reclassification of noun subcategories according to the feature [Singular]

+Shape	+Singular	-Singular
	set nouns	
	singular object nouns	collective nouns

Note that this does not mean that the feature [\pm Homogeneity] is being replaced by [\pm Singular] in Turkish. The table is just another way of representing the properties of nouns with respect to number. It also illustrates the distinctions between nouns that specified for [+Shape] on the one hand, and [-Shape] on the other. More specifically, the table captures the fact that only nouns that have the feature [+Shape] are accessible for direct counting. Note also that an alternative idea would be to argue that the lexical feature should be [Plural] and not [Singular] to represent the number-neutral nature of nouns in Turkish. However, a closer look at different languages and their number system illustrates the fact that this would not be the best choice. For instance, Corbett (2000:17)

³¹ That does not mean that the referent of a noun like *car* lacks structure. The point here is that no part of a car can be called a car.

notes that singular is generally taken as the basic or unmarked number. In other words, as far as markedness is concerned, singular is used as a default value. Corbett goes on to say that a system in which plural is taken as canonical does not exist in the pure form in that no language employs that as default. Therefore, the choice of [Singular] as a lexical feature is obviously more reasonable.

The newly introduced feature [\pm Singular] that would be used as an alternative to the feature [\pm Homogeneity] for nouns that are specified for the feature [+Shape] also makes it possible to make a better connection with lexical semantic and formal semantic views. Recall that the idea that nouns in their basic form denote singular as well as plural entities in Turkish, Chinese, Hungarian and Korean was convincingly demonstrated in previous formal semantic analyses (cf. Rullmann and You 2006, Görgülü 2010ab, 2011, Bale 2010, Bale et al. 2011). This idea is captured by way of formal representation of the semantics of nouns, as in (23).

- (23) a. sandalye / öğrenci / kedi
chair/chairs / student/students / cat/cats
- b. [[sandalye]] = {*a, b, c, ab, ac, bc, abc*}

The semantic value of a noun like ‘sandalye’ *chair* in (23a) can be represented by the formula in (23b). What this means is that a noun denotes a set of singular entities and pluralities thereof. Recall that the model proposed in this study reflects the idea that nouns of this type are defined as designating a spatially discrete entity or entities. This characteristic of nouns is best captured by arguing that they are specified for the lexical features [+Shape, \pm Homogeneity] where the latter feature has implications for number and could also be characterized by the feature [\pm Singular].

The fact that the properties of set nouns in Turkish are explicated also makes it possible to have a better understanding of how they are specified for number. The analysis illustrates the fact that the grammatical markers used for number specification are in fact nominal aspect markers rather than ordinary number markers. The following subsection is concerned with these issues.

3.2.1.2 Singularization as Nominal Aspect Marking

Recall that Rijkhoff (2002ab, 2008) makes a strong claim that certain languages have nominal aspect markers rather than number markers. These markers are different in nature and apply to different subtypes of nouns in languages. Rijkhoff goes on to say that the features [Shape] and [Homogeneity] are part of the lexical meaning of nouns and they could be studied in the context of *Seinsart* (i.e. mode of being) in the area of noun semantics. This could be considered to be the nominal counterpart of *Aktionsart* (i.e. mode of action) in the verbal domain. The idea is that just like verbs that can be categorized in terms of temporal features, nouns can be characterized in terms of spatial features. For instance, singular object nouns have the features [+Shape, -Homogeneity]. The singular form of this type of nouns is used to refer to a single entity only. Moreover, singular object nouns are obligatorily marked as either singular or plural via number markers. On the other hand, set nouns in Turkish are different since they are specified for the features [+Shape, ±Homogeneity]. What this means is that set nouns do not lexically indicate the number of the entity they designate. Instead, number specification is done by means of certain grammatical elements. There are two ways of specifying the number of the referent. The number of the referent is overtly marked by the so-called indefinite determiner 'bir' and the plural marker -lAr. In that sense these elements are behaving more like *singulative* and *collective* aspect markers. In the case of singularization, the reference is always to a single entity, as shown in (24).

- (24) *bir sandalye / öğrenci / kedi*
one chair / student / cat
'a chair, a student, a cat'

The NPs in (24) all refer to a single entity since they co-occur with the singulative marker 'bir' in the structure. Its absence would indicate that the number of the referents is unspecified. This clearly indicates that the lexical meaning of a set noun like 'sandalye' *chair* is not specified for any particular number. Therefore, the specification of number is done through the nominal aspect marker in the language. Note that this proposal made here is compatible with the analyses of the various functions of 'bir' discussed earlier. Recall that it was pointed out there that one of its primary uses is to mark the number of

the referent of the NP as singular. It is also used to introduce a new referent into the discourse. Consider the differences between the NPs in (25a) and (25b) in terms of form and meaning.

- (25) a. Cem oda-ya *sandalye* getir-di.
Cem room-DAT chair bring-PAST
'Cem brought a chair / chairs to the room.'
- b. Cem oda-ya *bir sandalye* getir-di.
Cem room-DAT one chair bring-PAST
'Cem brought a chair to the room.'

The bare NP 'sandalye' *chair* in (25a) does not itself give information about whether the reference is made to a singular or plural entity. On the other hand, the NP 'bir sandalye' *a chair* in (25b) is different since it refers to a single entity. Moreover, the bare NP in (25a) may only be referred back by means of zero anaphora. More specifically, it cannot be an antecedent for an overt pronoun in the following discourse. This is exemplified in (26).

- (26) Cem oda-ya *sandalye* getir-di ve
Cem room-DAT chair bring-PAST and
- ∅ cam-in ön-ü-ne koy-du.
window-GEN front-POSS-DAT put-PAST
'Cem brought a chair / chairs to the room and he put it / them by the window.'

In (26) the zero anaphora in the second clause is indicated by '∅'. Note that zero anaphora is the only way that can be used in order to refer back to a bare NP in Turkish. The overt presence of a pronoun in the same position would lead to ungrammaticality. This is in fact what one would expect given the fact that bare NPs are unspecified for number and there is no pronoun in the language that can be an anaphor for a bare NP. In other words, the presence of an overt pronoun such as 'o' *it* or 'onlar' *they* would indicate that bare NPs refer to either a singular or plural entity. On the other hand, the

presence of ‘bir’ makes it possible to refer back to the preceding NP by way of an overt pronoun. Consider the example in (27).

- (27) Cem oda-ya bir sandalye getir-di ve
Cem room-DAT one chair bring-PAST and
- o-nu / ø cam-ı n ön-ü-ne koy-du.
it-ACC window-GEN front-POSS-DAT put-PAST
- ‘Cem brought a chair to the room and he put it by the window.’

Since the NP ‘bir sandalye’ *a chair* refers to a single entity in (27), it can be an antecedent for an overt pronoun ‘o’ *it* in this case. Note also that pronouns may also be covert in the language.³² This is indicated by ‘ø’ in (27).

The discussion above illustrates the fact that a noun may appear in an NP without being associated with any grammatical elements and is neutral in terms of number. On the other hand, the presence of ‘bir’ is obligatory whenever reference is made to a single entity that is a new discourse referent that may be an antecedent for subsequent anaphoric reference. Recall that it was noted that nouns in Oromo are classified as set nouns as they are associated with neither plurality nor singularity in their unmarked form. It was also shown that nouns are specified for number by means of singulative and collective markers. Stroomer (1987:74) points out that NPs referring to more than one entity are not necessarily marked for plurality in Oromo. If the context provides enough information, a bare NP may refer to multiple entities. When it is important to make the number of the referent clear, the singulative or collective marker is necessary in the language. However, one thing that Stroomer (1987) and Rijkhoff (2002ab, 2008) do not discuss is that in addition to number marking singulative markers have other important functions in Oromo. For instance, Andrzejewski (1960:73) notes that “apart from their notional associations with number, the singulative forms are also

³² See also Farkas and de Swart (2003) and Rullmann and You (2006) for an analysis of the issues concerning bare and morpho-syntactically marked NPs in Hungarian and Mandarin respectively and the way they interact with number in discourse anaphora.

associated with two notional categories.... The first of them is sex differentiation and the second particularization, i.e. reference to one particular individual already known or already referred to”.³³ A similar point was made by (Corbett 2000:18) who states that “singulative or plural form may be available when specificity as to number is required”. This indicates that number marking has an effect on the referentiality of nouns in Oromo. When ‘bir’ as a singulative aspect marker in Turkish is considered, its presence is required whenever an NP refers to a single entity. It is also true that the referent of this NP is a new discourse referent that may be referred to in the subsequent discourse. In that sense ‘bir’ should be taken as serving both a semantic and a pragmatic purpose. This is similar to the case observed in Oromo. However, the question to ask at this point is if it is always the case that ‘bir’ has these two functions in the language. If it is a singulative aspect marking as claimed in this work, then we should also expect to see cases in which it is used for singularization purposes only.

The multi-functional nature of ‘bir’ as a nominal aspect marker in Turkish would perhaps be better understood if one considers its origin and evolution. Rijkhoff (2002a: 119) notes that certain nominal aspect markers derived from other existing grammatical markers in languages that have them. For instance, in certain Nilo-Saharan languages the noun marker ‘k-’ took on a secondary function as singular marking, or singulative marking in relation to collective (cf. Greenberg 1981:109). The same phenomenon is found in Anejom where ‘n-’, an erstwhile demonstrative or definite article, now indicates ‘singularity’ or rather singular aspect (cf. Crowley 1985:165-166, 178-179). It was noted earlier that ‘bir’ derived from the numeral *one* in Turkish. Givón (1981:35) argues that the use of ‘bir’ is identical to that of its counterparts in Street Hebrew, Chinese and Persian. Givón’s claim is that the indefinite article specifically marks *referential indefiniteness* as opposed to *non-referential indefiniteness* in these languages. Therefore, ‘bir’ is considered to be an exclusively pragmatic indefinite article (i.e. marking pragmatic

³³ Note that Andrzejewski (1960) refers to Oromo as Galla, a term that is no longer used.

referentiality)³⁴. Schroeder (1999:59-60, 67) proposes a similar account in which he argues for a modified analysis suggested by Givon (1981) and Tura-Sansa (1973). More specifically, he proposes the following: “it is not article marking alone which triggers a high pragmatic referentiality. Rather, it seems that we have to understand the article as a *prerequisite* for the pragmatic referentiality of a referent. Marking for “shape” forms the basis on which a referent can function as an antecedent for overt anaphoric reference”.

However, a more careful analysis reveals that the use of ‘bir’ is not restricted to cases in which it is a strict marker of pragmatic referentiality in the language. In his work Heine (1997:71-75) proposes five different stages in which the numeral *one* gradually develops into an indefinite determiner through grammaticalization in various languages. He notes that *one* is used only as a *numeral* in stage I. This is followed by its use as a *presentative marker* in stage II. In stage III and IV, it is used to introduce expressions of (non-identifiable) specific reference and (non-identifiable) nonspecific reference respectively. In stage V it is used as a generalized determiner, marking non-referential NPs that function as predicates.³⁵ This five-stage model presents some kind implicational scale since an indefinite determiner of state IV can be expected to also illustrate the properties of the preceding stages but not vice versa. In other words, it may be used as a numeral, a presentative marker or a marker of indefinite specific reference but it may still lack the property characteristic of the final stage. When we consider the facts in Turkish, the various uses of ‘bir’ clearly indicate that it serves all the purposes that are the representative of each stage. Consider the examples in (28).

³⁴ There are three types of referentiality that are distinguished in the literature, namely, syntactic referentiality, semantic referentiality and pragmatic referentiality. Schroeder (1999:8) notes that the term pragmatic referentiality was developed by Givon (1982, 1984) “based on the observation that when a referent is introduced into the discourse, the linguistic treatment of the respective noun phrase differs according to the “communicative importance” that the referents have in the intentions of the speaker”. The idea here is that when a new referent is introduced into the discourse, it is marked in a particular way if it is going to be subsequently referred to again via anaphoric reference.

³⁵ Chen (2003) provides a detailed discussion of the evolution of the numeral ‘yi’ *one* in Chinese. Apparently, this marker not only marks indefiniteness but has also developed another function as a marker of definiteness.

- (28) a. The Numeral
 Cem sadece *bir saat-te* bütün soru-lar-ı çöz-müş.
 Cem only one hour-LOC all question-PL-ACC solve-EVID
 ‘Apparently, Cem answered all the questions in only one hour.’
- b. The Presentative Marker
 Çok eski-den orman-ın bir-i-nde *bir kız* yaşa-r-mış...
 very old-ABL forest-GEN one-POSS-LOC one girl live-AOR-EVID
 ‘Once upon a time there was a girl living in a forest...’
- c. The Specific Marker
 Dün gece *bir kitap* oku-du-m.
 yesterday night one book read-PAST-1SG
 ‘I read a book last night.’
- d. The Nonspecific Marker
 Gel-ir-ken *bir gazete* getir.
 come-AOR-CONV one newspaper bring
 ‘Bring a newspaper when you come.’
- e. The Generalized Article
 O iyi *bir futbolcu*.
 He good one footballer
 ‘He is a good soccer player.’

The example in (28a) represents the use of ‘bir’ as a numeral. On the other hand, its presentative use in (28b) is rather different in the sense that it introduces a new participant presumed to be unknown to the hearer. What is also important here is that the participant is later taken up as definite in the subsequent reference. The sentence in (28c) exemplifies the use of ‘bir’ as a marker of specific reference. The difference between this use and the preceding one marker is that at this stage the use of ‘bir’ is extended to any referent in the discourse and is not restricted to presentative uses.

Moreover, it is not important whether or not the entity in question is expected to be mentioned in the following discourse. In the next stage, it has a function of marking non-specific reference, as illustrated in (28d). The important point here is that a participant is introduced whose referential identity neither the speaker nor the addressee knows or cares to know. This means that the marker is not restricted to marking specific reference any more at this stage. In stage V, 'bir' occurs in a number of contexts including cases in which it appears with predicative nouns, as shown in (28e). In cases like this the predicative noun characterizes a professional, ideological or an ethnic class. As will be discussed later in this chapter, the use of 'bir' is not restricted to nouns with a definite shape. They can also be used with mass nouns. This is also a characteristic this marker represents in stage V in various languages. Therefore, 'bir' is not used for strictly pragmatic reasons marking only referential indefiniteness in the language. Based on the data in (28), one can safely say that 'bir' is used to mark singularity whether or not it introduces a new discourse referent. In that sense it can be better characterized as a singulative aspect marker.

Before starting to look into the plural marker and its properties as a nominal aspect marker in Turkish, there is one more issue to consider at this point which is related to the above discussion. It is established by now that [+Shape] is a lexical semantic feature and it is one of the defining characteristics of certain noun subtypes like singular count nouns and collective nouns in Dutch and English on the one hand, and set nouns in Turkish and Oromo on the other. However, Schroeder (1999:43-45) claims that it is not the case in Turkish and comes up with a different account. Following an early work by Rijkhoff (1991), he argues that indefinite noun phrases in Turkish are of two types: they may be marked for "shape", which means that they may have some sort of number-marking. On the other hand, they may be unmarked for "shape" in which case they are transnumeral. Therefore, Schroeder does not consider this feature as a lexical one and maintains the idea that it is a feature that nouns are marked at the phrasal level. This idea would be taken to indicate that nouns are also not marked for "shape" lexically and number-marking is crucial for marking NP as having "shape". This is probably because Schroeder is interested in associating the use of 'bir' with a high level of pragmatic referentiality. In other words, he maintains the idea that a low level of pragmatic referentiality means the lack of the feature "shape" in the language. However,

it should be noted that the feature in question is lexical semantic in nature and not a pragmatic one. The analysis above convincingly illustrates the fact that ‘bir’ is not a marker of “shape” but number. Another problem with this analysis is that it would mistakenly pair nouns in Turkish with their counterparts in languages like Chinese and Thai. Recall that nouns in these languages are classified as having the feature [-Shape] according to the typological classification of noun subtypes. However, the properties of nouns in these languages were shown to be significantly different from nouns in Turkish in the sense that they need classifiers when they are modified by numerals. However, there are no classifiers that would form a grammatical category since Turkish is not a classifier language. Moreover, the use of plural marking requires that the referent be human, non-generic and definite in languages like Chinese (cf. Chao 1968, Martin 1988, Ijic 1998, 2001). On the other hand, the plural marker has more freedom in Turkish since its use is not confined to certain contexts. Therefore, the conclusion is that the claim that nouns are not marked for “shape” does not correctly capture the facts. In the next section I will take a close look at plural marking in the language.

3.2.1.3 Pluralization as Nominal Aspect Marking

It was stated earlier that the plural marker in Turkish was historically classified as a collective marker, which then developed into a regular plural marker. NPs that co-occur with the plural marker unambiguously refer to plural entities, as shown in (29).

(29) öğrenci-ler / sandalye-ler / kedi-ler
student-PL / chair-PL / cat-PL

What is important in the examples above is that the presence of the plural marker on the head noun indicates that the referent is to plural entities excluding the singular and number-neutral readings. This shows the three-way distinction between NPs in the language: number-neutral, singular and plural. Another point made earlier is the fact that the plural marker does not co-occur with nouns that are modified by numerals greater than one. This is illustrated in (30).

- (30) iki öğrenci / *iki öğrenci-ler
two student / two student-PL
'two students'

This is in fact expected since set nouns are not generally compatible with plural marking when quantified by numerals. The question to ask at this point is whether it is possible to classify -IAr as a nominal aspect marker in Turkish. Note that Rijkhoff's typological analysis shows that in many languages the *non-numerated*³⁶ noun may or must receive what is often referred to as a plural marker. However, this element is not used to express plural number but indicates that the speaker refers to a particular set, namely a *collective* set of entities (2002a:100-101). The analysis above has shown that 'bir' should be better classified as a nominal aspect marker (i.e. singulative aspect) rather than a genuine number marker. The prediction then is that the plural marker should also be classified as a nominal aspect marker, namely a collective aspect marker. In order to have a better understanding of the distinction between number marking and nominal aspect marking let us compare singular object nouns which are generally associated with number markers to set nouns which are typically marked with nominal aspect markers. Recall that the difference between number marking and nominal aspect marking is that number markers obligatorily distinguish between the number (i.e. singular vs. plural) of referents. They co-occur with nouns which designate a single discrete entity in their bare form. On the other hand, nominal aspect markers appear with set nouns and are often optional. Nominal aspect markers specify what kind of set entity is being referred to: a singleton set which consists of only one entity or a collective set with multiple entities which together form a collective. In that sense it is not unreasonable to argue that -IAr should actually be considered to be a collective aspect marker. More specifically, it does not mark the number of entities but is used to specify the set as a collective with more than one entity. This analysis systematically captures the three-way distinction between NPs, as illustrated in (31).

³⁶ Note that a non-numerated noun is a noun that does not take plural marking when modified by a numeral greater than one.

- (31) a. adam
man/men
- b. bir adam
one man
'a man'
- c. adam-lar
man-PL
'men'

The noun in (31a) designates a discrete entity or entities in its bare form. On the other hand, the same noun in (31b) co-occurs with the singulative aspect marker and the reference is made to a single individual (i.e. a singleton set) with a well-defined outline. The example in (31c) shows that when the noun takes the plural marker, the reference is made to more than one entity (i.e. a collective set).

Note also that the behavior of 'bir' and -lAr exhibit close similarities in that they both disambiguate the number-neutral character of set nouns. In other words, the former marks the referent as singular and the latter marks the referent as plural. Moreover, plural-marked NPs introduce a discourse entity that may function as an anaphor in the subsequent discourse. This is identical to the behavior of the singulative aspect marker 'bir'. Consider the example in (32).

- (32) Cem oda-ya sandalye-ler getir-di ve
Cem room-DAT chair-PL bring-PAST and
- onlar-ı / ø cam-ın ön-ü-ne koy-du.
they-ACC window-GEN front-POSS-DAT put-PAST
'Cem brought chairs to the room and he put them by the window.'

As illustrated in (32), the NP ‘sandalyeler’ *chairs* may function as an antecedent for a pronoun. This clearly shows the fact that singulative and collective aspect markers serve the same purpose, namely specifying what kind of set is being referred to.

In the next section, I will consider a recent proposal in which the behavior of plural and bare NPs is investigated in downward entailing contexts in Turkish. It is maintained that bare and plural NPs behave similarly in the sense that they are both number-neutral. This line of reasoning goes against the analysis proposed up to this point as it was shown that plural NPs only refer to multiple entities. However, the claiming that plural NPs are number-neutral in Turkish leads to unpredictable results.

3.2.1.4 Plural NPs are not Number-neutral

It is well-established that morphologically unmarked NPs are not specified for number while plural NPs obligatorily refer to multiple entities (i.e. a collective set) in Turkish. In a recent work, however, Kan (2010) maintains that plural NPs are not different from bare NPs, claiming that they are also number-neutral in the language. Following the analyses in which plural NPs are argued to be number-neutral in English (cf. Sauerland 2003, Sauerland et al. 2005, Spector 2003, 2007 among others), Kan argues that plural NPs also denote singularities when they appear inside conditionals, negative contexts and questions in Turkish. She provides the following examples to illustrate that.

Conditional Contexts

- (33) a. Eğer *çocuk-lar-in* var-sa, bura-ya gel-me.
if child-PL-GEN exist-COND here-DAT come-NEG
‘If you have **one or more children**, do not come here.’
≠ ‘If you have **two or more** children, do not come here.’
- b. Eğer *çocuğ-un* var-sa, bura-ya gel-me.
if child-GEN exist-COND here-DAT come-NEG
‘If you have **one or more children**, do not come here.’

Negation

- (34) a. Bahçe-de *çocuk-lar* oyna-mı-yor.
garden-LOC child-PL play-NEG-PROG
'**One or more** children are not playing in the garden.'
='There are not **any children** playing in the garden'
≠'**Two or more** children are not playing in the garden.'
- b. Bahçe-de *çocuk* oyna-mı-yor.
garden-LOC child play-NEG-PROG
'**One or more** children are not playing in the garden.'
='There are not **any children** playing in the garden.'

Yes-no Questions

- (35) a. *Çocuk-lar-ın* var mı?
child-PL-GEN exist Q
'Do you have **one or more** children?'
≠'Do you have **two or more** children?'
- b. *Çocuğ-un* var mı?
child-GEN exist Q
'Do you have **one or more** children?'

Kan argues that the plural NP '*çocuklar*' *children* in the antecedent of the conditional clause in (33a) quantifies over atoms as well as pluralities. This means that the plural NP does not exclude singular entities in such cases. She goes on to say that this is also true for the NP in (34a) which is in a negative context and the one in (34a) that appears in a yes-no question. The plural NP has a reading in which it is interpreted as 'one or more children' rather than 'two or more children' in these cases. Thus the behavior of plural-marked NPs looks identical to that of number-neutral NPs given in (33b), (34b) and (35b). If Turkish plural NPs denote only strict plurality, then there is no way to account for why they refer to atoms along with pluralities. However, it should be noted that the contexts in which plural NPs are argued to denote singularities are restricted. These are

often referred to as ‘downward entailing contexts’ in which plural NPs are in the scope of a certain operator such as conditional, negation or question. Moreover, a closer look at these sentences reveals that the sentences in (33b), (34b) and (35b) are in fact the unmarked structures. For instance, if a speaker is wondering how many children the hearer has, the canonical question to be asked is the one in (35b) and not the one in (35a) since the one in (35a) presupposes that the speaker wants to learn if the hearer has more than one child. In addition to that, if we claim that bare and plural NPs denote singularities as well as pluralities without any difference in terms of number this would mean that the plural marker is semantically null. In other words, if these NPs are no different from each other, the presence of the plural marker would be redundant. However, it is not true that there is not a semantic distinction between plural marked NPs and bare NPs in the language. Consider the difference between the sentences in (36a) and (36b).

- (36) a. *Çocuk-lar-ın var.*
 kid-PL-POSS exist
 ‘You have kids.’
 ≠‘You have one or more kids.’
- b. *Çocuğ-un var.*
 kid-POSS exist
 ‘You have one or more kids.’

The only reading the plural NP has in (36a) is one in which it denotes at least two individuals. On the other hand the NP in (36b) is different in the sense that it does not specify the number of individuals being referred to. In conclusion, the claim that plural NPs are number-neutral just like their non-plural-marked counterparts does not seem to be an ideal one.

Note also that the fact that plural NPs are number-neutral in these contexts is well-attested in other languages as well. As Ojeda (1993:43) points out, plurals may be semantically indeterminate in number in cases in which “it is not known whether one or more individual is being referred to”. He goes on to say that documents such as

application forms generally give plural headings like *schools attended* and *children* while their singular counterparts presuppose only one of each. Moreover, Spector (2005) notes that the phenomenon is even more general and shows that plural-marked *des*-NPs in French are interpreted as number-neutral in certain environments such as yes-no questions. In contrast to this, in declarative sentences the same NP can be interpreted as plural only. This contrast is exemplified in (37a) and (37b).

- (37) a. - *Avez-vous des enfants?* - *Oui, j'en ai un.*
'Do you have children?' 'Yes, I have one child.'
- b. *Pierre a des enfants.*
Pierre has children. (more than one child)

In (37a) the plural NP is under the scope of the question operator and is interpreted as number-neutral. On the other hand, in (37b) there is no such operator and NP refers to pluralities only. This indicates that plural NPs in various languages are interpreted as number-neutral when they are under the scope of some sort of operator such as a conditional, negation or a question operator. Therefore, the claim that plural NPs are interpreted as number-neutral in downward entailing contexts in Turkish does not constitute a counter-argument for the account that plural NPs refer to plural entities only. In the next section, I look into mass nouns and ask the question of whether they are different from set nouns in the language.

3.2.2 Mass Nouns

It was previously noted that mass nouns are those that denote entities and substances that do not have a well-defined shape or precise limits. When we consider languages from a cross-linguistic point of view, we observe that there is at least a small set of nouns that is characterized as mass nouns in general. Nouns denoting liquids such as 'su' *water* and 'kan' *blood* and granules like 'kum' *sand* and 'un' *flour* fall under this definition in Turkish since these nouns designate entities that do not have a well-defined spatial outline. There are a number of diagnostic tests that are used in order to detect the count-mass distinction in languages where the distinction manifests itself grammatically (i.e. morpho-syntactically). It is often noted that count nouns in languages

like English are compatible with plural morphology while mass nouns are not unless there is a semantic shift. Another difference is that whereas count nouns freely appear with numerals, mass nouns generally do not. Moreover, certain determiners like *every* and *each* occur with singular count nouns but *little* and *much* occur with mass nouns only (cf. Chierchia 1998, Gillon 1999 among others). On the other hand, when we consider previous work on the count-mass distinction in Turkish, the consensus is that there is no grammatical difference unlike in English and Italian in which the distribution of count and mass nouns displays important distinctions (cf. Göksel and Kerlake 2005). This is due to the fact that such elements as the indefinite determiner and the plural marker are freely used with almost all nouns. These are the elements that do not generally combine with mass nouns in languages with a count-mass distinction. In that sense, “count” nouns like ‘*kitap*’ *book* and ‘*ev*’ *house* and “mass nouns” like ‘*su*’ *water* and ‘*kum*’ *sand* are viewed as behaving in a similar way, if not identical, without displaying any morpho-syntactic difference in the language. Göksel and Kerlake (2005:163-168) give the following examples to illustrate that.

- (38) a. Ban-a *bir su* ver.
 I-DAT one water give
 ‘Give me a [glass of] water.’
- b. İç-im-e *bir rahatlık* gir-di.
 inside-1SG.POSS one relief enter-PAST
 ‘A [sense of] relief came over me.’
- c. Güzel *bir pirinç* bul-du-m.
 nice one rice find-PAST-1SG
 ‘I’ve found a nice [kind of] rice.’

The combinability of mass nouns with ‘*bir*’ in the above examples is often taken as evidence that the count-mass distinction does not have any grammatical repercussions. Similarly, mass nouns occur with the plural marker in the language without leading to ungrammaticality, as shown by Göksel and Kerlake (2005:164-165).

- (39) a. *Kum-lar-ı* parmak-lar-ı-nın arası-ndan geçir-iyor-du.
 sand-PL-ACC finger-PL-GEN through-ABL sift-PROG-PAST
 ‘S/he was sifting the (grains of) sand through his/her fingers.’
- b. Bizim Migros-ta güzel *şarap-lar* var.
 our Migros-LOC nice wine-PL exist
 ‘There are nice wines at our Migros.’

The examples in (39a) and (39b) indicate that mass nouns ‘kum’ *sand* and ‘şarap’ *wine* co-occur with take the plural marker freely.

In addition to the fact that the morpho-syntactic distribution of mass nouns is the same as that of any other noun type, mass nouns can also appear in their bare form, just like nouns categorized as set nouns. Consider the examples in (40).

- (40) a. Bardak-ta *su* var.
 glass-LOC water exist
 ‘There is water in the glass.’
- b. Masa-da *kitap* var.
 table-LOC book exist
 ‘There is/are book(s) on the table.’

Based on these facts, one could argue that mass nouns have the same lexical specification as set nouns since they display almost the same properties. Recall that we mainly relied on morpho-syntactic criteria along with semantic criteria in order to determine noun types in Turkish. It was argued that nouns show characteristics that are attributed to set nouns. Recall also that set nouns differ from other noun types in that they occur with numerals without the presence of classifiers. Plural marking is used when reference is to multiple entities. In addition, set nouns do not take plural marking when they are modified by numerals greater than one. The issue here is that the morpho-syntactic criteria do not distinguish between set nouns like ‘araba’ *car* and mass nouns such as ‘un’ *flour* in Turkish since these nouns have the same distribution.

However, it should be noted that despite the fact that the two elements appear with mass nouns, there are still certain differences between these types of nouns in the language. For instance, Kayadelen (2008:73) shows that there are a number of quantifiers like ‘biraz’ *a little* that generally appear with mass nouns whereas others like ‘birkaç’ *a few / a number of* occur with set nouns. This is exemplified below.

(41) a. *Biraz para / su*
a little money / water
‘a little money / water’

b. **Birkaç para / su*
a few money / water
‘a few money / water’

(42) a. *Birkaç insan / tablo*
a few person / painting
‘a few people / paintings’

b. **Biraz insan / tablo*
a little person / painting
‘a little people / paintings’

This is also true for other quantifiers such as ‘kaç tane?’ *how many?* and ‘ne kadar?’ *how much?* Whereas the former prefers set nouns and enforces a count interpretation, the latter prefers mass nouns and enforces a mass interpretation. Consider the differences between (43) and (44).

(43) a. *Kaç tane çocuk / kitap / köpek?*
how item kid / book / dog
‘How many children / books / dogs?’

- b. **Kaç tane para / zaman?*
 how item money / time
 Intended reading: ‘*How many money / time?’

- (44) a. *Ne kadar su / şeker / un?*
 what amount water / sugar / flour
 ‘How much water, sugar, flour?’

- b. *Kaç tane su / şeker / un?*
 how item water / sugar / flour
 ‘How many (units of) water, sugar, flour?’

The data in (43a) indicate that set nouns are compatible with the quantifier ‘*kaç tane?*’ *how many?* On the other hand, the ungrammaticality of (43b) shows that ‘*kaç tane?*’ does not readily occur with just any noun in the language. On the other hand, the examples in (44a) illustrate the fact that it is ‘*ne kadar?*’ that mass nouns typically combine with in order to ask for the amount of mass entities. Finally, the data in (44b) shows that mass nouns are also compatible with ‘*kaç tane?*’. However, this is only possible when we talk about conventionalized or standardized packaging. Without this kind of interpretation, the use of mass nouns with this quantifier would not be possible.

Furthermore, the distinction between set nouns and mass nouns surface when these nouns appear in partitive constructions, as illustrated in (45) and (46).

- (45) a. *kitap-lar-in hep-si*
 book-PL-GEN all-POSS
 ‘All of the books’

- b. *kitap-lar-in her bir-i*
 book-PL-GEN each one-POSS
 ‘Each one of the books’

- c. kitap-lar-ın çoğ-u
book-PL-GEN most-POSS
'Most of the books'
- (46) a. *su-yun hep-si
water-GEN all-POSS
'All of the water'
- b. *su-yun her bir-i
water-GEN each one-POSS
'Each one of the water'
- c. *suyun çoğ-u
water-GEN most-POSS
'Most of the water'

The data above illustrate the fact that whereas set nouns are compatible with quantifiers such as 'hepsi' *all of*, 'her biri' *each of the* and 'çoğu' *most of the*, it is not the case with mass nouns. The construction in (46a) would improve if we replaced 'hepsi' with another quantifier 'tamamı' *all of the*. The same is also true for the construction in (46c) which would become grammatical if the quantifier 'çoğu' was replaced with 'büyük bir kısmı' *a big portion of*. This indicates that set nouns and mass nouns are compatible with different quantifiers even though there may be overlaps in certain instances.

In addition to certain differences in terms of the combinability of certain quantifiers, mass nouns in Turkish combine with what is called measure words or measure phrases in order to indicate the amount of the substances and non-discrete entities. This is shown below.

- (47) a. bir şişe bira
one bottle beer
'a/one bottle of beer'

- b. iki *atımlık* şeker
two lump sugar
'two lumps of sugar'

- c. beş *kaşık* un
five spoon flour
'five spoonfuls of flour'

The above examples show that the substance denoted by a mass noun does not readily permit division into 'natural units'. Furthermore, Göksel and Kerslake (2005:163-165) provide data which show that the phenomenon is even more general. They note that uncountable (i.e. mass) nouns like 'su' *water*, 'toprak' *earth* and 'müzik' *music* are not normally combined with numerals or quantifying determiners such as 'kaç/kaç tane?' *how many?*, 'birçok' *many* unless the context makes clear that the counting is based upon either a conventional measure of the substance in question, or distinct types of the substance. Similarly, when mass nouns like 'su' *water* and 'tuz' *salt* occur with elements such as 'bir' and -IAr, they generally refer to a unit, a serving or an instance of an entity without a well-defined shape rather than a single entity with a spatial outline. Note that this is in fact the case in (38) and (39) where the NPs headed by a mass noun refer to units and instances and not necessarily single entities that already have a certain shape. In that sense, we are talking about what we would call a unitization process rather than singularization as was the case with set nouns.

The fact that there are two different processes (i.e. singularization and unitization) that are at work is also discussed by Schroeder (1999:61). He notes that certain nouns evoke a reading in which the entity in question is interpreted as an individual whereas others evoke some sort of unit reading when they appear with the indefinite determiner. He classifies nouns like 'sandalye' *chair* and 'pencere' *window* as count nouns such as 'para' *money* and 'zaman' *time* as mass nouns. What is important here is that an NP headed by a count noun refers to an individual whereas an NP headed by a mass noun refers to a unit when they co-occur with 'bir'. This indicates that there are certain differences between nouns that can be investigated under the topic of the count-mass distinction. However, Schroeder's analysis is not without problems since he characterizes nouns denoting spatial entities as transnumeral. Despite this fact, he

regards this type of nouns as count. Note that there are significant differences between transnumeral nouns and count nouns, especially singular count/object nouns. Therefore, arguing that Turkish nouns are count in Turkish does not appear to be very appropriate. Recall that Schroeder also claims that nouns do not have the lexical feature [Shape] unless they co-occur with the indefinite determiner, the plural marker or any other determiner. In that sense, his analysis suggests that all noun types should display the same properties except for the fact that they do not. Moreover, even if we argue that transnumeral nouns are somehow count, we would still need to make a distinction between set nouns and singular object and collective nouns which are true count nouns. Therefore, the question of what constitutes a mass noun and why certain NPs refer to single individuals while other NPs refer to units, instances and types need to be accounted for in a unified manner. In the next section, I address these issues and provide some answers.

3.2.2.1 A Different Semantics for Mass Nouns

One way of accounting for the contrast seen in the interpretation of NPs headed by set nouns on the one hand, and mass nouns on the other, is to argue that in the absence of a grammatical count-mass distinction the difference is purely semantic in nature. In other words, if we assume that the lexical specification of mass nouns is different from that of set nouns in the language. Recall that Rijkhoff (2002ab, 2008) argues that mass nouns significantly differ from singular object nouns and set nouns in that they are specified for the lexical feature [-Shape]. That is to say, mass nouns designate entities that do not have a specific shape. Moreover, mass nouns have the feature [+Homogeneity] in that what they denote parts that are in their denotation. More specifically, mass nouns denote entities that do not have a definite outline and they are agglomerative. If we assume that mass nouns are specified for these lexical features in Turkish, then we would explain the way they are interpreted when they appear with grammatical elements. Consider the nouns in (48).

(48) su / şeker / un
water / sugar / flour

(49) [-Shape, +Homogeneity]

Since the noun 'su' *water* in (48) does not denote an entity with a well-defined shape and precise limits, it is in fact expected that the reading it has should display a difference. The difference can be accounted for by arguing that mass nouns are specified for a different set of lexical features. These features are illustrated in (49) above. Since these nouns are specified for the feature [-Shape], they are not so readily accessible for direct specification of number. What we have in this case is a process of unitization rather than singularization. More specifically, when the reference is made to a particular unit or units of a mass entity, the grammatical elements that are used are the same as those used for singularization. However, the NP refers to a unit, serving or an instance of the entity in question. This is exemplified in (50).

- (50) a. bir su
one water
'a water'
- b. su-lar
water-PL
'units/types of water'

The example in (50a) show that the combination of the mass noun 'su' *water* with 'bir' results in an NP that may refer to *a glass of water*, *a bottle of water* or *a type of water* (e.g. spring water vs. mineral water) in different contexts. Similarly, the NP in (50b) may refer to units or types of water when appropriate. On the other hand, when a set noun like 'bilgisayar' *computer* combines with 'bir', that should be seen as a process of singularization since it is basically marking singular number on nouns that denote entities with a well-defined outline.

These above facts clearly indicate that the same morpho-syntactic means are used for the process of singularization (i.e. singulative aspect marking) and unitization in Turkish although there are a number of differences in terms of the quantificational elements that set nouns and mass nouns can occur with. This raises the question of how it is possible to use the same elements for both processes given that the two types of nouns are lexically different from one another. The prediction would be that the

distinction should have some consequences in the morpho-syntax. However, a cross-linguistic investigation indicates that Turkish is not the only language in which singularization and unitization occurs through the same mechanism. It was reported in previous studies that the same morpho-syntactic means are employed for the purpose of singularization and unitization in languages such as Arbore (Hayward 1984:159-165) and Breton (Press, 1986:69-70). Seifart (2009:45-48) notes that in addition to the existence of singular object nouns in Breton such as ‘tog’ *hat* and ‘bag’ *boat* that obligatorily take the plural suffix -où when they are plural in reference there are also noun subtypes that do not designate a single entity in their basic form. These nouns differ from singular object nouns in that they are not able to appear with certain quantifiers and determiners. Seifart classifies these nouns as collective or mass based on their denotational properties. These nouns differ from each other with respect to one crucial factor, namely the number agreement they take. What is important for our purposes here is that these nouns go through the same singularization process, as shown in (51) and (52).

- (51) a. per
 ‘pears’

 b. per-enn
 ‘a pear’

- (52) a. ed
 ‘wheat’

 b. ed-enn
 ‘a grain of wheat’

As is clear from the examples above, both collective nouns and mass nouns co-occur with the same singulative marker -enn in Breton. The NP in (49b) refers to a single entity and the one in (52b) refers to one unit or instance of an entity. Note also that these nouns appear with the same plural marker as singular object nouns do. This is exemplified shown in (53).

- (53) a. per-enn-òù
 ‘some pears’
- b. ed-enn-òù
 ‘some grains of wheat’

The examples in (53) illustrate that singulative-marked nouns take plural marking when they refer to plural entities. Moreover, mass nouns combine directly with the plural marker, leading to a shift in meaning in the sense that the resulting NP refers to a type of the entity in question. Consider (54).

- (54) a. douri
 ‘water’
- b. douri-òù
 ‘types of water’

Note also that Hayward (1984:161-162) reports a similar phenomenon in Arbore, a Cushitic language closely related to Oromo. Arbore has what was classified as set nouns in that the basic form of nouns does not indicate number in the language, as shown in (55a). The singulative marker *-in* is used whenever reference is made to a single entity. This is illustrated in (55b).

- (55) a. tiísi
 ‘maize cob(s)’
- b. tiisi-*in*
 ‘a maize cob’

In addition to that, there are nouns in Arbore that generally denote masses, as shown in (56a). Whenever reference is made to one unit of a mass entity, the same marker is used in the language. This is shown in (56b).

- (56) a. só?
 ‘meat’
- b. soʔo-*n*
 ‘a piece of meat’

This shows that there is sufficient evidence that the same grammatical markers are used for singularization and unitization purposes across languages. Therefore, it is not surprising nor is it unexpected to see the same markers used for this purpose in Turkish. It is in fact totally reasonable to assume that this should be the case given that nominal reference and number marking in Turkish are significantly different from their counterparts in English and Chinese. On the one hand, Turkish nouns do not exhibit a strictly grammatical count-mass distinction, unlike their English counterparts. There are no singular object nouns that are obligatorily marked for either singular or plural in the language. Recall that set nouns do not have to be specified for number as they can appear in their bare form. This is true for mass nouns as well. On the other hand, there are no grammaticalized sortal and mensural classifiers that would otherwise differentiate between count and mass reference. Thus the conclusion here is that the same grammatical elements (i.e. the indefinite maker and the plural marker) are used for singularization and unitization in Turkish in the absence of classifiers in languages like Chinese and in the absence of a count-mass distinction as in languages like English.

3.3 Conclusion

In this chapter I investigated the properties of nouns and noun phrases in Turkish. Based on semantic and morpho-syntactic criteria, I showed that nouns exhibit the defining characteristics of nouns known as *set nouns* and categorized them as such. More specifically, these nouns are lexically specified for the features [+Shape] and [±Homogeneity]. In addition, I argued that the latter feature can be directly translated into the feature [±Singular] in order to illustrate the number-neutrality of set nouns in the language. I also showed that the so-called number markers, namely the indefinite determiner and the plural marker are in fact nominal aspect markers, specifying the referent as a single entity (a singleton set) and multiple entities (a collective set)

respectively. Moreover, I demonstrated that there are certain distinctions between nouns that should be analyzed according to the count-mass distinction. The evidence for that comes from the fact that NPs headed by set and mass nouns exhibit different referential properties. More specifically, NPs containing a set noun and the singulative aspect marker refer to a single entity with a well-defined outline whereas NPs containing a mass noun and the same marker refers to a particular unit of an entity that does not generally have a discrete shape. Therefore, the combination of these nouns with nominal aspect markers illustrates that there are in fact two different processes, namely singularization and unitization. In order to capture the differences between set nouns and mass nouns I argued that mass nouns are specified for the lexical features [-Shape] and [+Homogeneity]. In the next chapter, I investigate number discord, a phenomenon seen only in languages with set nouns, between plural subjects and verbal elements with an aim to provide further evidence for the proposal that nouns should be classified as set nouns in Turkish.

Chapter 4

Number (Non)-Agreement and Noun Semantics in Turkish

Do we have an accord?

- Captain Jack Sparrow. *The Pirates of the Caribbean*.

The main objective of this chapter is to further investigate the characteristics of nominals in Turkish by analyzing their interaction with other elements in sentences with respect to number (non)-agreement. This is important since it will make it possible to provide more evidence that should explicate the true nature of nouns in the language. To put it differently, if nouns are to be classified as set nouns in Turkish, as claimed in the preceding chapter, the prediction then is that they should exhibit certain properties that are generally observed with set nouns. In order to do that, I will be considering the relationship between NPs headed by set nouns and verbs with respect to number in various languages. This relationship is particularly interesting because typological studies have shown that the phenomenon known as ‘number discord’ or ‘number non-agreement’ has been observed with NPs headed by set nouns.³⁷ In languages where

³⁷ The terms ‘discord’ and ‘non-agreement’ are used interchangeably in this study. However, some researchers do make a distinction between the two terms and their positive counterparts, namely ‘agreement’ and ‘concord’. See Corbett (2006:5) and references cited therein.

number discord is at work verbs may agree or disagree with subject NPs in terms of number. The presence or absence of the overt agreement marker on the verb gives rise to certain semantic differences in the way subject NPs are interpreted. These facts make number discord to be a good diagnostic to test what noun sub-category one is dealing with. If the analysis proposed up to this point is on the right track, then the prediction is that nouns, at least a certain sub-type, should exhibit similar properties with respect to number (non)-agreement in Turkish. In fact, a closer look at Turkish indicates that this is actually the case since the interpretation of subject NPs does change depending on whether verbal elements overtly carry agreement marking. These facts lead to the conclusion that the behavior of nouns in Turkish is very similar to, if not the same as, that of set nouns. In the following sections, I provide a broad overview of number agreement and its lack thereof in different languages. I will then turn to Turkish and investigate number (non)-agreement.

4.1 Number Agreement in Languages

Agreement is often defined as a linguistic phenomenon in which particular features of a constituent (i.e. the controller) determine the morpho-syntactic shape of another constituent (i.e. the target) in a given structure (i.e. the domain) (cf. Corbett 2006, Ackema et al. 2006 and Baker 2008). The agreement relationship between two elements is generally syntactic in nature. However, it may also be semantic, pragmatic, morphological or lexical. From a cross-linguistic point of view, agreement between the subject NP and the finite verb in a sentence is probably one of the best-known instances of the phenomenon. Basically, a verbal element may agree with a NP in terms of certain features such as number, person and gender. It is often noted that this relationship is asymmetric in that it is always the target whose agreement properties are determined by the controller. That is to say, it is never the case that a verbal element will decide what type of agreement features a NP should have. Cross-linguistic studies have shown that there are quite a number of languages in which constituents exhibit this type of agreement. However, it should be noted that other types of number agreement are also found in languages. For instance, it is possible to find different patterns such as number agreement between singular or plural marked nouns and pronouns. It is also common to find number agreement between nouns and certain modifying elements such as

adjectives and determiners in sentences (cf. Moravcsik 1978, 1988 and Corbett 2006). Consider the examples in (1), (2) and (3) that show certain number agreement patterns in English and Russian.

- (1) a. I saw *the boy* and told *him* the truth.
b. I saw *the boys* and told *them* the truth.

- (2) a. *John* swims every day.
b. *John and Mary* swim every day.

- (3) *Lamp-a* *stoja-l-a* v ugl-u. (Russian, Corbett 2006:2)
lamp(F)-SG stand-PAST-F.SG in corner-SG.LOC
'The lamp was standing in the corner.'

In (1a) the object NP 'the boy' is singular and it refers to a single individual. The pronoun 'him' on the other side of the conjunct is co-referential with that NP. The pronoun agrees with the NP in number. Note also that there is also person and gender agreement between the two elements. In contrast to that, the object NP 'the boys' in (1b) carries plural marking and reference is made to plural individuals in this case. The co-referential pronoun 'them' is inherently plural and agrees with the NP in terms of number. On the other hand, the example in (2) exhibits a different agreement relationship between the subject NP and the verb in the sentence. The verb 'swims' in (2a) agrees with the subject NP 'John' by way of the agreement marker on the verb, indicating that the referent of the subject NP is third person singular. In addition to that there is another piece of information encoded in the verbal affix, showing that the sentence is in present tense. This is different from the example in (2b) in which the verb does not carry overt agreement since the subject NP is plural. In other words, the absence of the overt agreement marker on the verb indicates that the referent of the subject NP is other than third person singular. Lastly, the Russian example in (3) is somewhat different from the previous ones as it illustrates gender as well as number agreement between the verb 'stoja' *stand* and the subject NP 'lampa' *the lamp* which is lexically feminine. The agreement between the NP and the verb is indicated by the gender and number suffix on the latter.

However, it appears that agreement relations between elements are not always as simple and straightforward as the cases shown above. In fact, it is well-known that agreement patterns are often more complicated than they seem. For instance, Moravcsik (1978/1988) notes that it is not the case that targets are always in the singular when they agree with a singular controller. Similarly, it is not always true that targets need to be in the plural in cases in which they are in agreement with a plural controller. What this means is that one should expect to find cases where an agreeing constituent may be marked for plurality even though the element that it is agreeing with is not, and vice versa. It has been noted that after conjoined singular nouns verbal elements may be either in the singular or plural form in Hungarian (cf. Moravcsik 1978) and Coptic (cf. Till 1961). Moreover, in some languages verbs may be in the singular or plural form after numerated nouns (i.e. nouns modified by numerals). For instance, one of these languages is Amharic in which it is possible to have singular or plural verb forms after numerated nouns depending on whether plural marking is present on the head noun. This language is particularly interesting since it is also possible to have singular or plural form of nouns after numerals. Consider the sentences in (4), taken from Obolensky et al. (1964:311)

- (4) a. Sost məSihaf allə-ñ.
 three book have-1SG
 'I have three books.'
- b. Sost məSihaf-occ allu-ñ.
 three book-PL have-1SG
 'I have three books.'

Obolensky et al. (1964) note that the noun 'məSihaf' *book* in (4) is singular even though the whole NP refers to multiple entities. Moreover, the verb 'allə' *have* is also in the singular form, indicating that a singular thing is possessed. On the other hand, it is also possible to have the plural marker -(w)oc(c) on the head noun. In this case, the plural form of the possessive verb 'allu' needs to be used. The plural form of the verb illustrates that more than one thing is possessed.

The fact that agreement between a nominal and a verbal element does not always hold in every domain has certain implications for nominal typology, more specifically nominal semantics. For instance, Rijkhoff (2002ab, 2008) analyzes cases of number discord in different languages and comes up with conclusions that are quite relevant to issues regarding semantics of nouns. As briefly noted above, Rijkhoff argues that number discord between verbs and nouns has been observed with a certain nouns subcategory. More specifically, number discord takes place when the head of the NP is a set noun. This claim is worth investigating in order to better understand the behavior of nouns in Turkish. To put it differently, the prediction is that if nouns are to be classified as set nouns in Turkish, one should expect to find instances of number discord between constituents. In the next section, I will first consider the issue of number discord in some detail and discuss its implications for nominal semantics and nominal classification in various languages. I will then turn to number discord in Turkish.

4.2 Number Discord

The aim of this section is twofold. It is primarily concerned with number discord and how it manifests itself in various languages. Another closely related issue is how number discord correlates with the lexical semantic features of nouns and nominal classification. As mentioned earlier, number discord occurs between verbs and subject NPs in sentences. It was also pointed out that there are other instances of number non-agreement between constituents in a particular domain. For instance, it may surface between NPs and modifiers such as determiners and adjectives. Corbett (2006:144) provides the examples in (5) from Russian to illustrate this point.

5. a. U ee by-l-o pjat' nov-yx pal'to.
 at 3SG.F.GEN be-PAST-N.SG five new-PL-GEN coat
 'She had five new coats.'
- b. U ee by-l-o pjat' nov-yx pojas-ov.
 at 3SG.F.GEN be-PAST-N.SG five new-PL-GEN belt-PL.GEN
 'She had five new belts.'

Note that there are quite a number of nouns that inflect for number and case in Russian. However, there exist a set of nouns that do not inflect for these two features. The example in (5a) shows that there is no overt agreement between the head of the object NP 'pal'to' *coat* and the adjective 'novyx' *new*. In other words, the controller does not overtly have the number agreement that the target has. However, this does not affect agreement as the adjective still agrees with the NP in number. On the other hand, the head of the object NP 'pojasov' *belt* in (5b) has the overt plural marker. The modifying adjective 'novyx' *new* agrees with the head noun in number. These examples clearly show there does not necessarily have to be a one-to-one correspondence between controllers and targets in terms of number.

In fact, when number discord is investigated more closely, it is observed that the issue is even more interesting and has broader implications. The reason why this is the case is that the lexical semantic features [\pm Shape] and [\pm Singular] that were used to distinguish between different noun sub-types in languages also correlate with number discord. More specifically, Rijkhoff (1993, 2002ab, 2008) argues that one of the distinctions between set nouns in languages like Oromo, Georgian and Lango on the one hand, and singular count nouns in languages such as English, Dutch and West Greenlandic on the other, is that the systematic number discord between verbs and subject NPs is observed with set nouns. The examples below illustrate number discord in different languages.³⁸

³⁸ However, note that collective nouns in British and New Zealand English also show similar properties in the sense that they may trigger both singular number agreement in which case the referents are viewed as a group or one entity or, plural number agreement where the referents are regarded as individuals. The examples below illustrate this point.

- (i). The team is going to Toronto.
- (ii). The team have the flu.

In (i) the referent of the subject NP is viewed as one entity, the team as a whole and in (ii) the same NP is viewed as referring to individual team members. See Quirk et al. (1985), Sauerland and Elbourne (2002), Koptjevskaja-Tamm (2004) and Bock et al. (2006) for descriptive, theoretical and psycholinguistic accounts of collective nouns in English.

Oromo (Stroemer 1987:107, 206)

- (6) a. *gala lamaani sooloo d'ak'-e.*
camel two market go-3SG.M.PAST
'Two camels went to the market.'
- b. *nama lamma-a-ti mana jaar-a.*
man two-LIN-SEP house build-3SG.PRES
'Two persons build the house.'

Georgian (Harris 1981:22)

- (7) a. *sami knuti goravs.*
three kitten it-rolls
'Three kittens are rolling.'
- b. *ramdeni knuti goravs?*
how many kitten it-rolls
'How many kittens are rolling?'

Lango (Noonan 1992:168)

- (8) *gúlú àdêk òtòò.*
pot three 3SG.die.PERF
'Three pots broke.'

The data in (6a) from the Orma dialect of Oromo shows that the subject NP 'gala lamaani' *two camels* triggers singular number agreement on the verb even though reference is made to plural entities. Note also that the head noun 'gala' *camel* is a set noun and it does not take plural marking in the context of a numeral greater than one. The data in (6b) is from the Boraana dialect of Oromo which is closely related to Orma. Similarly, the head noun 'nama' *man* is modified by a numeral and it does not take plural marking. The verb has singular number agreement despite the fact that NPs are

referring to pluralities.³⁹ The same is also true for the examples in (7ab) and (8) from Georgian and Lango respectively where only singular agreement is observed on the verbs. The question that arises at this point is why is it the case that singular agreement marking is possible in cases in which subject NPs denote pluralities? Rijkhoff (1993, 2002ab, 2008) proposes that number discord between verbs and subject NPs is accounted for straightforwardly if we assume that verbs may agree with the set in which case they carry singular number agreement. Rijkhoff goes on to say that it is also possible for the verb to agree with the individual(s) in the set in which case it may have either singular or plural agreement. The data above illustrate that agreement is with the set which is a singular entity regardless of the number of individuals it may have. Recall that set nouns denote spatially bounded properties since they are specified for the feature [+Shape]. However, they are neutral in terms of the feature Homogeneity (i.e. [\pm Homogeneity]) which could also be represented by the feature [\pm Singular]. Rijkhoff (2008) concludes that we can only make sense of number discord if we consider the fact that different languages use different noun sub-types to refer to concrete objects in the physical world.

The analysis of Rijkhoff's is important for various reasons. It makes a good contribution to a better understanding of the characteristics of noun categories. In other words, it provides significant linguistic motivations as to how nouns should be classified and distinguished from one another in a systematic manner. However, the data he provides is somewhat limited to cases in which plural NPs trigger only singular agreement on the verb. Therefore, there is not enough evidence as to what would actually happen when there is plural agreement on the verb. This is important since it will shed light on how similar or different NPs would be like in the presence or absence of plural agreement. Therefore, it is necessary to come up with relevant data that should exemplify cases of number agreement as well as number discord. Furthermore, it is still

³⁹ Note that the suffix *-aa-ti* attached to the numeral in (6b) is a combination of two suffixes. The first one is the linker clitic *-aa* and the second is the separating element *-(t)ti*. Stroomer (1987:204) argues that when these two elements combine, they indicate the scope of the action of the verb. It may emphasize the noun phrase it is attached to or it may indicate a location where the action of the verb takes place. In (6b), however, it is used for emphasis purposes, highlighting the NP it is associated with.

not very clear what is exactly meant by a verb agreeing with a set or individuals in a set. One of the predictions is that we should expect to find distinctions with respect to the interpretation of NPs in question. This would be helpful to find out the semantic motivations of number agreement and its lack thereof.

The question that arises at this point is whether number discord is at work. More importantly, if it is the case, what would be the semantic and perhaps pragmatic motivation to have number discord in Turkish? To put it more differently, what would the consequences be when number discord did not apply to a particular domain? Before we start answering these questions, it is perhaps better to consider a language in which we observe number discord. One of these languages is Standard Western Armenian (SWA, henceforth) which has been extensively investigated by Sigler (1992, 1997), Bale (2010) and Bale et al. (2011) among others. SWA is particularly interesting to investigate for a number of reasons. It appears that the SWA facts would be insightful for gaining a better perspective of the phenomenon. Sigler works on number (non)-agreement in SWA and comes up with an account in order to explicate the syntactic and semantic consequences of number discord in the language. However, it should also be noted that according to Bale et al. (2011) the distribution of numerals is slightly different in Armenian in that nouns may optionally take plural marking when modified by numerals. As pointed out by Sigler (1997:144-154), in those cases in which NPs refer to specific entities, they may optionally take overt plural marking. These facts strongly suggest that it is not completely unreasonable to expect to find similar characteristics in terms of number discord in Turkish. Nevertheless, the data and analysis make it possible to compare between instances in which verbs carry plural agreement marking and instances where verbs do not carry plural agreement. Another point here is that it has been noted that nouns in SWA share important characteristics with their Turkish counterparts with respect to nominal semantics and number marking. For instance, it is well-attested that when a noun is modified by a numeral inside a noun phrase, the head noun does not need to take plural marking in the language (cf. Sigler 1992:500). This behavior of nouns in SWA is identical to that of nouns in Turkish. Another point related to the previous one is that bare nouns are semantically number-neutral and the way plural nouns are interpreted is the same in both languages (cf. Bale et al. 2011). Therefore, the facts about number (non)-agreement in SWA will give us insight into what is going on in Turkish. Now consider the sentences in (9) and (10), taken from Sigler (1992:500-501).

- (9) a. *Ksan usanoy knuten-e mə caxoyeca-v.*
 twenty student.SG exam-ABL a fail.AOR-3SG
 ‘Twenty students failed the exam.’
- b. *Ksan usanoy knuten-e mə caxoyeca-n.*
 twenty student.SG exam-ABL a fail.AOR-3PL
 ‘Twenty students failed the exam.’
- (10) a. *Pem-i-n vray-e-n dasə yerkoj cadkadz e.*
 stage-GEN-the on-ABL-the ten singer jump-PAST.PART be.3SG
 ‘Ten singers jumped off the stage.’
- b. *Pem-i-n vray-e-n dasə yerkoj cadkadz en.*
 stage-GEN-the on-ABL-the ten singer jump-PAST.PART be.3PL
 ‘Ten singers jumped off the stage.’

Sigler argues that the subject NP ‘*ksan usanoy*’ *twenty students* in (7a) is morphologically singular, meaning that the head of the NP does not carry plural marking. This is interesting since the NP is actually ‘covertly plural’ in the sense that reference is made to plural entities. Note that the verb has singular agreement in (9a). On the other hand, the verb in (9b) looks different since it has plural agreement in this case. Note also that the subject NPs are identical in both examples. The same is also true for sentences in (10a) and (10b) where there is singular agreement on the verb in the former and plural agreement in the latter. Sigler observes that the difference between sentences with and without plural agreement marking is that the way they are interpreted is different from each other. When there is singular agreement on the verb, subject NPs have a reading in which they are interpreted as collective, referring to a group. On the other hand, when the verb carries plural agreement, the subject NP may have both collective and distributed reading. More importantly, the presence of the plural agreement has an effect on the specificity of the subject NP in question. What this means is that the subject of a non-agreeing sentence is interpreted as discourse new in the sense that it should not have previously been introduced in the context. So the sentences in (9a) and (10a) are basically about an event in which there were twenty students who failed the exam. The

sentences (9b) and (10b), on the other hand, are different since they are about twenty students and their failure of the exam. Therefore, the conclusion here is that the presence of plural agreement in SWA has an important effect on the semantic interpretation of subject NPs.

The SWA clearly show what kind of distinction the presence or absence of plural agreement on the verb may indicate in a sentence. The question that arises here is whether there is a similar phenomenon at work in Turkish. Recall that nouns exhibit certain morpho-syntactic and semantic properties that correlate with the behavior of set nouns in other languages. The prediction is that one should also be able to see number discord in Turkish. In the following section, I will investigate the issues regarding number discord in Turkish. The analysis will lead to the conclusion that number discord is an important part of the category of number with significant consequences in terms of nominal interpretation in the language.

4.3 Verbal Number Marking in Turkish

4.3.1 Verbal Number and Agreement

This section is mainly concerned with the agreement relationship between verbs and subject NPs in sentences. One thing to know about number agreement in Turkish is that whenever a verb agrees with another constituent in terms of number and person, it is always the subject NP of the same construction. This means that verbs will never agree with NPs that are functioning as direct or indirect objects. In addition, it is often noted that agreement is always controlled by the subject NP of a sentence as it is always the verb that agrees with the subject NP in number/person. This is consistent with the cross-linguistic generalization that verbs act as targets and they never function as controllers. As discussed earlier, the plural marker is the bound morpheme ‘-IAr’ in Turkish. In addition to its primary function, it may also be attached to verbs in which case it indicates that the subject NP is in the third person plural. Moreover, it may also appear in possessive constructions as a possessive suffix. This shows that the plural marker may assume different tasks in the language. However, we are mainly interested in its function as a number marker on the verb in this chapter.

Schroeder (1999:116) makes a sharp distinction between the two types of the verbal use of the plural marker. On the one hand, the verbal plural is obligatory used in a structure where the plural subject NP is represented by zero anaphora. Zero anaphora is possible in Turkish if the subject NP is already given in the sense that it has previously been introduced in the discourse context. The verbal plural is an index for the syntactic plurality of the subject NP in these cases. That is to say, the plural is a pure number marker, as exemplified in (11).

(11) A: Adam-lar nere-de?
man-PL where-LOC
'Where are the men?'

B: a. Adam-lar çık-tı.
man-PL exit-PAST
'The men left.'

b. Çık-tı-lar.
exit-PAST-3PL
'(The men) left.'

As is clear from the examples above, there are two different ways of answering the question in (11). In the first answer, the subject NP is present in the sentence and the verb does not carry plural agreement. In contrast, there is no overt subject NP in the second answer. The presence of the number agreement on the verb is necessary in this case indicating that the covert subject NP is denoting more than one individual.

In addition to its use discussed above, the verbal plural may also be used in a structure with a plural subject NP. Schroeder entertains the idea that the use of the verbal plural is primarily motivated by semantic and pragmatic reasons in this case. This is exemplified in (12).

(12) a. *Adam-lar* hırsız-ı yakala-dı-lar.
man-PL thief-ACC catch-PAST-PL
'The men caught the thief.'

- b. *İki adam çocuğ-u kaçır-dı-lar.*
two man child-ACC abduct-PAST-PL
'Two men abducted the kid.'

In (12) both verbs carry verbal number and they agree with the plural subject NPs.⁴⁰ Schroeder argues that the motivation for the presence of the plural marker is based on mainly semantic and pragmatic reasons. More specifically, the presence of the plural agreement marker on the verb will have an influence on the semantic interpretation of the subject NP in a way that the absence of the same marker will not in the language.

In this study the main focus is on the second use of the plural marking in the verbal domain. One of the reasons is that number agreement and non-agreement on the verb is a phenomenon which has significant implications for the semantic properties of nouns in Turkish. The next section discusses number non-agreement in the language.

4.3.2 Number Agreement and Number Discord

Turkish is one of those languages in which subject-verb agreement may show certain differences. More specifically, verbs may have singular number agreement or plural number agreement when subject NPs are in the third person plural. Interestingly, this property of nouns is identical to that of nouns which are classified as set nouns across languages. This indicates that nouns in Turkish and set nouns in other languages share more properties than just being number-neutral. However, it should be noted at this point that the possibility that verbs may carry singular or plural agreement marking is only restricted to cases where the referents of subject NPs are humans or humanized entities in a metaphorical way (cf. Dizdaroğlu 1976, Gencan 1979). In other words, the referents must refer to human beings, or other animate or inanimate entities that are figuratively provided with human characteristics. This is in fact consistent with the typological generalization that whenever animacy is a determining factor for number agreement, higher animacy always favors agreement with a greater degree of semantic justification

⁴⁰ Note that instances in which verbs do not have plural number agreement would also be grammatical. The reason why there are two possible ways of verbal marking has been subject to serious investigation and will be discussed at length in the subsequent sections.

(Corbett, 2006:185). What this means is that one should expect to observe similar determining factors in other languages as well. For instance, it has been noted that animate denoting conjoined noun phrases are more likely to take plural agreement than are inanimates in Russian. Agreement with conjoined noun phrases in German also illustrates interesting agreement patterns. In addition to the similar agreement features seen in Russian, conjoined noun phrases referring to concrete inanimates in German are more likely to take semantic agreement than those referring to abstract inanimates (Findrenge 1976:145, 165-166). On the other hand, other languages such as Inari Sami (Toivonen, 2003, 2007) and Cairene Arabic (Belnap, 1999) exhibit patterns that make it necessary to split the notion of animacy into two parts so that ‘human’ and ‘other animates’ stand as separate conditions. These conditions are usually represented as ‘chains’ in the Animacy Hierarchy. Corbett (2006:185) provides the one in (13) in order to account for the agreement conditions in different languages.

(13) human > other animate > concrete inanimate > abstract inanimate

The Animacy Hierarchy above shows that the higher the referent of an NP is in the hierarchy, the greater the likelihood of semantic agreement is in a language. That is why conjoined noun phrases denoting concrete inanimates are more likely to have semantic agreement in German. Another interesting agreement pattern is observed in Inari Saami. Toivonen (2007:227-231) notes that full verbal agreement, as opposed to partial verbal agreement, takes place when the referent of the subject NP is human and specific in Inari Saami. However, it is sometimes possible to have partial verbal agreement when the subject is human. This is only possible with existential and possessive constructions that “provide frames where non-specific readings are likely”. NPs that denote animals are compatible with full and partial agreement. They trigger full agreement especially if they are regarded as personified. Other NPs trigger only partial agreement. Toivonen goes on to say that the agreement trigger is always the subject NP in Inari Saami and not any other constituent as posited elsewhere.⁴¹

⁴¹ Note that just like their counterparts in Turkish nouns do not take plural marking when they are quantified by numerals in Inari Saami. However, there is a three-way number system in Saami, namely singular, dual and plural.

Note also that the Animacy Hierarchy in (13) is not the ultimate hierarchy that one could come up with. It is also possible to extend the chain in order to accommodate other possible conditions in different languages. For instance, recent studies indicate that it is necessary to break the ‘human’ condition into first, second and third person in order to account for various agreement patterns in certain languages. The question that arises at this point is how do Turkish facts fit into the generalizations made up to this point? In other words, how does number agreement or non-agreement manifest itself in the language? Let us consider the examples in (14) and (15) in order to answer these questions.

- (14) a. *Üç adam bura-ya gel-di.*
three man here-DAT come-PAST
‘Three men came here.’
- b. *Üç adam buraya gel-di-ler.*
three man here-DAT come-PAST-PL
‘Three men came here.’
- (15) a. *Beş öğrenci sınıf-ı geç-ti.*
five student class-ACC pass-PAST
‘Five students passed the class.’
- b. *Beş öğrenci sınıf-ı geç-ti-ler.*
five student class-ACC pass-PAST-PL
‘Five students passed the class.’

The sentences in (14a) and (15a) indicate that it is possible for the verb to not carry plural number agreement even though the subject NP denotes more than one entity. In fact, in these cases the verbal agreement pattern is identical with those in which verbs

display agreement with singular subject NPs.⁴² In contrast to that, the sentences in (14b) and (15b) indicate that it is also possible for the verb to have plural number agreement when the subject NP is plural. Note also that it is not the case that the difference between the sentences above is only syntactic and number agreement should be considered to be optional in the language. There is also a semantic difference between the subject NPs in that their interpretation is considerably different from each other.⁴³ Let us have a look at instances where there is a non-human subject NP in the sentence and whether it triggers number agreement or not.

Unlike what we have seen in the examples above, when the referents of the subject NP are non-human, the presence of the plural agreement marker on the verb leads to ungrammaticality regardless of whether the referent is animate or inanimate. Consider the examples below.

⁴² When a verb agrees with an NP in the third person singular, it is not marked with any agreement marker as in (i). In contrast, verbs carry overt agreement marker when the subject is in first or second person singular form. This is shown in (ii) and (iii) respectively.

(i) Bir adam / O bura-ya gel-di- \emptyset .
 one man / (s)he here-DAT come-PAST
 ‘A man/(s)he came here.’

(ii) Ben bura-ya gel-di-m.
 I here-DAT come-PAST-1SG
 ‘I came here.’

(iii) Sen bura-ya gel-di-n.
 You here-DAT come-PAST-2SG
 ‘You came here.’

⁴³ Note that it is also possible to have plural verb agreement with verbs like ‘toplanmak’ *to gather* in a sentence like ‘On öğrenci okulun bahçesinde toplandılar’ *Five students gathered in the school garden*. The fact that the plural marker can be attached to this type of verbs indicates that the *distinctness* described here is not the sema as *distributiveness* in the formal semantic tradition.

(16) a. *Dört kedi tas-tan süt iç-ti.*
four cat bowl-ABL milk drink-PAST
'Four cats drank milk from the bowl.'

b. **Dört kedi tas-tan süt iç-ti-ler.*
four cat bowl-ABL milk drink-PAST-PL
'Four cats drank milk from the bowl.'

(17) a. *İki kitap masa-nın üzeri-nde dur-uyor.*
two book table-GEN top-LOC stand-PROG
'Two books are on the table.'

b. **İki kitap masa-nın üzeri-nde dur-uyor-lar.*
two book table-GEN top-LOC stand-PROG-PL
'Two books are on the table.'

The difference in the grammaticality of the sentences in (16a) and (17a) on the one hand and those in (16b) and (17b) clearly indicates that subject NPs need to denote human entities in order for the verb to carry plural agreement marking.⁴⁴ Note also that when non-human entities such as animals are given human qualities (i.e. personified), they may also trigger plural agreement, as exemplified in (18).

(18) *Sokak orta-sı-nda iki kedi kıyamet-i kopar-ıyor-lar.*
street middle-POSS-LOC two cat doomsday-ACC break-PROG-PL
'On the street, two cats are raising hell.'

The grammaticality of the sentence in (18) shows that entities other than humans may also trigger number agreement so long as they pattern with humans through

⁴⁴ There is another mechanism used when reference is made to distinct non-human entities regardless of whether they are animate or inanimate. The use of the so-called classifier 'tane' *item* makes it possible to refer to distinct non-human entities. Note also that 'tane' is compatible with human entities as well.

metaphorical means. The question that needs to be addressed is what triggers verbal number agreement in the language?

The phenomenon of number discord in Turkish has been researched at some length. There are a number of descriptive analyses of Turkish grammar dealing with number agreement and number discord. The major consensus among these studies is that when there is no plural number agreement on the verb, the subject NP has a reading in which it is interpreted as *collective*. In other words, the referents of the NP are considered to be a collection of non-distinct individuals. In contrast to that, when the verb has the plural number marking, the quantity referred to by the subject NP should be interpreted as a group of *distinct* entities (cf. Dizdaroğlu 1976, Sezer 1978 and Gencan 1979). Among the others, Dizdaroğlu (1976:73) notes that if the referents of the subject NPs are not considered to be distinct entities but as a whole or collective, then the verb is always in the singular. On the other hand, if the referents of the plural subject NPs are regarded as distinct from each other or are somehow presented as such, then the verb is always in the plural. Therefore, the presence or the absence of the plural agreement marking has an important effect on the interpretation of subject NPs. However, it should be noted that there are a number of restrictions to the applicability of number agreement in Turkish. For instance, Sezer (1978) points out the fact that the humanness of the referent is a obligatory for number agreement. He also notes that the thematic role subject NPs are assigned must be the 'agent' in the sense that it must be the doer of the action if subject NPs denote non-human entities. Therefore, the conclusion here is that not every subject can trigger verbal number agreement in Turkish.

More recently, Schroeder (1999:115-129) investigates number discord in Turkish and puts certain claims regarding verbal number agreement to the test. He analyzes parameters such as *agentivity*, *humanness* and *distinctness* one by one in order to account for the true nature of subject-verb agreement and non-agreement. Note that these three parameters are familiar from earlier studies. However, he also includes another parameter which he calls *topicality*. This parameter suggests that in a sentence which shows subject-verb agreement a discourse topic is established which coincides with the subject. This means that subject NPs that trigger number agreement are generally the topics of their respective sentence and the immediate discourse. His

examples include plural subject NPs which have been already introduced in the previous context. Consider the example below, taken from Schroeder (1999:121).

- (19) Para-mız var-ken.. o kadar çok insan çevre-miz-de
 money-POSS.1PL exist-CONV that many person surround-POSS.1PL-LOC
 fır dön-üyor-du ki... İnsan-lar sabah kahvaltısı-nın hangi
 whirl turn-PROG-PAST PART people morning breakfast-POSS-GEN which
 saat-te ol-duğ-un-u çok iyi bil-iyor-lar-dı.
 time-LOC be-OP-POSS.3SG-ACC very good know-PROG-PL-PAST
 ‘As long as we had money there were so many people whirling around us... With
 the rhythm of our house the people knew very well what time breakfast was at.’

The sentence in (19) shows that the subject NP ‘İnsanlar’ *the people* is established as the discourse topic, thus we find agreement. Schroeder goes on to say that we never find agreement in (i) sentences which have no topic at all, (ii) sentences which have no activated topic, (iii) sentences in which topic and subject do not coincide and (iv) sentences where the subject is the unactivated topic but not coincident with the discourse topic. That is why we never find agreement with existential sentences or with constructions whose main function is to introduce new referents into the discourse. Nevertheless, he concludes his analysis by arguing that the distinctness parameter is the strongest one among the others, overriding the topicality parameter. This is illustrated in (20), taken from Schroeder (1999:127).

- (20) Ben-i dinleyici-ler-im Selahattin Pınar-cı ol-arak tanı-r-lar.
 I-ACC listener-PL.1SG interpreter of S.P. be-CONV know-AOR-PL
 ‘My listeners know me as an interpreter (follower) of Selahattin Pınar.’
 (Selahattin Pınar is a famous Turkish composer.)

In (20) the topic is the first person singular and not coincident with the subject. However, the subject NP ‘dinleyicilerim’ *my listeners* triggers verbal number agreement, which indicates that distinctness outranks topicality in the language.

Furthermore, Schroeder argues that the distinctness parameter is strong enough to override “the syntactical rule in Turkish that the verb should not bear a plural marker as long as the subject does not bear a plural marker” (1999:127).^{45,46} This is exemplified in (21).

- (21) Aile-miz-de *iki abi-m* Batı müziğ-i
 family-POSS.1PL-LOC two brother-POSS Western music-POSS
- eğitim-in-i gör-dü-ler.
 education-POSS-ACC see-PAST-PL
- ‘In our family, my two elder brothers were educated in Western music.’

The sentence in (21) is comparable to those in which the verb carries plural number agreement. That is to say, the subject NP ‘iki abim’ *my two elder brothers* is intended to be interpreted or understood as two distinct individuals and not as a collective.

The discussion above has shown that *distinctness* is a strong semantic parameter that is the primary element to trigger subject-verb agreement in Turkish. However, a closer look at the differences in the interpretation of subject NPs with and without verbal number agreement suggests that *distinctness* is generally in tandem with the parameter of *topicality*. In order to have a better understanding of the affinity between them we should consider cases in which verbal number agreement does not occur. For instance, in cases where the verb does not carry number agreement, it is the entire sentence that is the focus of the sentence. In other words, the subject NP is not the topic in the sentence. This is shown by the question-answer pair below.

⁴⁵ Note that Schroeder does not specify what the motivation of the ‘syntactical rule’ is in Turkish, nor does he cite any previous work. Earlier in his analysis, he notes that verbal number agreement is generally regarded as optional from a syntactic point of view but it is in fact semantically and pragmatically motivated (1999:115).

⁴⁶ Interestingly, Göksel and Kerslake (2009:150) argue that when the subject contains a numeral modifier like ‘iki kişi’ *two people*, the predicate obligatorily takes singular agreement. This contrast with their earlier views (2005:129) that a subject NP with a numeral modifier such as ‘iki kızkardeş’ *two sisters* in a sentence with a plural-marked verb is possible in Turkish.

(22) A: Ne ol-du? Neden ağlı-yor-sun?
what happen-PAST why cry-PROG-2SG
'What happened here? Why are you crying?'

B: Üç hırsız bütün para-m-ı çal-dı.
three thief all money-1SG-ACC steal-PAST
'Three thieves stole all my money.'

In the answer above, B is describing an event in which three thieves stole their money. In other words, the assertion is that there is a stealing event that occurred and it happened to have been committed by three men. In this respect the subject NP does not get any kind of focus and that is why the referents are not interpreted as distinct or particular individuals. This idea is reinforced by the incompatibility of the verbal number agreement with existential structures, as in (23) and (24) below.

(23) a. Bahçe-de beş kız var.
garden-LOC five girl exist
'There are five girls in the garden.'

b. *Bahçe-de beş kız var-lar.
garden-LOC five girl exist-PL
'There are five girls in the garden.'

(24) a. Ben-im iki abla-m var.
I-GEN two elder sister-1SG exist
'I have two elder sisters.'

b. *Ben-im iki abla-m var-lar.
I-GEN two elder sister-1SG exist-PL
'I have two elder sisters.'

The grammaticality of the sentences (23a) and (24a) as opposed to the ungrammaticality of those in (23b) and (24b) indicates that number agreement is banned from both possessive and locative existential structures that generally introduce new discourse elements.

In contrast to that the presence of the verbal number agreement has certain implications in the sense that the *aboutness* of the whole sentence will shift to the subject NP in question, as illustrated in (25).

- (25) *Üç hırsız bütün para-m-ı çal-dı-lar.*
three thief all money-1SG-ACC steal-PAST-PL
'Three thieves stole all my money.'

The difference between the sentences in (22) and (25) is that the former is about three thieves rather than the stealing event itself, which is what the former indicates. In other words, the subject NP in (25) is functioning as the topic of the sentence and its referents are in a sense more prominent. Therefore, the referents are assigned a reading in which they are interpreted as distinct individuals.

The discussion up to this point has demonstrated that there are a number of factors that may be relevant to verbal number agreement in Turkish. Referents of subjects need to be associated with one of the parameters in order for number agreement to take place. Also, there is some sort of competition between these parameters and *distinctness* is the most important of all but *topic* also plays an important role. The question that needs to be addressed at this point is how the facts about number agreement and number discord fit in the proposal made in the preceding chapters. To put it differently, how does the analysis of Turkish nominals as set nouns correlate with the facts concerning number discord? It has been noted that when there is no verbal number agreement in sentence, referents of subject NPs are understood as collective. Note that Rijkhoff (2002ab, 2008) argues that when there is number discord between verbs and subject NPs (i.e. singular verb agreement), verbs agree with the set. The idea here is that when we have a NP like 'iki adam' *two men*, we are in a sense talking about a 'two-men set' or 'set of two men'. On the other hand, plural agreement on the verb gives rise to a reading in which reference is made to individuals in the set. That

is to say, individuals are regarded as distinct entities rather than being collective. Importantly, number discord occurs with set nouns. When we consider the phenomena regarding number discord in Turkish, we observe that the claims of Rijkhoff's are in agreement with the assumptions made in this work. More specifically, when there is number discord, reference is made to entities which are considered to be collective. This should be considered to be the default form in the language since verbal number agreement takes place only in certain cases. On the other hand, plural agreement on the verb will always give rise to a reading in which referents are regarded as distinct individuals and the topic of the sentence. In other words, number discord indicates that the subject NP refers to more than one entity viewed as a group or collective and number agreement shows that the subject NP refers to more than one entity viewed individually. In that sense, the collective reading is associated with the set interpretation whereas the non-collective reading correlates with the individual interpretation. This is not unexpected given the fact that Turkish nouns pattern with set nouns in terms of their morpho-syntactic and semantics properties.

Last but not least, there is one more issue regarding verbal number agreement that is worth mentioning here. The question to answer is whether there are any instances in which verbal number is not optional but necessary in sentences. This is the topic of the following section.

4.3.3 Obligatory Verbal Number Agreement

The analysis so far has mainly focused on the differences between instances of verbal number agreement and its lack thereof in sentences. It has been argued that the difference is primarily semantic in nature. Thus the presence of verbal agreement leads to a difference in interpretation that is different from cases when there is no verbal agreement. However, when previous work on this topic is considered, it appears that there is not much interest in the question of whether there are instances in which verbal number agreement is obligatory. This issue was only briefly touched upon by Sezer who notes that verbal number agreement in Turkish is necessary in sentences in which there is a reciprocal such as 'birbirleri-' *one another/each other* (1978:30-31). When we look at the sentences with reciprocals in Turkish, we see that this is in fact the case. Consider the sentences below.

- (26) a. *İki yarışmacı* birbir-leri-ni tekme tokat döv-dü-ler.
 two contestant each.other-PL-ACC kick slap beat-PAST-PL
 ‘Two contestants beat each other up.’
- b. *?İki yarışmacı* birbir-leri-ni tekme tokat döv-dü.
 two contestant each.other-PL-ACC kick slap beat-PAST
 ‘Two contestants beat each other up.’
- (27) a. *Üç kardeş* birbir-leri-nden bihaber-ler.
 three brother each other-PL-ABL unaware-PL
 ‘Three brothers are unaware of each other.’
- b. *?Üç kardeş* birbir-leri-nden bihaber.
 three brother each.other-PL-ABL unaware
 ‘Three brothers are unaware of each other.’

The sentence in (26a) shows verb-subject agreement and is considered to be totally grammatical. On the other hand, the sentence (26b) does not show agreement. It is judged to be degraded even though it is not completely ungrammatical. I take this as another piece of evidence that when the referents of subjects are regarded as distinct individuals in the sense that they do not do the action collectively, the presence of plural agreement is strongly preferred. Similarly, the difference in the grammaticality of the sentences in (27a) and (27b) clearly shows when the referents of subject NPs are not in a collective state, the absence of number agreement degrades the acceptability of the sentence.

4.4 Conclusion

In this chapter I mainly looked into verbal number agreement and number discord in different languages and whether it is correlated with a specific noun subcategory. Basically, I investigated previous claims made concerning the relationship between number discord and set nouns. Given that nouns are in fact set nouns in Turkish, then the prediction is that we should observe instances of number discord. It was shown that

number discord is also a productive phenomenon in Turkish, providing more evidence that nouns pattern with set nouns. It was shown that number agreement is strongly correlated with 'distinctness' as a semantic parameter. However, it was also noted that 'topicality' plays an important role in triggering verbal number agreement in Turkish.

Chapter 5

Conclusion

There's lots and lots of room to improve!

- Alan Harper. Two and a Half Men.

5.1 Summary

In this dissertation I started off by asking a simple question; why do nouns and noun phrases behave the way they do in Turkish? Firstly, I argued against previous claims that there are no differences between nouns and adjectives in the language and nouns should be considered to be 'flexible' and 'changeable'. I showed that this claim is syntactically driven in nature and fails to address certain issues concerning the denotational properties of nouns and nominal number. Thus I argued that a careful investigation is necessary in order to better understand the nature of nouns and noun phrases in Turkish. Basically, I investigated the semantic and morpho-syntactic properties of nouns and noun phrases in order to answer the above question and address other issues that emerged. I developed a hybrid framework making use of theoretical assumptions and ideas from formal and lexical semantic points of view. A thorough analysis revealed the fact that based on their morpho-syntactic and semantic properties, nouns in Turkish pattern with what is often referred to as set nouns within the

broad typology of noun subcategories. Set nouns are generally considered to be lexically specified for two features, namely [+Shape] and [\pm Homogeneity], differentiating them from other noun subtypes. I also argued that the number-related properties of nouns in Turkish can also be captured by a different lexical feature, namely, [\pm Singular]. By doing so, both their spatial and grammatical properties are better demonstrated. The argument that nouns pattern with set nouns in Turkish was supported by the fact that some grammatical elements that are generally considered to be number markers in fact function as nominal aspect markers. More specifically, it was shown that the behavior of so-called indefinite marker and the plural marker indicates that the former is in fact the singulative aspect marker and the latter is the collective aspect marker in the language.

In addition to that, I argued that despite the fact that there are almost no differences between nouns in terms of their morpho-syntactic distribution, there are still certain distinctions between them that suggest a count-mass distinction in the language. I underlined the fact that the referential properties of NPs headed by set nouns and NPs referring to mass entities is significantly different from one another. In other words, the combination of the singulative marker and a set noun forms an NP that refers to one single entity whereas NPs headed by a mass noun modified by the same marker refer to one unit, instance or type of the entity in question. In order to account for this difference I argued that the distinction must be semantic in nature and proposed that mass nouns are lexically specified for a different set of features, namely [-Shape] and [+Homogeneity]. Moreover, I made a distinction between two processes that I called singularization that applies to NPs headed by set nouns and unitization that applies to NPs headed by mass nouns.

Last but not least, I investigated the interaction of plural subject NPs with verbal elements in terms of number discord. It was important to look into this area of investigation since it was previously noted that number discord is observed in languages with set nouns. I showed the fact that number discord manifests itself in Turkish, providing further evidence for type of nouns. I also pointed out that number agreement is correlated with the semantic parameter of 'distinctness' in the language. I also noted that 'topicality' also plays an important role in triggering verbal number agreement.

5.2 Limitations and Directions for Future Research

The current study has certain limitations due to a number of reasons discussed in this section. Recall that I heavily relied on Rijkhoff's assumptions and his inventory of noun subcategories while classifying noun sub-types in Turkish. However, as noted before, Rijkhoff's analysis only includes lexical NPs that are headed by nouns used to refer to a single, discrete, first-order entity or individual. These are spatial entities that exist in three-dimensional space such as humans, animals and physical objects. NPs headed by pronouns, second-order nouns designating events and processes like *weather* and *storm*, as well as third-order nouns designating entities that are not observable such as *faith*, *happiness* are not included in his analysis. The current analysis proposed to account for the properties of nouns in Turkish mainly includes first-order nouns although the properties of mass nouns were investigated and some abstract nouns were discussed when appropriate. Therefore, an analysis that deals with different types of nouns that were not mentioned in Rijkhoff's noun subcategories would be more inclusive and promising in nature. In order to do that the morpho-syntactic and semantic properties of these nouns would be investigated and a new set of lexical features that would accommodate various types of nouns would be proposed.

Note also that the analysis provided in this work is restricted to lexical nouns, bare NPs, NPs that include nominal aspect markers and numerals. Therefore, it does not include the analysis of NPs marked with case markers. Bare NPs which carry nominative case marking that is phonologically null are particularly interesting as they generally refer to single individuals that are also definite in terms of information structure. This was partly done when dealt with the interaction of plural subject NPs, verbal agreement and its lack thereof. However, an analysis that discusses the properties of all case-marked NPs would also shed more light on the investigation of noun semantics and nominal number in the language.

Another important issue to look into is the claim that the difference between set nouns and singular object nouns in languages also manifests itself in generic sentences. In her typological study of genericity, Gerstner-Link (1998) observes that there are only a few languages which allow for a generic reading of the indefinite article, as is the case in English. The form that is used more often is the one which does not occur with an

indefinite determiner.⁴⁷ This idea is also entertained by Rijkhoff (2002:50) who argues that the distinctions between set nouns and singular object nouns also surface in terms of genericness. More specifically, when a set noun is used in a generic NP, we generally find the morphologically unmarked (i.e. bare) form whereas it is not the case with singular object nouns which never occur in their bare form in generic sentences. When we consider genericity in Turkish, it is typically the bare form of the noun that is used in generic structures. This is illustrated in (1).

- (1) a. Kuş uç-ar.
bird fly-AOR
'Birds fly'
- b. Aslan memeli-dir.
lion mammal-COP
'Lions are mammals.'

The NPs 'kuş' *bird* and 'aslan' *lion* have a generic reading in this case and are not marked morpho-syntactically. This contrasts with the cases in which nouns occur with the indefinite marker. Consider the sentences below.

- (2) a. Bir kuş uç-ar.
one bird fly-AOR
'A bird flies.'
- b. Bir aslan memeli-dir.
one lion mammal-AOR
'A lion is a mammal.'

There is a significant difference between sentences in (1) and (2) in that the NPs 'bir kuş' and 'bir aslan' in (2) do not have a generic reading in the latter set of sentences. The only possible reading these NPs have is the one in which they are interpreted as

⁴⁷ For further discussion of these issues, see Carlson (in press) and references cited therein.

existential. This indicates that NPs in Turkish again pattern with set nouns and not singular object nouns in terms of genericity. However, there are other issues with regards to generic structures that we need to pay special attention to. For instance, both NPs headed by singular object nouns in languages like English and NPs headed by set nouns in languages such as Turkish can take plural marking. This is exemplified in (3) and (4) below.

- (3) a. Rats are rodents.
b. Computers are machines.

- (4) a. Fare-ler kemirgen-dir.
rat-PL rodent-COP
'Rats are rodents.'
- b. Bilgisayar-lar makine-dir.
computer-PL machine-COP
'Computers are machines.'

The examples in (3) and (4) show that even though there are certain differences between nouns in Turkish and English due to the fact that indefinite NPs cannot be used in generic structures in the former, there are certain resemblances between them when they are plural marked. Therefore, the issue of genericity and noun semantics need to be examined at length in order to better understand the true nature of different noun subcategories in languages.

Last but not least, it is important to have a look at alternative cross-linguistic analyses concerned with noun semantics and nominal number. In recent studies, it is noted that the differences between nouns in languages may not be due to the lexical semantics of nouns themselves but should be sought somewhere else. Working on Dëne Sųlıné and Yudja, both Native American languages, Wilhelm (2006ab, 2008) and Lima (2010) make a distinction between nouns in classifier languages and number-neutral languages and argue that the distinctions between these two languages are due to the lexical semantics of numerals and not nouns themselves. Developing ideas from Krifka (1995) and Kang (1994), Wilhelm (2008) argues that numerals in Dëne Sųlıné

have an atom-accessing function. Basically, an atom-accessing function gives a number of *object units* (i.e. atoms). The point here is that object units are introduced by numerals in number-neutral languages and by classifiers in classifier languages. Thus numerals only indicate cardinality in the latter type of languages. More specifically, what a numeral does in a number-neutral language is what a classifier does in a classifier language. Based on these arguments, one could claim that the indefinite determiner, numerals and perhaps the plural marker have this atom accessing function that applies to both set nouns and mass nouns and creates object units (i.e. atoms) in Turkish. However, it should also be noted that there are still significant differences between nouns in Turkish and Dëne Sųlıné in the sense that there is no plural marking and numerals generally occur with count denoting nouns in Dëne.

Bibliography

- Ackema Peter, Patrick Brandt, Maaïke Schoorlemmer and Fred Weerman. 2006. *Arguments and Agreement*. Oxford University Press.
- Acquaviva, Paolo. 2005. The Morphosemantics of Transnumeral Nouns. In *Morphology and Linguistic Typology. On-line Proceedings of the Fourth Mediterranean Morphology Meeting*. Catania 21-23 September 2003. University of Bologna.
- Andrzejewski, B. W. 1960. The categories of number in noun forms in the Borana dialect of Galla. *Africa* 30:62-75.
- Baker, Carl Lee. 1978. *Introduction to Generative-Transformational Syntax*. Prentice-Hall, Englewood Cliffs, New Jersey.
- Baker, Mark. 2003. *Lexical Categories: Verbs, Nouns and Adjectives*. Cambridge Studies in Linguistics 102. Cambridge, UK. Cambridge University Press.
- Baker, Mark C. 2008. *The Syntax of Agreement and Control*. Cambridge University Press.
- Bale, Alan. 2009. Yet more evidence for the emptiness of plurality. In A. Schardl, M. Walkow & M. Abdurrahman (eds.) *Proceedings of the 38th annual meeting of the North East Linguistic Society* 1:75-88.
- Bale, Alan. 2010. Number and competition in English, Armenian and Turkish. In *Proceedings of the North East Linguistic Society 2010*. University of

- Pennsylvania.
- Bale, A., M. Gagnon and H. Khanjian. 2011. Cross-linguistic representations of numerals and number marking. In *Proceedings of the 20th Semantics and Linguistic Theory*. Vancouver, Canada.
- Banguoğlu, Tahsin. 1986. *Türkçenin Grameri*. Ankara: Dil Tarih Kurumu.
- Bartsch, R. 1973. The semantics and syntax of number and numbers. In J. Kimball (ed.), *Syntax and Semantics*, Seminar Press, Volume 2, 1-93.
- Bliss, Heather. 2003. The Semantics of Bare Nouns in Turkish. In Ilana Mezhevich and Michael B. Dobrovolsky, (eds.) *Calgary Papers in Linguistics*. Volume 24, 1:1-66.
- Bassarak, Armin. 1986. Numeralität und Transnumeralität im Türkischen. In: Werner U. Wurzel (Hrsg.). *Studien zur Morphologie und Phonologie II*. Akademie der Wissenschaften der DDR, Zentralinstitut für Sprachwissenschaft, Linguistische Studien. Reihe A, Arbeitsberichte, 1-32.
- Belnap, R. Kirk. 1999. A new perspective on the history of Arabic: variation in marking agreement with plural heads. In *Agreement*, Greville G. Corbett (ed.), (Special Issue of *Folia Linguistica* Volume 33, 2:169-185.
- Bloomfield, Leonard. 1933. *Language*. Henry Holt: New York.
- Bock, Kathryn., Anne Cutler, Kathleen M. Eberhard, Sally Butterfield, J. Cooper Cutting, Karin R. Humphreys. 2006. Number Agreement in British and American English: Disagreeing to Agree Collectively. *Language* 82:64-113.
- Borer, Hagit. 2003. Exo-skeletal vs. endo-skeletal explanations: syntactic projections and the lexicon. In *The nature of explanation in linguistic theory*, J. Moore and Maria Polinsky (eds.), CSLI Publications, 31-67.

- Borer, Hagit. 2005. *In Name Only: Structuring Sense*. Volume 1. Oxford University Press.
- Braun, Freiderike. and Geoffrey Haig. 2000. The noun/adjective distinction in Turkish: An empirical approach. In *Studies on Turkish and Turkic Languages*, A. Göksel and C. Kerslake (eds.) Wiesbaden: Harrassowitz, 85-92.
- Bunt, Harry. C. 1985. *Mass terms and model-theoretic semantics*. Cambridge, UK.
- Chao, Yuen Ren. 1968. *A Grammar of Spoken Chinese*. University of California Press, Berkeley, CA.
- Carlson, Gregory. (in press). Genericity. In K. v. Heusinger, C. Maienborn, P. Portner (eds.) *Handbook of Semantics*, Berlin: de Gruyter.
- Chen, Ping. 2003. Indefinite determiner introducing definite referent: a special use of 'yi 'one' classifier' in Chinese. *Lingua* 113:1169-1184.
- Cheng, Chung-Ying. 1973. Comments on Moravcsik's Paper. In K.J.J. Hintikka, J.M.E. Moravcsik and P. Suppes., (eds.), *Approaches to Natural Language*, D.Reidel Publishing Company, Dordrecht-Holland, 286-288.
- Cheng, Lisa-Lai Shen, Rint Sybesma. 1999. Bare and Not-So-Bare Nouns and the Structure of NP. *Linguistic Inquiry*, Volume 30, 4:509-542.
- Cheng, Lisa-Lai Shen, Jenny Doetjes and Rint Sybesma. 2008. How universal is the Universal Grinder? *Linguistics in the Netherlands 2008*, 50-62.
- Chierchia, Gennaro. 1998a. Plurality of mass nouns and the notion of "semantic parameter." In S. Rothstein (ed.) *Events and grammar*, Dordrecht: Kluwer.
- Chierchia, Gennaro. 1998b. Reference to Kinds across languages. *Natural Language Semantics* 6:339-405.

- Chierchia, Gennaro. 2003. Language, Thought and Reality after Chomsky. Manuscript, University of Milan-Bicocca.
- Chierchia, Gennaro. 2010. Mass nouns, vagueness and semantic variation. *Synthese* 174:99-149.
- Corbett, Greville G. 2000. *Number*. Cambridge, Cambridge University Press.
- Corbett, Greville. 2006. *Agreement*. Cambridge, Cambridge University Press.
- Cresswell, Max. 1985. Review of Varieties of Formal Semantics. In F. Landman and F. Veltman (eds.) *Linguistics* 23:625-652.
- Crowley, Terry. 1985. Common noun phrase marking in Proto-Oceanic. *Oceanic Linguistics* 24, 1-2:135-193.
- Demircan, Ömer. 1999. Türkçede Türsel Bir Ayrım : ± Başdüşümlü. In *XII. Dilbilim Kurultayı Bildirileri*, Yeşim Aksan and Mustafa Aksan (eds.), 127-140.
- Deny, Jean. 1941. *Türk dili grameri: Osmanlı lehçesi*. (Translated by A. U. Elöve). İstanbul: Maarif Matbaası.
- Di Schiullo, Anna Maria and Edwin Williams. 1987. *On the Definition of Word*. Cambridge, MA. MIT Press.
- Dizdaroğlu, Mehmet. 1976. *Tümce Bilgisi*. Ankara: Kalite Basımevi.
- Doetjes, Jenny. 1997. Quantifiers and Selection: On the distribution of quantifying expressions in French, Dutch and English. Doctoral Dissertation. Leiden University.
- Farkas, Donka and Henriëtte De Swart. 2003. *The semantics of incorporation: from argument structure to discourse transparency*. Stanford, CA: CSLI Publications.

- Emre, Ahmed Cevat. 1945. *Türkçe Dilbilgisi*. İstanbul, Cumhuriyet Matbaası.
- Ergin, Muharrem. 1993. *Türk dil bilgisi*. İstanbul, Bayrak.
- Findreng, Adne. 1976. *Zur Kongruenz in Person und Numerus zwischen Subjekt und Finitem Verb in modernen Deutsch*. Oslo: Universitetsforlaget.
- Friedrich, Paul. 1970. Shape in Grammar. *Language* 46:379-407.
- Gencan, Tahir. 1979. *Dilbilgisi*. Gözden geçirilmiş IV. baskı. Ankara Üniversitesi.
- Gerstner-Link, Claudia. 1998. *A Typological Approach to Generics*. Ms, University of Munich.
- Gillon, Brendan. 1992. Towards a Common Semantics for English Count and Mass Nouns. *Linguistics and Philosophy* 15:597-639.
- Gillon, Brendan. 1999. The Lexical Semantics of English Count and Mass Nouns. In *The Breadth and Depth of Semantic Lexicons*. (ed.) E. Viegas, 19-37.
- Givón, Talmy. 1981. On the development of the numeral 'one' as an indefinite marker. In *Folia Linguistica Historica*. Volume 2, 1:35-53.
- Givon, Talmy. 1984. *Syntax: a functional typological introduction*. Amsterdam: John Benjamins.
- Gleason, H.A. 1965. *Linguistics and English Grammar*. New York: Holt, Reinhart and Winston.
- Goodman, Nelson. 1966. *The Structure of Appearance*. Second Edition. Indianapolis: Bobbs-Merrill.

- Göksel, Asli and Celia Kerslake. 2005. *Turkish: A comprehensive grammar*. Routledge, London and New York.
- Göksel, Asli, Belma Haznedar. 2007. Remarks on Compounding in Turkish. Part of the MorboComp Project, University of Bologna.
- Göksel, Asli and Celia Kerslake. 2009. *Turkish: An Essential Grammar*. Routledge, London and New York.
- Görgülü, Emrah. 2010a. Nominals and the count/mass distinction in Turkish. In *Proceedings of the 26th Northwest Linguistics Conference*, SFU, Vancouver, May 8-9 2010.
- Görgülü, Emrah. 2010b. On the number system and the count-mass distinction in Turkish. In *Proceedings of the 2010 Annual Meeting of the Canadian Linguistic Association*, Concordia University, Montreal, Québec, May 29-31.
- Görgülü, Emrah. 2011. Plural Marking in Turkish: Additive or Associative? In *Proceedings of the 7th Northwest Linguistics Conference*, University of Victoria, Victoria, British Columbia, February 19th - 20th 2011.
- Greenberg, Joseph. 1981. Nilo-Saharan moveable *-k* as a Stage III article (with a Penutian typological parallel). *Journal of African Languages and Linguistics* 3:105-112.
- Grimshaw, Jane. 1990. *Argument Structure*. Linguistic Inquiry Monographs 18. Cambridge, MA: MIT Press.
- Grønbech, Kaare. 1936. *Der Turkische Sprachbau I*. Kopenhagen: Levin-Munksgaard.
- Harris, Alice Carmichael. 1981. *Georgian Syntax: A study in relational grammar*. Cambridge University Press.
- Hayward, Richard J. 1979. Bayso revisited: some preliminary linguistic observations II.

- In *Bulletin of the School of Oriental and African Studies*, University of London, 42:101-132.
- Hayward, Dick. 1984. *The Arbore language: a first investigation, including a vocabulary*. Hamburg: Buske.
- Heine, Bernd. 1997. *Cognitive Foundations of Grammar*. Oxford University Press, Oxford.
- Huang, C.-T. James. 1987. Existential sentences in Chinese and (in)definiteness. In *The Representation of (In)definiteness*, (eds.) Eric J. Reuland and Alice G.B. ter Meulen, 226-253.
- Iljic, Robert. 1998. Quantification in Mandarin Chinese: Two Markers of Plurality. *Linguistics* 32:91-116.
- Iljic, Robert. 2001. The Origin of Suffix -men in Chinese. *Bulletin of the School of Oriental and African Studies*, 64:74-97.
- Jackendoff, Ray. 1991. Parts and Boundaries. *Cognition* 41:9-45.
- Jespersen, Otto. 1909. *A Modern English Grammar on Historical Principles*. 7 Volumes. London: Allen and Unwin.
- Jespersen, Otto. 1924. *The Philosophy of Grammar*. London: Allen and Unwin.
- Joosten, Frank. 2003. Accounts of the Count-Mass Distinction: A Critical Survey. In *the Proceedings of the 19th Scandinavian Conference on Linguistics*, Anne Dahl, Kristine Bentzen and Peter Svenonius (eds.) Volume 31, 1:216-229.
- Kan, Seda. 2010. Number Marking and Turkish Noun Phrases. Ms. University of Massachusetts, Amherst.
- Kang, Beom-Mo. 1994. Plurality and Other Semantic Aspects of Common Nouns in

- Korean. *Journal of Asian Linguistics*. Volume 3, 1:1-24.
- Kayadelen, Tolga. 2008. Plurals, Mass Nouns and Telicity in Turkish. Master's Thesis. Mersin University, Mersin.
- Kelepir, Meltem. 2001. Topics in Turkish Syntax: Clausal Structure and Scope. Doctoral Dissertation, MIT.
- Koptjevskaja-Tamm, Maria. 2004. Mass and Collection. In *Morphology: A Handbook on Inflection and Word Formation*. In Booij, G., Ch. Lehmann and J. Mugdan (eds.), Berlin: Walter de Gruyter, Volume 2:1016-1031.
- Kornfilt, Jaklin. 1997. *Turkish*. London: Routledge.
- Krifka, Manfred. 1987. Nominal Reference and Temporal Constitution: Towards a Semantics of Quantity. In *Forschungsstelle für natürlichsprachliche Systeme*. Bericht 17. Universität Tübingen.
- Krifka Manfred. 1989. Nominal reference, temporal constitution and quantification in event semantics. In R. Bartsch, J. van Benthem, and Peter van Emde Boas (eds.), *Semantics and contextual expressions*, Dordrecht, 75-155.
- Krifka, Manfred. 1992. Thematic relations as links between nominal reference and temporal constitution. In I. Sag and A. Szabolsci (eds.) *Lexical matters*, 29-53.
- Krifka, Manfred. 1995. Common Nouns: A Contrastive Analysis of Chinese and English. In Gregory N. Carlson and Francis Jeffrey Pelletier (eds.), *The Generic Book*, Chicago, 398-411.
- Krifka, Manfred. 1998. The origins of telicity. In Susan Rothstein (ed.) *Events and Grammar*. Dordrecht: Kluwer, 197-235.
- Landman, Fred. 1989a. Groups, I. *Linguistics and Philosophy*. Volume 12, 5:559-605.

Kluwer Academic Publishers.

Landman, Fred. 1989b. Groups, II. *Linguistics and Philosophy*. Volume 12, 6:723-744.

Landman, Fred. 1991. *Structures for Semantics*. SLAP 45, Kluwer, Dordrecht.

Landman, Fred. 2000. *Events and plurality: the Jerusalem lectures*. Dordrecht ; Boston, Massachusetts: Kluwer Academic Publishers.

Landman, Fred. 2007. On the mass-count distinction. Manuscript. Tel Aviv University.

Lasersohn, Peter. 2011. Mass Nouns and Plurals. In *Semantics: An International Handbook of Natural Language Meaning*.

Levin, Beth and Malka Rappaport-Hovav. 1996. Lexical semantics and syntactic Structure. In *The Handbook of Contemporary Semantic Theory*, Shalom Lappin (ed.), Oxford: Blackwell, 487-507.

Lewis, Geoffrey L. 1967. *Turkish Grammar*. Oxford: Oxford University Press.

Lima, Suzi. 2010. About the count-mass distinction in Yudja: a description. In *Proceedings of the Fifteenth Workshop on the Structure and Constituency in Languages of the Americas (WSCLA 15)*, Beth Rogers and Anita Szakay (eds.), Volume 29: 157-164.

Link, Godehard. 1983. The Logical Analysis of Plurals and Mass Terms: A Lattice-theoretical Approach. In R. Bäuerle, C. Schwarze and A. von Stechow (eds.), *Meaning use and interpretation of Language*, Berlin/New York: de Gruyter, 302-323.

Link, Godehard. 1984. Hydras. On the Logic of Relative Clause Constructions with Multiple Heads. In F. Landman and F. Veltman (eds.), *Varieties of Formal Semantics*. GRASS 3, Foris, Dordrecht. 245-257.

- Link, Godehard. 1991. Plural. In A. von Stechow and D. Wunderlich (eds.), *Semantics: An International Handbook of Contemporary Research*, De Gruyter: Berlin, 418-440.
- Lucy, John. A. 1992. *Grammatical Categories and Cognition: A Case Study of the Linguistic Relativity Hypothesis* (Studies in the Social and Cultural Foundations of Language, No. 13). Cambridge: Cambridge University Press.
- McCawley, James. 1968. Review of *Current Trends in Linguistics 3*. *Language* 44:556-593.
- Marantz Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In *the Proceedings of the 1998 Penn Linguistics Colloquium*, Alexis Dimitriadis, Hikyoung Lee, Laura Siegel, Clarissa Surek-Clark, and Alexander Williams. (eds.), 201-225.
- Martin, Samuel E. 1988. *A Reference Grammar of Japanese*. Yale University Press, New Haven, CT.
- Moravcsik, Edith A. 1978. Agreement. In Joseph H. Greenberg, Charles A. Ferguson and Edith A. Moravcsik (eds). *Universals of Human Language*. *Syntax*, 4:331-375.
- Moravcsik, Edith A. 1988. Agreement and Markedness. In *Agreement in Natural Language: Approaches, Theories and Descriptions*. Michael Barlow and Charles A. Ferguson (eds.), Stanford: CSLI, 89-106.
- Obolensky, Serge. D., Debebow Zeleile and Mulugeta Andualem. 1964. *Amharic*. Basic Course. Washington.
- Ojeda, Almerindo. 1993. *Linguistic Individuals*. CSLI Lecture Notes, Number 31.

- Öztürk, Balkız. 2005. *Case, Referentiality and Phrase Structure*. John Benjamins Publishing.
- Palmer, Frank Robert. 1971. *Grammar*. Harmondsworth: Pelican Books.
- Pelletier, F. Jeffry. 1975. Non-singular reference: some preliminaries. *Philosophia* Volume 5, 4:451-465.
- Pelletier, Francis Jeffry. 1979. *Mass terms: some philosophical problems*. D. Reidel Publishing.
- Pelletier, Francis Jeffry. 2012a. Mass Nouns. In D. Fara & G. Russell *The Routledge Companion to the Philosophy of Language*. pp. 424-436.
- Pelletier, Francis Jeffrey. 2012b. Lexical Nouns are Neither Mass nor Count, but they are Both Mass and Count. In Diane Massam (ed.) *A Cross-Linguistic Exploration of the Count-Mass Distinction*. Oxford Studies in Theoretical Linguistics 42:9-26.
- Pelletier, F. Jeffry and Lenhart K. Schubert. 1989. Mass Expressions. In D. Gabbay and F. Guentner (eds.) *Handbook of Philosophical Logic*, Reidel: Dordrecht, 4:327-408.
- Pelletier, Francis Jeffrey and Lenhart K. Schubert. 2003. Mass Expressions. In D. Gabbay and F. Guentner (eds.) *Handbook of Philosophical Logic*, Kluwer Academic Publishers, 10:1-87.
- Press, Ian. 1986. *A Grammar of Modern Breton*. Mouton De Gruyter.
- Quine, W. V. 1960. *Word and Object*. MIT Press. Cambridge, MA.
- Quirk, Randolph., Sidney Greenbaum, Geoffrey Leech and Jan Svartvik. 1985. *A comprehensive grammar of the English language*. London: Longman.

- Rijkhoff, Jan. 1991. Nominal Aspect. *Journal of Semantics* 8: 291-309.
- Rijkhoff, Jan. 1993. 'Number' disagreement. In *the Proceedings of the XVth International Congress of Linguists*, Andre Crocheteire; Jean-Claude Boulanger and Conrad Ouellon (eds.), Sainte-Foy, Quebec: Presses de l'Universite Laval, 274-276.
- Rijkhoff, Jan. 2002a. *The Noun Phrase*. Oxford University Press.
- Rijkhoff, Jan. 2002b. Verbs and nouns from a cross-linguistic perspective. *Rivista di Linguistica* Volume 14, 1:115-147.
- Rijkhoff, Jan. 2008. On flexible and rigid nouns. *Studies in Language*, Volume 32, 3:727-752.
- Robins, Robert Henry. 1997. *A Short History of Linguistics*. 4th ed. London: Longman.
- Rothstein, Susan. 2010a. Counting and the Mass-Count Distinction. *Journal of Semantics* 27:343-397.
- Rothstein, Susan. 2010b. Bare nouns semantics, kind interpretations and the Universal Grinder. Manuscript. Bar-Ilan University.
- Rullmann, Hotze, and Aili You. 2006. General number and the semantics and pragmatics of indefinite bare nouns in Mandarin Chinese. In Klaus von Stechow and Ken Turner (eds.), *Where semantics meets pragmatics*. Amsterdam: Elsevier, 175-196.
- Sauerland, Uli. 2003. A new semantics for number. In R. Young & Y. Zhou (eds.), *Proceedings of SALT 13*. Ithaca, NY: CLC Publications, Cornell University, 258-275.
- Sauerland, U., J. Andersen, and K. Yatsushiro. 2005. The plural is semantically

- unmarked. In *Linguistic evidence*, ed. S. Kepser and M. Reis. Berlin: Mouton de Gruyter, 413-434.
- Sauerland, Uli and Paul Elbourne. 2002. Total reconstruction, PF movement, and derivational order. *Linguistic Inquiry* 33:283-319.
- Scha, Remko. 1981. Distributive, Collective and Cumulative Quantification. In J.A.G. Groenendijk, T.M.V. Janssen, and M.B.J. Stokhof (eds.) *Formal Methods in the Study of Language*, Part 2. Amsterdam: Mathematisch Centrum, 483-512.
- Schroeder, Christoph. 1999. *The Turkish Nominal Phrase in Spoken Discourse*. Turcologica 40. Wiesbaden: Harratsowitz.
- Sebüktekin, Hikmet. 1964. An English-Turkish contrastive analysis: Turkish morphology and corresponding structures. Doctoral dissertation, University of California, Berkeley.
- Seifart, Frank. 2009. Towards a typology of unitization: Miraña noun classes compared to numeral classifiers and singulatives. Max Planck Institute for Evolutionary Anthropology, Leipzig.
- Sezer, Engin. 1978. Eylemlerin çoğul öznelerle uyumu (The agreement between verbs and plural subjects). In *Genel Dilbilim Dergisi*, Ankara, 1:25-33.
- Sezer, Engin. 1991. Topic in Turkish Syntax. Doctoral Dissertation. Harvard University.
- Sigler, Michele. Number Agreement and Specificity in Armenian. 1992. In *Papers from the 28th Regional Meeting of the Chicago Linguistic Society*. Costas P. Canakis, Grace P. Chan and Jeanette Marshall Benston (eds.), Volume 1: The Main Session.
- Sigler, Michele. 1997. Specificity and Agreement in Standard Western Armenian. Doctoral Dissertation. Massachusetts Institute of Technology.

- Spector, Benjamin. 2003. Plural Indefinite DPs as Plural-polarity Items. In *Romance Languages and linguistic theory 2001*, ed. J. Quer, J. Schroten, M. Scorretti, P. Sleeman, and E. Verheugd, Amsterdam: John Benjamins, 295-313.
- Spector, B. 2007. Aspects of the pragmatics of plural morphology: On higher-order implicatures. In U. Sauerland & P. Stateva (eds.), *Presuppositions and implicatures in compositional semantics*, Hampshire, UK: Palgrave-Macmillan, 1-39.
- Stroemer, Harry. 1987. *A comparative study of three southern Oromo dialects in Kenya: phonology, morphology and vocabulary*. Cushitic Language Studies 6. Hamburg.
- Swift, Lloyd B. 1963. *A reference grammar of Turkish*. Indiana University Press: Bloomington.
- Tekin, Talat. 2003. *Orhon Türkçesi Grameri*. Istanbul: TDAD 9. 2. Baskı.
- Ter Meulen, Alice. 1981. An Intentional Logic for Mass Terms. *Philosophical Studies* 40:105-125. Till, Walter C. 1961. *Koptische Grammatik*. Leipzig.
- Toivonen, Ida. 2003. Agreement, case and subjecthood in possessive constructions. *New Zealand Linguistics Society Conference*. Wellington, NZ.
- Toivonen, Ida. 2007. Verbal agreement in Inari Saami. In *Saami Linguistics*, Ida Toivonen and Diane Nelson (eds.), *Current Issues in Linguistic Theory*, 227-258.
- Tura-Sansa, Sabahat. 1973. A study on the articles in English and their counterparts in Turkish. Doctoral Dissertation. University of Michigan.
- Uygun, Dilek. 2007. Lexical Categories in Turkish. Manuscript. Boğaziçi University.
- Uygun, Dilek. 2009. A Split Model for Category Specification: Lexical Categories in

- Turkish. Doctoral Dissertation. Boğaziçi University, İstanbul.
- Verkuyl, Henk J. 1981. Numerals and quantifiers in X-bar-syntax and their semantic interpretation, in J. Groenendijk., Janssen and M. Stokhof (eds.), *Formal Methods in the Study of Language*, Mathematisch Centrum, Amsterdam, 2:567-599.
- Vinokurove, Nadezhda. 2005. *Lexical Categories and Argument Structure: A Study With Reference to Sakha*. LOT Series; Netherlands.
- Wiese, Heike. 1997. Semantics of Nouns and Nominal Number. In *ZAS Papers in Linguistics*. Center for General Linguistics, Typology and Universals, 8:136-163.
- Wilhelm, Andrea. 2006a. Count, mass, and part structure in Dëne Sųliné nouns. In *Proceedings of WSCLA 11 (The 11th Workshop on Structure and Constituency in Languages of the Americas)*. Vancouver: University of British Columbia Working Papers in Linguistics, 1-20.
- Wilhelm, Andrea. 2006b. Count and mass nouns in Dëne Sųliné. In *Proceedings of the 25th West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Press, 435-443.
- Wilhelm, Andrea. 2008. Bare nouns and number in Dëne Sųliné. *Natural Language Semantics*. Volume 16, 1:39-68.