

The Distribution and Function of Number in Azeri

Gita Zareikar

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uOttawa

Department of Linguistics

Faculty of Arts

University of Ottawa

“Creationists make it sound as though a ‘theory’ is something you dreamt up after being drunk all night.”

Isaac Asimov

Abstract

In this dissertation, I study the distribution of number in Azeri within the Exo-Skeletal model of [Borer \(2005a\)](#). I adopt the Exo-Skeletal model's assumption that number marking is a syntactic rather than a lexical process.

Following [Borer \(2005a\)](#), I assume that, in order to be counted, nouns need to be individuated by means of a functional category *Div*^o. In Borer's model, plural markers and classifiers are argued to be generated in *DivP*. However, unlike Borer, I propose that the plural marker in Azeri is not an individuator. Instead, it solely marks plurality. Under my proposal, individuation in Azeri is morphologically null. Moreover, I argue that classifiers do not belong to the category of individutors either and their function is to unitize the individuated object. Therefore, I consider classifiers in Azeri to be generated on a cluster head where they contribute to a group formation process. The generation of the plural marker and the classifier on heads other than division derives the conclusion that the individuation in Azeri is morphologically null.

Furthermore, I investigate the interpretation of number in the verbal domain, i.e. in TP, in the presence of the viewpoint aspect in both telic and atelic contexts. I argue that the singular interpretation of the Azeri bare noun is linked to the projection of *Asp_Q*, where the specific interpretation of the bare noun arises under the effect of the perfective aspect. The presence of *Asp_Q* yields a telic interpretation of the event structure, and the DP in the specifier of *Asp_Q* is the subject of quantity ([Borer, 2005a](#)). Moreover, according to Borer, number ambiguous nouns are generated in atelic structures where *Asp_Q* is absent. In this case, the DP does not have to be the subject of quantity and the availability of quantity on the DP remains optional. Nevertheless, (non-)specific interpretation of the noun in telic and atelic contexts in Azeri, I argue to be due to the impact of the viewpoint aspect.

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Abbreviations

ACC	Accusative case	Q	Quantifier
Asp	Aspect	SG	Singular
CL	Classifier	SP	Specific
CLU	Cluster		
Def	Definite		
Det	Determiner		
Div	Division		
Dur	Durative		
FUT	Future		
GEN	Genitive case		
GN	General Number		
HAB	Habitual		
IND	Indirect		
LOC	Locative case		
N	Noun		
Neg	Negation		
NOM	Nominative case		
NSP	Non-specific		
Num /#	Number		
PART	Participle		
PL	Plural		
PF	Perfect		
PFV	Perfective		
PROG	Progresive		

*To my beloved parents and family and all my friends
whose support kept me moving forward.*

Chapter 1

Introduction

In this dissertation, while focusing on the syntax of the nominal domain, I address a number of puzzles that have been the subject of intense debate in recent years. The type of questions I address include: How is number licensed in languages and how is it accounted for in syntactic theory? How do languages distinguish between count and mass in their grammars? What is the role of classifiers? What is the interaction between aspect and numerability?

My dissertation focuses on Azeri, also called Southern Azerbaijani, a Turkic language spoken in Northwest Iran. The language is a member of Oghuz Turkic. Turkic languages belong to the Altaic language family and are classified into six groups; Kipchak, Northeast, South Siberian, Southeast, Oghuz, and one other, as listed by Ethnologue, languages of the world.¹ Azeri is widely spoken in Iran and has been strongly influenced by Persian for centuries. Another dialect of Azerbaijani, spoken in the Republic of Azerbaijan, is the closest dialect to Azeri which is influenced by Russian. Both Persian and Azeri are head final (SOV) languages and considered to be pro-drop. Nevertheless, Azeri is very close to Turkish and we have good reasons to expect a similar behaviour in both languages. This means that there is a chance for many linguistic studies on Turkish to be generalized into Azeri, but this needs to be verified, especially since Azeri has developed in a different geographical region and different linguistic environment; it is thus important to study it independently.

¹www.ethnologue.com

1.1 Theoretical framework

As discussed in [Allan \(1977\)](#), “... some nouns more often occur in countable NPs, others in uncountable NPs, and still others seem to occur quite freely in both” (p.566). The countability preference view allows syntax to partially determine whether a noun is count or mass, while maintaining the idea that the semantics of the noun also plays a role.²

In the Exo-Skeletal model, [Borer \(2003\)](#) compares a lexically driven approach with a syntactically driven approach. In the lexically driven approach, called the Endo-Skeletal approach, the lexicon carries formal properties, and fully articulates lexico-semantics ([Borer, 2003](#)). As opposed to the Endo-Skeletal view, [Borer \(2003\)](#) introduces the Exo-Skeletal model which argues for a strong computational position. In this model, formal properties of the lexicon are reduced to a large extent and the structure carries a comparatively heavier weight.

In Borer’s ([2005a](#)) structuring sense, she considers lexical items to be listemes, namely, open class items which lack any formal properties and they need to be assigned grammatical properties. That is to say, a listeme is only a sound-meaning pair. Sound refers to the phonological index, and meaning to the conceptual package. Listemes are argued to be stored in the *encyclopedia*, which holds a list of the arbitrary pairs of sound and meaning. The computational burden, according to Borer, is carried by the functional structure. Borer’s approach in her Exo-Skeletal model, similar to the Extended Standard Theory and its descendants, considers syntactic structures to provide unambiguous formulas for the semantics to interpret. Borer assumes that: “a unique syntactic representation α entails a unique semantic representation α' ” (p.16). That is to say, there is a one-to-one mapping between syntax and semantics. In that respect, functional categories are responsible for creating semantic interpretations. Unlike generative semantics, in the Exo-Skeletal model “semantically synonymous expressions must correspond to an identical syntactic representation” (p.16).

Semantic interpretations are assigned by functional projections that are rich in grammatical properties and can assign their properties to lexical items which

²In recent work, [Borer \(2013\)](#) proposes a phonological indexing as the base value for the root and the semantic instantiation of the category is realized at the interface level. In other words, the root is simply an index to a phonological form. This enables syntax to be the sole distinguishing mechanism to derive the category of the lexical item, e.g. the noun, and allows the semantic properties to be assigned to the derivation later on.

do not have an inherent category. The lexicon inherits its properties from the dominating functional structure, as shown in (1) and (2).

$$(1) \quad [\text{FP-1}_{+N} [\text{FP-2}_{(+N)} [\text{picture}^{max}]]]$$

$$(2) \quad [\text{FP-3}_{+V} [\text{FP-2}_{(+V)} [\text{picture}^{max}]]]$$

[Borer, 2005a, Ex.14, P.21]

Functional heads are viewed as *open values* associated with categorial labels. A categorial label is argued to “determine the semantic class of the elements that may assign *range* to it” (Borer, 2005a, p.36).

In a further explanation of Borer’s view, she considers a lexical head N, which is assigned range by means of some functional categories. These functions can be assigned in various forms. For example, quantification can be assigned by a head feature that requires an obligatory lexical-head movement, illustrated in (3). The head moves to the functional category which holds the quantity feature that is transferred to the head noun.

$$(3) \quad [_{\#P} <q>.<e>_{\#}.N [_{NP} N]]$$

[Borer, 2005a, Ex.11a, P.36]

Another form of range-assignment is by (free) f-morph or a head feature. In this case the lexical head cannot move. The f-morph assigns a number feature to the head noun. This is shown in (4).

$$(4) \quad [_{\#P} \text{f-morph}_Q.<e>_{\#} [_{NP} N]]$$

[Borer, 2005a, Ex.11b, P.36]

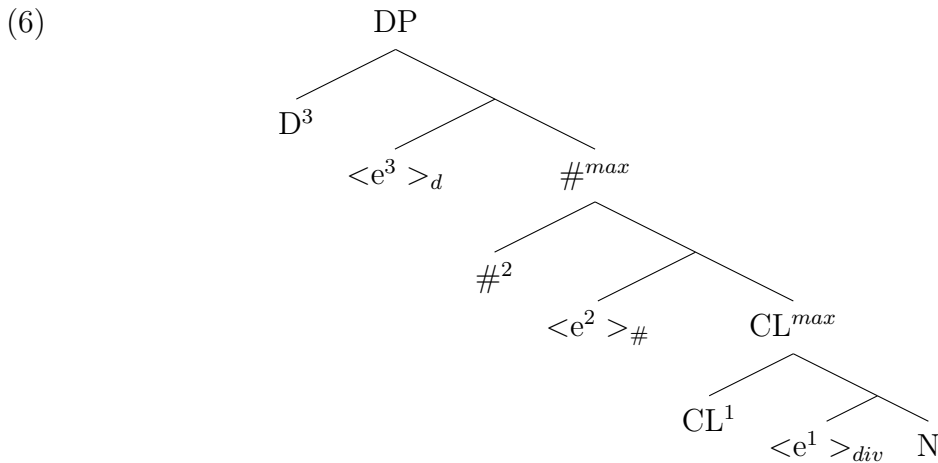
Yet another instance of range assignment can happen by means of an adverb of quantification. This is indicative of indirect-range assignment and the lexical-head movement is not forced. Unlike the previous two instances, the range assignment takes place in an indirect form. The third form is presented in (5).

(5) $\text{adverb}_Q [\#P <e> \# [_{NP} N]]$

[Borer, 2005a, Ex.11c, P.36]

In the last form the indirect range assignment takes place in two ways: one by means of an adverb of quantification or a Discourse operator, and the other via a specifier-head agreement relation.³

The nominal spine in Borer’s framework starts with a lexical item of category N and it receives range by the functional element higher in the structure. The range assignment can be either direct or indirect, and it assigns formal properties to the category N. Depending on the type of the functional category, the semantic interpretation of the structure will vary. The completed form of the structure in the Exo-Skeletal model looks like (6). The category CL^{max} assigns division to the head noun, and functional categories such as the plural marker in English-type languages and the classifier in numeral-classifier languages are responsible for this sort of range assignment. The higher category $\#P$ projects number and hosts functional categories such as numerals, plural markers and quantifiers. The highest projection DP assigns a definiteness interpretation.



Another major well-known account of bare nouns, number marking and the interpretation of nominals is Chierchia (1998a). Chierchia’s seminal view considers the denotation of a singular noun to correspond to the set of atoms that satisfies

³The agree relation developed in Borer’s model varies to a larger extent with the agree relation discussed in syntax by others (cf. Koopman, 2006). In Borer’s system both the specifier and the head can value certain features in a bidirectional format. An example of this will be seen in chapter 5.

the property expressed by the noun. In a world with three individuals a, b, c , we have a structure of singularity $\{a, b, c\}$. The singular individuals according to Chierchia constitute the atoms of the domain of quantification, in which “they have only themselves as ‘subgroups’” (p.345), as in (7).

$$(7) \quad a \leq \{a, b\}$$

Plurality, on the other hand, consists of a function that applies to the sets of atoms and as a result turns them into sets of pluralities, illustrated in (8).

$$(8) \quad \{a, b\} \leq \{a, b, c\}$$

The distinction between mass or count nouns according to Chierchia arises from their number interpretation. That is to say, nouns are either singular or plural in their content. The mass noun is the “neutralization of the singular/plural distinction” (p.347). The real distinction between the count and mass noun is in their atomicity. Mass nouns do not single out atoms, while count nouns are always singular. The extension of mass nouns is a set of singularities plus the pluralities formed from them. Mass nouns come out of the lexicon already plural. This pluralization in mass nouns occurs via ‘ $\cup$ ’, the group-forming operation. In other words, mass nouns are inherently plural. Therefore, they need a classifier phrase to map the denotation of mass nouns into sets of atoms.

Borer (2005a) and Chierchia (1998b) view mass nouns very similarly and in both accounts, mass nouns are required to be individuated (although the process of the individuation is different in each analysis) to receive number. However, the details of the differences of both accounts will be discussed throughout this dissertation.

1.2 The puzzles

In this dissertation, I investigate several puzzles that arise in relation to nominal structures in the context of Borer’s (2005a) Exo-Skeletal model and Chierchia’s (1998a; 1998b) nominal mapping hypothesis for languages such as Azeri. I follow Borer’s and Chierchia’s models, in which they consider that, in languages with

bare nouns, a classifier or a plural marker is required to identify mass and count forms. Having such an assumption in mind, I focus on bare nouns in Azeri and show how these nouns are explained following Borer's and Chierchia's models. In conclusion, I show that their models are not universal and languages such as Azeri do not follow either models.

The first puzzle that I address has to do with general number interpretation. The bare noun in (9) can be interpreted both as singular or plural, whereas in (10) the amount of water is not identifiable without the presence of a measuring item. In the context of (9), whether I bought one book or more than one book is equally possible. Based on both Borer's and Chierchia's models, the bare form of the noun derives a mass (number neutral) interpretation and in order to achieve a count reading, the presence of a plural morphology or a classifier is required. However, as shown in (9) bare nouns in Azeri are not ambiguous between mass or count readings. The noun is certainly count and it is only the number on the count noun that is ambiguous between singular and plural interpretations. This means the noun *kitab* 'book' is ambiguous between the readings for 'one and more than one'.

- | | |
|---|---|
| (9) <i>Kitap al-dim.</i>
book buy-PAST.1SG
'I bought a book/books.' | (10) <i>Su iç-dim.</i>
water drink-PAST.1SG
'I drank water.' |
|---|---|

The second puzzle has to do with the role of the plural marker. According to Borer (2005a), the plural marker does not assign number, but instead it individuates the noun before it receives number. For that reason, the plural marked noun needs a quantifier to assign number to it. The facts in Azeri do not confirm Borer's claim for the plural marker. At odds with Borer's proposal, Azeri plural marked nouns do not accept numerals. Consider (11) in which the appearance of the numeral is not acceptable. Consequently, the plural marked noun in Azeri does not mirror its counterpart in English.

- (11) **İki kitap-lar miz ust-də-di-lər.*
 two book-PL table on-LOC-be-3PL
 '(intended) Two books are on the table.'

The third puzzle is the role of the classifier in Azeri. Azeri uses classifiers in its nominal system. However, the classifiers are not restricted to mass/number

neutral nouns as they exist in Chinese-type languages (Borer, 2005a). Azeri has one generic classifier ‘*dənə*’ that appears with count and mass nouns. However, its occurrence with mass nouns is conditioned by the absence of a classifier of measuring type, in (12).⁴ All the other classifiers are used with specific types of nouns. Since the language neither requires a plural marker to individuate the noun nor a classifier, the existence of the classifier needs to be explained.⁵ To address this puzzle, the generic classifier *dənə*, in (13) should be distinguished from its counterparts that can derive either a measure reading or a container reading. In (14), depending on the structure, *fincan* ‘cup’ can convey a meaning that suggests the measurement of an amount, or a container which is used for measurement purposes. This, I argue, arises from the syntactic position at which these container words are generated. According to Mathieu and Zareikar (2015), when the listeme generates as an individuator it derives a measure reading, whereas if it starts as a noun, it yields a container interpretation.⁶

- (12) a. Iki **dənə** çay iç-dim.
two CL tea drink-PAST.1SG
‘I drank two (cups of) tea.’
b. Iki **fincan** çay iç-dim.
two cup tea drink-PAST.1SG
‘I drank two cups of tea.’
- (13) Iki **dənə** kitap al-dim.
two CL book buy-PAST.1SG
‘I bought two books.’
- (14) a. Iki **fincan** şəkər işlət-dim.
two cup sugar use-PAST.1SG
‘I used two cups of sugar.’
b. Iki şəkər-**fincan**-i işlət-dim.
two sugar-cup-COM use-PAST.1SG

⁴ I am aware of the presence of measure words such as: a cup, a glass, etc. that appear immediately before the head noun. I assume such measure words occupy a different position.

⁵ Azeri is not listed as a numeral classifier language in traditional grammar books nor is the use of the generic classifier explicitly mentioned *dənə* is not registered to be as widespread as it is today. A similar phenomenon is observable in Persian with the classifier *-ta*. A diachronic study of classification seems necessary so that light can be shed on the process of this development.

⁶ This idea is adapted from Borer (2005a) where she gives different interpretations of Grocerese (grocery bills, restaurant orders, etc.) and pseudo-partitives as distinct functional complexes that do not belong to the same extended projection as the noun. Nevertheless, I explain the two readings under head-compounding in chapter 4.

‘I used two sugar cups.’

The final puzzle that I address in this dissertation is the interaction of aspect and number in Azeri. Cross-linguistically, bare nouns are ambiguous for number in atelic structures. Nevertheless, bare nouns in telic structures with perfective aspect exhibit number distinction and are interpreted as singular or plural, e.g. in Hindi (Dayal, 2011). Whereas, the bare noun in perfective environment in Azeri is ambiguous for number interpretation. That is to say bare nouns in Azeri yield both telic and atelic interpretations in the perfective, as in (15). Such an unexpected behaviour is a puzzle that has not received much attention in previous studies.

- (15) Süp alma ye-dim.
 morning apple eat-PAST.1SG
 ‘I ate an apple/apples this morning.’

I frame this dissertation around the puzzles presented in this section. As I previously discussed, I base my proposals on Borer’s (2005a) Exo-Skeletal model.

1.3 The main proposal

I provide several proposals in this dissertation. The first proposal hypothesizes that nouns with a general number reading have a null morpheme that assigns individuation, i.e. assigns range to $\langle e \rangle_{div}$, in the structure. For this reason, the bare noun without a plural morpheme in Azeri can exhibit an individuated reading, but such an individuated form does not necessarily refer to a singular semantics.

- (16)
- $$\begin{array}{c}
 \text{DivP} \\
 \swarrow \quad \searrow \\
 \emptyset \qquad \text{Div} \\
 \qquad \swarrow \quad \searrow \\
 \qquad \langle e \rangle_{div} \quad \text{nP}
 \end{array}$$

The bare noun corresponds to an inclusive number interpretation in semantics. That is to say the bare noun is a complete semi-lattice and the denotation of bare

nouns includes atoms and the sets of their overlapping parts, as illustrated in (18). I claim that bare nouns in Azeri are complete semi-lattice and yield an inclusive interpretation.

$$(17) \quad \llbracket \text{bare noun} \rrbracket = \{a, b, c, ab, ac, bc, abc\}$$

Morphological absence of functional heads is attested in Borer's (2005a) account. According to Borer, bare nominals have various structures with respect to their interpretations. For example, in Chinese-type languages, the lack of any morphological functional head but the existence of the Generic Operator gives rise to generic interpretation of the bare noun, (18).

$$(18) \quad \text{GEN}^k \left[{}_{DP} \langle e^k \rangle_d \left[{}_{\#P} \langle e^k \rangle_{\#(DIV)} \left[{}_{CL}^{max} \langle e^k \rangle_{DIV(\#)} \left[{}_{NP} \text{shu} \right] \right] \right] \right]$$

[Borer, 2005a, Ex.49, P.185]

‘books (generic)’

Another instance of the null head is the presence of the bare classifier+N combination, as in (19). This combination in Chinese-type languages is reported to have a singular reading. Borer's argument for such structures is that non-plural classifiers (Chinese-type have both singular and plural classifiers) are unmarked for their quantificational value. Hence, on the occasion that no other quantity information is available on $\langle e \rangle_{\#}$, Borer argues that $\langle e \rangle_{DIV}$ and $\langle e \rangle_{\#}$ are assigned range by the same element. Since no number specification against singular interpretation is provided in the structure, the number reading would default to singular.

$$(19) \quad \left[{}_{DP} \dots \left[{}_{\#P} \text{ben} \langle e^k \rangle_{\#(DIV)} \left[{}_{CL}^{max} \text{ben} \langle e^k \rangle_{DIV(\#)} \left[{}_{NP} \text{shu} \right] \right] \right] \right]$$

CL book

‘a book’

[Borer, 2005a, Ex.50a, P.185]

Such an argument is problematic for other languages with a general number reading (such as Azeri), as the bare form is able to yield a singular interpretation in the absence of any overt morphological marker. Similar facts are observed for Mandarin and Cantonese by Cheng and Sybesma (1999). The bare form of the noun in these languages can have more than one interpretation, as in (20).

- (20) Hufei mai shu qu le.
 Hufei buy book go SFP
 ‘Hufei went to buy a book/books.’ [Cheng and Sybesma, 1999, Ex.1a]

The null head argument leads me to argue that the plural marker in Azeri is not an individuator as in Borer’s (2005a) model. I hypothesize that the plural marker is generated in a # head, as in (23) and derives an exclusive plural reading (that can only refer to a number greater than one). The exclusive reading is argued to be the property of the higher plural, i.e. # (Mathieu, 2014; Gillon, 2015). The example in (21) is incompatible with an answer such as ‘Yes, I read one book’.⁷

- (21) Kitap-lar-ı oxu-dun?
 book-PL-ACC read-PAST.2SG
 ‘Did you read the books?’

The plural form of the noun corresponds to the exclusive reading of the noun semantically. The denotation of plural nouns does not include individual atoms and it only contains the sets of overlapping parts, as shown in (22).

- (22) $\llbracket \text{plural noun} \rrbracket = \{ab, ac, bc, abc\}$

- (23)
-
- ```

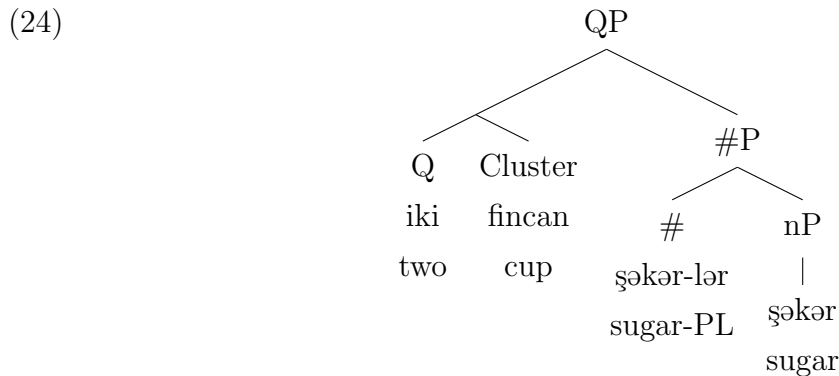
graph TD
 #P --> #
 #P -->
 # --> lar["-lar
PL"]
 # --> DivP
 DivP --> Ø
 DivP --> Div
 Div --> e["< e >_div"]
 Div --> nP

```

As shown in the syntactic structure in (24), the generic classifier, ‘dənə’, or measure words are not generated on the Div-head in Azeri (cf. Mathieu and Zareikar, 2015). It is hypothesized that the generic classifier and measure words are generated

<sup>7</sup>It is notable that the bare plural in subject position receives a definite reading. The definite reading is assumed to receive its definite interpretation from the focus head projected immediately above it. However, in the object position the bare plural is only available after a preposition and it yields an indefinite interpretation. The definite interpretation of the plural form in the object position is marked by the accusative marker.

higher in the QP. Numerals in this language are argued to select for units and bundles of atoms and these features are available in the generic classifier and measure words, in (24).



Furthermore, the singular (and specific) reading of the bare noun in perfective aspect is argued to be related to the position of the nominal. The singular specific interpretations of the bare noun in certain aspects are linked to a syntactic projection that is responsible for telic interpretation of the structure. According to Borer (2005a), projection of an  $\text{Asp}_Q$  is responsible for telic interpretation of the structure and hence number distinction on the noun. In cases that an  $\text{Asp}_Q$  is generated above the VP, the nominal in the specifier of the  $\text{Asp}_Q$  will receive a quantity interpretation.

## 1.4 Theoretical assumptions

The linguistic perspective that I pursue in this dissertation is Generative Grammar (GG). As it is defined in Chomsky et al. (2017), “the study of linguistic capacity as a component of human cognition” (p.1). I adopt two main theoretical frameworks, ‘the Minimalism Program (MP) (Chomsky, 1995, 2000, 2001)’ and ‘Distributed Morphology’ (Halle and Marantz, 1994). Chomsky in his Minimalist Program pursues the assumption that the language faculty has at least two components. These two components are the cognitive system and the performance system. The main concern of Minimalist Program is the cognitive system and how it interacts with the performance system. The two systems that the cognitive system interacts with are the articulatory-perceptual system (A-P) and the conceptual-intentional system (C-I).

The Minimalism program assumes the existence of some operations in the computational system. The basic compositional operation *Merge* is considered to apply to two objects  $X$  and  $Y$  and derives the new object  $K = \{X, Y\}$ . *Merge* is argued to be of two types: External Merge occurs when  $X$  and  $Y$  are directly taken from the lexicon and merged together; and in the case that “ $Y$  is a term of  $X$ ” (p.3),  $Y$  occurs twice in  $K$  and the operation is an Internal Merge (Chomsky et al., 2017). The operation *Merge* is considered as “the computationally simplest operation in that implements the basic properties of an I-language, and as such a conceptually necessary, irreducible component of UG” Chomsky et al. (2017, p.3). Languages vary in how they linearize the final product of the operation Merge.

Another operation, *Agree*, relates features of syntactic objects (Chomsky, 2000, 2001). In operation *Agree* there are unvalued  $\varphi$ -features that establish an agree relation with some inherent  $\varphi$ -features. The syntactic head with unvalued  $\varphi$  features is called a probe and the head carrying the inherent  $\varphi$ -features is considered to be a goal. As mentioned in Chomsky et al. (2017) to this date, there is no clear answer to the question whether *Agree* is “part of the narrow-syntactic computation” (p.9) or it belongs to the phonological mapping in order to determine the morphological shape of underspecified forms.

The last operation in narrow-syntax is *Transfer*. Transfer is required to map the objects constructed in core syntax to the interfaces.

The analyses employed in this dissertation take the minimalist operations into account and in addition closely follows Distributed Morphology (DM), a framework in MP that incorporates both morphology and syntax and considers them as a single array of the grammar. DM considers the syntax and morphology to have much in common and look very similar in their structures. They can be considered to be alike and the distinction is the difference in the available operation in them. The information about words is stored in an area called the encyclopedia which is not accessible during the derivation. Vocabulary items (the arbitrary correspondence between sound and meaning) are inserted into the derivation at PF.

DM is devoid of lexicalism and only the formal morpho-syntactic features are employed to generate syntactic structures. These structures cannot be pronounced and they need phonology to pronounce them. The idea behind this process is that, the features are selected from an abstract list of features and lack phonological



features and cannot be pronounced. Therefore they wait to be realized at PF. Such an argument is called the Late Insertion Hypothesis (Halle and Marantz, 1994).

## 1.5 Organization of the thesis

This thesis consists of six chapters. Chapter 1 introduces the research questions, presents the main hypotheses of the study, and highlights its contribution to the field. Chapter 2 focuses on the projection of bare nouns and their numerability effect in Azeri and gives a rationale for general number, which has received much attention in previous work in the literature of bare nominals, but not for Azeri. Furthermore, chapter 3 investigates the realization of the plural marker in Azeri and develops a hypothesis that goes against the proposed one in Borer (2005a). Chapter 4 looks more deeply at the spine of the noun phrase and focuses on the instantiation of classifiers, measure words and numerals as well as the projection of determiners in Azeri. Chapter 5 investigates the interaction of aspect with the syntax and semantics of the noun phrase. Chapter 5 shows how aspect affects the interpretation of number in the sentence. Inspired by previous studies on pseudo-incorporation, chapter 5 will provide an answer to a puzzle related to number ambiguity and its interaction with aspect. Chapter 6 summarizes and concludes.

*Chapter 2:* The main focus of this chapter is the syntax of number. Among the languages of the world, some languages distinguish between singular and plural while other languages have a system of dual, trial or paucal for smaller numbers (Corbett, 2000). In languages with a strict numbering system, like English, as in (25) and (26), there is a forced choice between singular or plural for the speaker. Plural is marked morphologically in English and lack of plurality, namely the morphologically unmarked form, results in the semantically marked singular reading.

(25) two book-s

(26) \*two book

In languages with obligatory plural marking and in the presence of the obligatory functional category, plural marking is realized as a syntactic process. On the other hand, there are languages, e.g. Azeri, where morphologically unmarked nouns are not necessarily interpreted for number semantically.

This chapter shows that number marking in Azeri is quite different from languages like English. In order to explain the number marking system in Azeri, I adopt Borer’s (2005a) framework, in which functional categories are used to distinguish between count and mass nouns, as in (27) for plurals in English.



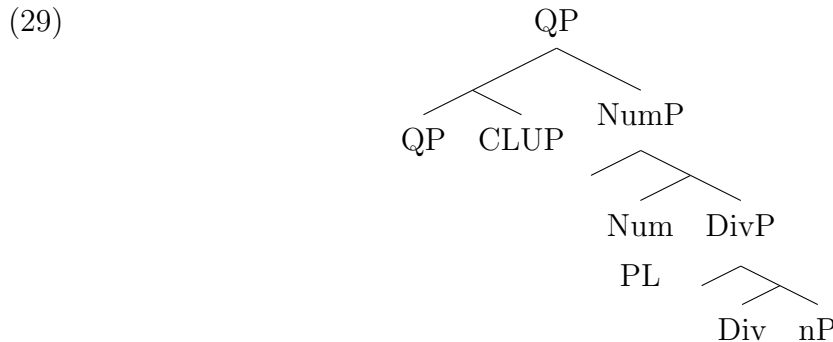
In addition to Borer’s (2005a) paradigm for the count and mass distinction I review Chierchia’s (1998b) and Wiltschko’s (2008) analyses in relation to the distribution of bare nouns but the developed discussion supports the idea that neither of these two approaches can provide solutions to the puzzle raised in this chapter. In sum, I show that the plural marker in Azeri is not derived under division and it is not used to realize individuation in the language either. Instead, I propose that there is a null projection of the division in this language that gives rise to the projection of general number. This proposal considers the plural marker to be higher than DivP in the nominal spine. This requires the NumP to be the position where the plural marker is generated, a position that does not hold the plural marker in Borer’s analysis.

*Chapter 3:* The next chapter presents the remaining functional heads in the spine of the noun phrase in Azeri. One of the problems discussed in this chapter is the co-occurrence of the classifier and the plural marker that is not expected, as in (28), following Borer’s (2005a) account or any other approaches that consider the projection of the plural marker and the classifier as a divider in the language (Greenberg, 1972; Doetjes, 1997; Mathieu, 2012a; Mathieu and Zareikar, 2015).

- (28) Iki dənə kitap-**lar** miz ust-də-dir.  
 two CL book-PL table on-LOC-BE.3  
 ‘The two books are on the table.’

Since I consider that the division head is not necessarily filled by the plural marker, the plural marker is required to play an independent role. I argue that the plural

marker assigns plurality and not division and it is required to be projected under NumP/#P, as in (29).



*Chapter 4:* An interesting observation in Azeri nominals is that there is a strict correlation between the appearance of the unit word (cluster) and numerals. In the model that I provide, numerals are considered to be projected in a higher head under QP. The co-occurrence of the plural marker with the cluster and the numeral is evidence that they are not in complementary distribution. In Borer (2005a), for languages like Azeri in which the plural marker does not occur with the numeral, it is argued that the numeral assigns two functions at the same time, division and number, and therefore is able to accommodate for both of the features.

On the contrary, the occurrence of the plural marker and the numeral is acceptable in the presence of a cluster head. The assumption is that the numerals are selecting for a certain  $\varphi$ P.

*Chapter 5:* This chapter is inspired by Dayal's (1999) work on Hindi bare nouns. According to Dayal, Hindi bare nouns give a variety of meanings. Dayal explores the interaction of the semantics of Hindi bare nouns with incorporation. In Dayal (2011), she considers that Hindi nouns undergo pseudo-incorporation, since the process involves an NP rather than an N. According to Dayal, the number neutrality of Hindi bare nouns is not the result of incorporation. Furthermore, she adds that the incorporated noun is not number neutral by itself and the neutrality arises under atelicity. On the same note, Massam (2009) (cf. Mahanan, 1995) contrasts noun incorporation with pseudo-noun incorporation and argues that pseudo-noun incorporation comes from the interaction with aspect.

As I show in chapter 5, most of what has been observed in previous work on the interaction of aspect and noun incorporation is also observable in Azeri. In

most cases, the bare noun in Azeri appears in structures similar to its phrasal counterpart in relation to aspect. I assume (considering Borer, 2005a and the fact that bare nouns in Azeri are not really bare) that Azeri bare nouns do not undergo noun incorporation and it is pseudo noun incorporation that occurs in the language. Furthermore, I focus on the interaction of number and aspect (including structural aspect and view point aspect) in Azeri.

According to previous studies, atelic interpretation of the predicate arises when the argument structure is not marked for case, and the case marked forms are always telic. However, the bare noun in Azeri exhibits the reverse behaviour. In the example (30), with all perfective, progressive, habitual, perfect and future forms, both telic and atelic interpretations are available. That is to say the bare form appears in telic and atelic contexts and derives singular or number ambiguous readings.

- (30) kitap xku-du-m / oxu-muş-am / oxu-yar-am /  
 book read-PAST-1SG / read-PART-1SG / read-HAB-1SG /  
 oxu-yur-am / oxu-yaca-yam  
 read-PROG-1SG / read-FUT-1SG  
 ‘I (have/used to/will) read a book/books.’

However, examples (31) and (32) confirm that we can insert time expressions like ‘in/for an hour’ and create situations such as ‘I read a book in an hour’ and/or ‘I read books for an hour’.

- (31) Bir saat-da kitab oxu-du-m / oxu-muş-am / oxu-yar-am /  
 one hour-in book read-PAST-1SG / read-PART-1SG / read-HAB-1SG /  
 oxu-yaca-yam  
 read-FUT-1SG  
 ‘I (have/used to/will) read a book in an hour.’
- (32) Bir saat kitab oxu-du-m / oxu-muş-am / oxu-yar-am /  
 one hour-in book read-PAST-1SG / read-PART-1SG / read-HAB-1SG /  
 oxu-yaca-yam  
 read-FUT-1SG  
 ‘I (have/used to/will) read books in an hour.’

I argue that the singular (and specific) reading of the bare noun in perfective aspect is related to the projection of  $Asp_Q$  (the syntactic projection responsible for

telic interpretation according to [Borer, 2005a](#)). When  $\text{Asp}_Q$  is projected, it gives rise to a telic predicate.  $\text{Asp}_Q$  is assigned range indirectly by the adverbial in Azeri and transfers the quantity feature to the noun via spec-head agree relation. In the case that the accusative case marking is present, in (31), the range assignment to the noun is by means of an f-morph. In these cases the nominal is already a quantity and has a specific and singular number on it. If  $\text{Asp}_Q$  gets projected, the corresponding structure will get a telic reading and in the absence of it, an atelic reading will arise. On the other hand, the specific interpretation of the bare noun maps with the perfective aspect and it is only in the context of a perfective predicate that its specificity arises.

# Chapter 2

## Bare Nouns

### 2.1 Introduction

In marking number some languages simply distinguish between the singular and plural interpretation of the noun while other languages use other contrasts. In languages with a regular number system, like English, there is a forced choice between the singular or the plural form of the noun. The plural is always marked morphologically and the lack of plurality, namely the morphologically unmarked form, means that the noun is semantically marked for the singular reading. In languages with an obligatory plural marking and in the presence of an obligatory functional category, i.e. quantity, plural marking is realized as a syntactic process (Borer, 2005a).

On the other hand, the quantity head can be morphologically null and it derives a general reading of the bare noun with respect to singularity or plurality. It is discussed in the literature that the general reading is the result of lexical ambiguity. Nevertheless, there are tests to determine that bare nouns do not have lexical ambiguity but are general and not specified for number instead (Bliss, 2004). According to Saeed (1997) (as cited in Bliss, 2004) the terms *ambiguity* and *vagueness* are defined distinctly. Ambiguity describes words with multiple distinct meanings while vagueness is the inability of a word to define clear borders to its extensions. For example, words such as *pen* are ambiguous in English by referring to both a writing tool and an animal enclosure but words like *tall* are vague in their semantics as there is no definite boundary to define the adjective. A *six foot tall man* could be considered as tall and so might a *six story tall building*.

In addition to the *ambiguity* and *vagueness* distinction, general number has received several other descriptions. Corbett (2000) introduces languages with little number dominance in which the noun can be expressed without a reference to number. Such a system is considered to be a general number system. For Rullmann and You (2003) in languages with general number, the base form of a count noun denotes a set containing both atomic entities and pluralities. In other words, the denotation of the base form of the noun is a complete semi-lattice generated by a set of atoms.

In the present study, I follow Bliss (2004) and consider that general number in Azeri is unspecified for number rather than being vague. This will become clear following the examples provided throughout the discussion.

In this chapter, I show that the property of number marking in Azeri is a syntactic process and that it is accomplished under the projection of an inflectional category. In order to achieve this goal, I adapt Borer's (2005a) framework in which functional categories, such as the plural marker and the classifier, are suggested to appear on nominals and are able to assign count interpretation to the noun. In cases where a plural marker, *-s* in English, appears under a functional category, the atomized noun yields a plural interpretation but is not marked for number. The absence of the plural marker results in singular reading of the atomized noun and the noun is marked for number. I will show that Azeri does not follow such a representation and bare nouns do not carry a distinctive number property, or in other words, they are not marked for number.

The chapter is organized as follows. Section 2.2 shows the distribution of bare nouns in Azeri and it introduces a number of questions related to the projection of such nouns in this language. Section 2.3 introduces two analyses in relation to the syntax and semantics of bare nouns and the process of singular versus plural marking; namely, Chierchia (1998b) and Borer (2005a). Accordingly, this section shows that the behaviour of the noun in general number languages is not explained in any of the suggested approaches. Furthermore, section 2.4 shows that in order to explain the projection of general number we need to assume the existence of a null division head in Azeri and in languages that license general number. Nevertheless, the existence of the plural marker in addition to general number is another puzzle that needs to be solved if we decide to propose that the spell-out of the plural marker under a division head is not necessary for licensing an atomized reading (Mathieu and Zareikar, 2015), as discussed in Borer (2005a). Section 2.5 presents

the distribution of mass nouns in Azeri and highlights the distinction between a general number reading and a mass reading. Section 2.6 summarizes and concludes this chapter.

## 2.2 The distribution of bare nouns in Azeri

Nouns in Azeri can appear bare, without the occurrence of any case marking, plural morphology or numerals. They appear as arguments in (33-a) and (33-b). The unmarked form of the noun could be interpreted as singular or plural based on the context it appears.<sup>1</sup>

- (33) a. **Alma** dər-di-m. (object position)  
 apple pick-PAST-1SG  
 ‘I picked an apple/ I picked apples.’  
 b. **Kuş** uç-dı. (subject position)  
 bird fly-PAST.3SG  
 ‘The bird flew.’

These bare nouns in the argument position<sup>2</sup> can be interpreted as definite or indefinite, illustrated in (34) for subject position and (35) for object position. In the case that the noun is indefinite, it gives rise to a generic reading<sup>3</sup> while the definite one yields an existential reading and it has a uniqueness feature which is not always morphologically marked (cf. Karimi, 2003 for Persian and Enç, 1991 for Turkish).

- (34) a. **İlan** sanj-ar.  
 snake stink-HAB.3  
 ‘The snake/snakes stink.’ [indefinite kind reading]  
 b. **İlan** kaç-dı.  
 snake escape-PAST.3SG  
 ‘The snake escaped.’ [indefinite existential reading]

<sup>1</sup>The examples that are not from Azeri are all labeled.

<sup>2</sup>Similar discussion on the ability of a bare NP to appear in the argument position is discussed for Persian by Ghomeshi (2003). Ghomeshi argues, when the bare NP appear in argument position, it results in a non-referential reading.

<sup>3</sup>Genericity discussed in this work follows the definitions suggested in Carlson and Pelletier (1995). Genericity is defined to be of two forms. One as an NP that is *kind-referring*; and the second is a sentence that expresses generalization, and is called as a characterizing or generic sentence.



- c. Najib **at** dır  
gentle horse be.3SG  
'The horse is gentle.'  
[existential predicate]
- (35) a. Get **ilan** tut.  
go.2SG snake catch.2SG  
'Go catch a snake/snakes.'  
[indefinite generic reading]
- b. **Ilan**-ı gətir bura.  
snake-ACC bring.2SG here.  
'Bring the snake here.'  
[unique and familiar]
- c. **At** najib heyvan dır.  
horse gentle animal be.3SG  
'Horses are gentle animals.'  
[generic predicate]

Bare nouns in Azeri yield a singular or plural interpretation, in (34) and (35) respectively. They look singular in form but they are not semantically singular. Their singular or plural interpretation is accessible through the context but the distinction is not forced unless they are morphologically marked by the plural marker, case marker, numeral or the singular reading is forced by a telic predicate. This ambiguity in number suggests the existence of general number. As mentioned earlier, general number appears in languages in which the noun can be expressed without a reference to number (Corbett, 2000). The form of the noun is ambiguous between a singular and plural reading. In languages with a strict number marking system, the meaning of the noun can be expressed with reference to number. This means that there is a choice of morphologically marked singular or plural, e.g. English, whereas in languages with general number reading there is no such choice and the lack of plural marker does not mean singular.<sup>4</sup> Azeri is among the languages that distinguish two forms of number, i.e. general number and plural marking, for their count nouns as in (36), lack of the plural marker does not mean singular and the noun can still preserve its plural meaning. This implies that we cannot derive the categorial status of a given morpheme from its semantic properties. *Kitap* in (36) does not entail a singular reading only and could mean one or more books.

<sup>4</sup>In Borer (2005a, chapter 4) and Borer and Ouwayda (2015), lack of a morphological individuator (in Arabic) means singular. However, this does not concern us here as Arabic has collectives that become singulativized in the process of individuation (Mathieu, 2014), and it is the individuated form of the noun that is singular. Collectives are always read as semantically plural where the bare noun in Azeri is ambiguous between singular or plural reading. It worth noting that the morphologically unmarked form of the noun in most languages, i.e. English, Hindi, Hebrew, etc., is singular in semantics.

- (36) **Kitap** al-dı-m.  
 book buy-PAST-1SG  
 ‘I bought a book/books.’

The rest of the chapter is going to discuss the existing views on the generation of bare nouns. The chapter focuses on the frameworks that explain the instantiation of general number reading in bare nouns compared to singular reading in Azeri-type and English-type languages.

## 2.3 Bare nouns: Overview

### 2.3.1 Chierchia (1998b)

Among many studies that are done on bare nouns Chierchia’s (1998b) seminal view on bare nouns stands out. This section introduces Chierchia’s (1998b) nominal mapping parameter, a ‘Neocarlsonian’ view of kind reference within the theory of bare nominal arguments, i.e. determinerless noun phrases. Chierchia shows that bare singular arguments are not possible in Germanic and Romance languages the way they are observable in Chinese. On the other hand, bare plurals and bare mass nouns are grammatical in Germanic while in Romance they are either ungrammatical or have a limited distribution (Chierchia, 1998b).

Based on semantic parameters, Chierchia (1998b) distinguishes two types of NPs cross-linguistically. Some languages have [+arg, –pred] nominals and others are [–arg, +pred]. Furthermore, there is a third type that gives rise to [+arg, +pred] languages, i.e. Germanic and Slavic. In Chierchia’s view, the [+arg, –pred] type is a language in which the NP is argumental, namely, it has a kind reading. Chinese and Japanese are given as examples for this type of language in which the bare noun can freely appear as an argument. Since all the nouns in argumental languages are either kind or mass, the result is the absence of a singular or plural marking in these languages. If there is a determiner in these languages, Chierchia claims, it will be a kind-taking variant which he calls a DET’. Therefore, the language chooses the variant fitting its NP. Nevertheless, the determiner variant applies to the kind and shifts it to a predicate via upward operation as in (37).

$$(37) \quad \text{DET}'(x)(P) = \text{DET}^{\cup x}(P)$$

Chierchia argues that, as a result of the upward operation, all nouns in these languages are going to be mass.<sup>5</sup> Under such an assumption the function plural cannot be defined for these nouns and the presence of an individuator becomes necessary to generate a count reading. This consideration implies that the plural marking in these languages is going to be absent since the  $\cup$  operation gives rise to a mass interpretation. According to Chierchia it is not possible to say things like ‘two boys’ in these languages. Numerals do not directly combine with nouns and this creates a requirement to use a classifier to individuate the noun. Chierchia’s interpretation of the numeral classifier in ‘two CL boy’ is readings such as ‘two portions of boy’ or some such thing. Considering that Azeri grammar reflects a rather similar pattern at a first glance, such an account for bare arguments and the need for a classifier in the presence of numerals situates Azeri in the [+arg, –pred] category. The immediate consequence of such classification is that Azeri, similar to Chinese-type languages must require a classifier to individuate the noun in the presence of a numeral. Based on Chierchia’s argument, this should happen because the language gives rise to the appearance of bare nouns in argument position, illustrated in (33), repeated below in (38), and it does not require plural marking in the presence of a numeral. To illustrate the mismatch between the number neutral bare noun with the the bare mass noun, a numeral is inserted in the structure of (39) where an unacceptable structure is derived. Cases like the ones in (38) are counter examples for Chierchia’s first requirement to place Azeri among [+arg, –pred] languages.

- (38) a. **Kuş** uç-dı.  
bird fly-PAST.3SG  
‘The bird flew.’
- b. İki **kuş** uç-dı.  
two bird fly-PAST.3  
‘Two birds flew.’
- c. \*İki **kuş-lar** uç-dı.  
two bird-PL fly-PAST.3  
‘(intended) The two birds flew.’

---

<sup>5</sup>The impossibility of pluralizing mass nouns arises from the fact that mass nouns are already plural (Chierchia, 1998b). Chierchia argues that mass nouns come out of lexicon closed and under the group forming operation  $\cup$ .

- (39) \*İki su      tökül-dü.  
 two water spill-PAST.3  
 ‘(intended) Two portions of water spilled.’

Since Azeri does not employ a strict classifier system, as seen for Chinese-type, in (40) the appearance of the classifier seems optional. Given that the presence of the classifier is obligatory to qualify a language as an [+arg, –pred], the optionality of it requires an explanation.

- (40) a. İki **dənə kuş** uç-dı.  
 two CL bird fly-PAST.3  
 ‘Two birds flew.’  
 b. İki **dənə kuş-lar** uç-dı.  
 two CL bird-PL fly-PAST.3  
 ‘The two birds flew.’

On the other hand in predicative languages, i.e. [+pred, –arg], the NP is of the predicate type and it needs to shift into an argument, ‘type <e>’ via downward operation ‘ $\cap$ P’. Here the presence of a determiner shifts the N-predicate to a kind. If a language does not have a projection of D, it is likely for it to have a phonologically null D. Such a null D is considered to be under the licensing conditions where the bare argument is governed by a lexical head. Azeri does not have an obligatory determiner to shift the predicative noun into an argumental noun. Therefore, bare predicative nouns should have a null D in their projections that shifts them into an argument. Despite the fact that Azeri looks like a [+arg, –pred] language in Chierchia’s account and bare nouns can appear as arguments, with further discussion in this section I will show that Chierchia’s analysis is not applicable to Azeri.

Let us consider Chierchia’s analysis for Azeri. Nouns in Azeri show up bare in argument position and do not have any instantiation for number. Considering Chierchia one would say all nouns in Azeri-type languages are mass and they need a classifier in the presence of numerals, as in (41).

- (41) a. **Alma** dər-di-m.  
 apple pick-PAST-1SG.  
 ‘I picked an apple/apples.’

- b. İki **dənə alma** dər-di-m.  
 two CL apple pick-PAST-1SG  
 ‘I picked two apples.’

However, this does not imply that in Azeri numerals necessarily need a classifier in their projection. The bare forms of the examples in (38), without the classifier, are grammatical too. Even assuming that there is a null classifier in the projection that is not spelled out, this assumption is not able to explain cases in which the lack of a classifier is semantically marked, as in (42). Trying to insert a classifier in this example results in an ungrammatical structure. Unacceptability of the classifier in some contexts and its optionality in others clearly shows that we are not dealing with a numeral classifier language.

- (42) a. İl-də iki gün işlə-mə-z.  
 year-DAT two day work-NEG-3SG  
 ‘He does not work two days per year.’  
 b. \*İl-də iki **dənə** gün işlə-mə-z.  
 year-DAT two CL day work-NEG-3SG

According to Chierchia, it is expected that bare nouns in argumental languages will require a kind taking variant, recalling the DET’ variant from the section above, in order to turn the arguments into an N-predicate. Observable from Azeri, there is no overt DET’ in this language, as in (43).

- (43) It hur-ər.  
 dog bark-HAB  
 ‘Every dog barks.’

This leaves us with the question if Chierchia accounts for a null DET’ when the bare noun shifts from kind to predicate. If that is not the case, which seems true,<sup>6</sup> we are forced to consider Azeri to be a [+pred, –arg] language. For this purpose all the bare nouns are required to have a determiner in their projection; a null D if not overt as in Italian. The problem with considering a null determiner is that the null D needs to be governed by a lexical head. Such a lexical head is not accessible in Azeri cases. So, the idea of considering Azeri to be a predicative language loses its validity, as well as being an argumental language.

<sup>6</sup>It is neither acceptable to take the null or overt D as the determiner variant DET’ since the former creates a functional head where the latter cannot (Borer, 2005a).

A mismatch in behaviour of the bare noun is observed for D  ne Sy  lin   (Athapaskan) by Wilhelm (2008). D  ne has bare arguments and no plural marking. The bare form of the noun is translated as definite or indefinite based on the context. In the presence of numerals, bare nouns have a plural interpretation without the appearance of a plural marker or a classifier.

Wilhelm argues that, in their bare form, “the difference between count and mass nouns lies in atomicity, not in number” (p.42). As Wilhelm (2008) claims, if we want a formalization of the count/mass distinction that holds across all languages, including those without number and classifiers, the nonatomic domain cannot be avoided. For Wilhelm, nouns with atomic denotations are count, even when their singularity or plurality is not specified.

Moreover, Wilhelm (2008) argues that her analysis is not incompatible with Chierchia’s parameter,<sup>7</sup> but it makes it unnecessary. According to Wilhelm, Chierchia’s parameter does not bring us anything anymore. Her argument follows the fact, “since we had to reintroduce a nonatomic domain, nouns can start out as denoting atomic or nonatomic semilattices” (p.62). Since countability is not tied to number inflection, in languages with number neutrality, number inflection may or may not appear on count nouns. In case these languages do not have number inflection and additionally no determiners, nothing will mark a shift from  $\langle e, t \rangle$  to  $e$ , and bare arguments will be possible. Chierchia’s parameter loses its accountability for the distribution of bare nouns once the obligatory connection between count nouns and number inflection is broken, since there will be no way to recover whether a bare noun started out as type  $e$  or  $\langle e, t \rangle$ .

After showing that Chierchia’s approach is not applicable for Azeri type languages, we move on to the next section. In the next section I introduce two other approaches in relation to the projection of bare nouns and the interpretation of plurality is postponed to chapter 3.

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<sup>7</sup> Chierchia links the distinction to the nominal system, arguing that non-classifier languages have a mass/count distinction among nouns, while classifier languages do not. Being mass and count is distinguished by the number property of the noun, meaning, singular and plural nouns have number properties but mass nouns lack such a property.

### 2.3.2 Other accounts

In addition to Chierchia's nominal mapping parameter that gives mass/count distinction values to the lexicon, there are other claims on the distribution of bare nouns that go in the opposite direction from Chierchia. These claims suggest that the bare form of the noun does not carry any formal properties. Borer (2005a) and Wiltschko (2008) share an account in which, roots (bare form of the noun) do not carry any grammatical properties. However, Borer's and Wiltschko's analyses diverge on the function assignment in relation to the root. Wiltschko considers plural markers in a language like Halkomelem to be root modifiers, hence roots in this language do not have any categorial features. On the other hand, Borer believes in the function assignment of the plural morpheme to the lexical items. For Wiltschko, the way roots enter syntax is by assigning function to them but at the same time roots can take modifiers that do not determine their category.<sup>8</sup> However, in Borer's (2005a) account roots do not carry grammatical features but they are considered to be categorial as a result of their syntactic position. For this purpose functional heads are considered to assign function to the categorial items. Wiltschko's system allows for the existence of modificational functional elements where in Borer's system, the functional category is considered to be inflectional in nature.

Being mindful of the distinction between categorial and non-categorial roots, I introduce the appearance of bare nouns in Azeri in the next section. The attempt is to adopt a theory that is optimally applicable for the suggested data. But before getting into a detailed comparison, the introduction of each independent account and the discussion of shortcomings seems necessary.

### 2.3.3 Borer (2005a)

Unlike Chierchia (1998b), in Borer (2005a) lexical items are introduced as open class items that do not contain any formal properties and they need functional heads in order to receive grammatical properties. These properties are assigned in the form of range, assigned by free/bound-morphemes. Let <e> be an open

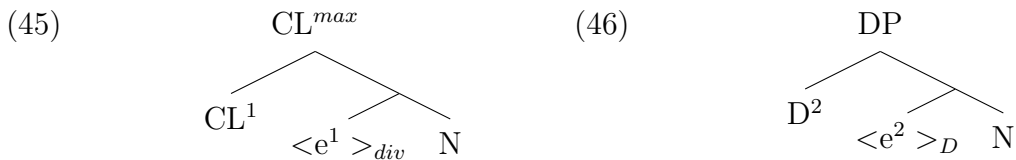
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<sup>8</sup>Since roots do not have a category, the modifier freely attaches to any root.

value<sup>9</sup> that  $\alpha$  assigns range to this open value, in (44). The open value assigns grammatical properties to its sister that is the lexical item.<sup>10</sup>



Borer considers that functional heads are open values which are assigned range by a variety of means. In her framework, there are three functional heads which assign range to their open values. The first functional head is the division head, that assigns division to the head noun (the assignment of division to the lexical head results in the atomized reading of this head). The presence or absence of the individuator correlates with the mass or count form of the noun. The projection of the  $CL^{max}$  in (45) will individuate the noun,<sup>11</sup> but if the CL is not projected the noun will have a mass reading, as illustrated in (46); that is to say, nouns for Borer are undetermined in nature and it is the projection of the CL that leads the noun to have a count interpretation. In languages that lack classifiers of dividing type, such as English, Borer argues that number marking (plural) realizes division, illustrated in (45), and that number is realized on a different head, i.e. # (to be discussed in chapter 3).



More evidence that shows the plural morpheme does not have a semantic effect in marking plurality comes from Krifka (1989) who argues against the plurality effect of the plural marker in English. Krifka argues that examples like *0 cows*/*\*cow* and *1.0 cows*/*\*cow* show that bare plurals can be used in cases where the number of objects is one and even less than one.<sup>12</sup> Taking this into account and considering

<sup>9</sup>This open value is associated with a categorial label and determines the semantic class of the elements that may assign range to it (Borer, 2005a)

<sup>10</sup>For the purpose of this study the open value assigns grammatical properties to the lexical N head. It is the closest open value that assigns the property to the lexical head and the higher open value cannot assign properties to this head since they are not sisters

<sup>11</sup>Classifiers in Borer's framework are treated as individuator.

<sup>12</sup>The semantics of plurals has changed compared to previous beliefs. In recent works plurals are not simply referring to more than one (the exclusive reading), but are often described as referring to one or more (the inclusive reading), in which case the singular is included in the plural (Mathieu, 2014 and Sauerland et al., 2005).



that individuation is assigned by either the plural marker or the classifier, Borer (2005a) argues that in classifier-free Chinese nouns, i.e. number ambiguous nouns, are interpreted as mass. Borer's view of mass, when the mass-count distinction is available, is that mass is considered as a default semantic value. This means that the lack of the individuation feature results in a mass reading.

In Borer's framework, features do not necessarily have independent instantiations and they can spell out as an abstract head feature on a double range assignment configuration, (47-a), or as a free morpheme, (47-b), or lexical stem, (47-c). This is an explanation for languages like Armenian, with the option of having a classifier or plural marker on the head noun to assign division, as illustrated in (47) from Borer (2005a, pp.94-95). However, it is notable that the plural marker and CL can appear interchangeably, but not at the same time as their co-occurrence is expected to be in complementary distribution, in (47-d).

- (47) a. **Yergu** hovanoc uni-m (*cardinal, no classifier, no plural*)  
 two umbrella have-1SG  
 'I have two umbrellas.'
- b. Yergu **had** hovanoc uni-m (*cardinal, classifier, no plural*)  
 two CL umbrella have-1SG  
 'I have two umbrellas.'
- c. Yergu hovanoc-**ner** uni-m (*cardinal, no classifier, plural*)  
 two umbrella-PL have-1SG  
 'I have two umbrellas.'
- d. \*Yergu had hovanoc-**ner** uni-m (*cardinal, classifier, plural*)  
 two CL umbrella-PL have-1SG  
 'I have two umbrellas.' [Armenian, Borer, 2005a, Ex.6, P.94]

Based on what has been said above the conclusion is drawn that count denotation arises from individuating functional heads, namely number and classifier (Greenberg, 1972; Chierchia, 1998b; Cheng and Sybesma, 1999; Borer, 2005a).

### 2.3.4 Shortcomings of the two accounts

Considering both Chierchia's and Borer's accounts, we face two puzzles in Azeri. As it is introduced above, bare nouns are argumental in Azeri, whereas in other languages, such as Halkomelem, they are not able to appear as arguments (Wiltschko, 2008).

In Borer's (2005a) framework, count nouns must individuate, so that they can take number. However, this individuation could be done by morphemes that are able to assign multiple functions. As an example, the definite article in English is able to assign the  $\text{Div}^0$  and  $\#$  and D features respectively, illustrated in (48). Other f-morphs such as *each* and *every* do the same in English and they assign individuation and number functions respectively.

$$(48) \quad [\text{DP the } \langle e \rangle_d [\#_P \text{ the } \langle e \rangle_{\#(\text{DIV})} [\text{CL}^{max} \text{ the } \langle e \rangle_{\text{DIV}(\#)} [\text{NP cat}]]]]]$$

[Borer, 2005a, Ex.14, P.167]

Relative to the morphological presence of an individuator in languages like English, there are languages in which the cardinals can be of dividing type and can assign multiple functions to the head noun along the nominal spine (Borer, 2005a). This is illustrated for languages like Hungarian, Turkish and Armenian. The idea of individuation according to Borer provides reticules that can be selected by the quantity function. Such a selection is not available until the mass listemes are turned into reticules. For Chinese-type languages a classifier, e.g. *lè*, plays such a role and for English the plural marker, articles and some selected quantifiers do.

On the contrary, bare nouns in Azeri do not take any determiners in their projection and therefore are not individuated by means of any functional morphemes. Borer (2005a) accounts for the null projection of heads. As an example 'cats' is ambiguous in number reading because the  $\#_P$  is not generated and the number feature is not assigned to the head noun. In a similar account, in Azeri-type languages the  $\#_P$  head must be generated when the noun gives a general number reading. However, the count nature of the noun entails its individuated form. Such count nouns yield an individuated reading but lack a number instantiation, similar to pluralized but non-enumerated nouns in English or the classified nouns in Chinese-type languages.

An interim conclusion here is that, based on Chierchia's analysis, Azeri can neither be an argumental type language nor a predicative type. The Armenian example in (47-a) is not explained for cases without the appearance of the cardinal and it is not explained if it is grammatical with the bare form of the noun. If we assume that the Armenian bare form of the noun is grammatical, as we will see for Azeri in the upcoming sub-section, Borer's proposal does not account for the

existence of general number. What makes the English unmarked noun to be read as singular causes Azeri bare noun to be ambiguous in number. This brings the need to open a new section to explain the projection of general number in light of existing frameworks.

## 2.4 New proposal: The distribution of general number and plurality in Azeri

It is important to note that a noun with a general number reading is not ambiguous between a singular and plural reading. The phenomenon of general number cannot simply be equated with a total absence of number or number marking from a language (Rullmann and You, 2003). Rullmann and You (2003) argue that Sanches's universal directly contradicts Chierchia's (1998a; 1998b) prediction that in classifier languages nouns can never be pluralized.

*If a language includes numeral classifiers in its dominant mode of forming quantification expressions, then it will also have facultative expression of plural.*

*In other words, it will not have obligatory marking of the plurals on nouns.*

[Sanches and Slobin, 1973, 4]

Section 2 of this chapter illustrated the fact that bare nouns in Azeri are unspecified for number and yield a singular or a plural interpretation simultaneously. Bare nouns look singular in form but are not semantically singular, unlike English. In Azeri, singular or plural interpretation is accessible through the context and the distinction is not forced unless it is morphologically marked.

The illustration of the instantiation of general number in the light of the two accounts discussed above is not enough to explain how general number reading is driven. This section proposes an account that explains licensing of general number in languages like Azeri. The availability of ambiguous reading of the bare noun is discussed for some of the sister languages of Azeri including Turkish. In an illustration by Görgülü (2010) Turkish nouns with a general number interpretation are considered to be number neutral. Görgülü (2010) considers nouns in Turkish as number neutral, i.e. they do not give reference to singularity or plurality in the

language. His argument goes against previous studies in which nouns in Turkish were treated to be mass and the language is considered to lack a distinction between count and mass (Corbett, 2000; Schroeder, 1999). On the other hand, if we assume that this neutrality is driven from the existence of general number in languages like Turkish, we need to provide an explanation for the occurrence of neutrality in comparison to languages such as English with a clear distinction between singular and plural interpretation.

To highlight the problem here, the comparison of two ambiguous readings of the bare noun in Azeri and Halkomelem is suggested. Azeri bare nouns at first glance, as shown in (49), resemble to the ones in Halkomelem where the lack of an overt plural marker means either singular or plural. But there are several differences that distinguish them from each other. In Azeri, similar to Halkomelem, the bare form of the noun has a singular or plural interpretation. However, in the presence of numerals more than one, the plural marking is abandoned, as shown in (49), yet the noun is only interpreted as plural. While in Halkomelem there is no semantic difference between the plural marked or unmarked form of the noun, both marked and unmarked nouns are compatible with a plural interpretation in the presence of numerals, as in (50).

- |      |                                                           |                                                                                                    |
|------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| (49) | a. iki oğlan<br>two boy<br>'two boys'                     | b. *iki oğlan-lar<br>two boy-PL<br>'two boys'                                                      |
| (50) | a. te lhíxw swóweles<br>DET three boy<br>'the three boys' | b. te lhíxw swóweles<br>DET three boy.PL<br>'the three boys' [Halkomelem,<br>Wiltchko, 2008, Ex.3] |

To clarify this point further, plural marking works differently in Azeri. Although the bare form of the noun is ambiguous for number, the plural marked noun forms an interpretation that is plural both in the syntax and semantics, as in (51).

- (51) oğlan-lar  
boy-PL  
'boys'

Recalling that, according to Borer (2005a), words like ‘cats’ in English are individuated but they do not make reference to number. This means that nouns that are individuated by the plural marker are structures that are explained to not have a projection of #P in their derivation. Therefore, the noun is atomized but does not have an interpretation for number and is ambiguous for quantity. The assumption for the singular form, however, is that the range assigner to  $\langle e \rangle_{DIV}$  is the same as the range assigner to  $\langle e \rangle_{\#}$  (this is true in English-type languages). This explains how we get a singular reading with the indefinite marker *a* or the definite marker *the* in English. The definite and indefinite markers are argued to assign range to both  $\langle e \rangle_{\#}$  and  $\langle e \rangle_{DIV}$  in (52). Under this assumption a #P must project, for us to have both the division and number reading, i.e. singular reading in English.

- (52)  $[_{DP} \text{ the } \langle e \rangle_d [\langle e \rangle_{\#} \text{ the } \langle e \rangle_{\#(DIV)} [_{CL}^{max} \text{ the } \langle e \rangle_{DIV(\#)} [_{NP} \text{ cat}]]]]$   
 [Borer, 2005a, Ex.14, P.167]

The projection of DivP and #P for singular interpretation of the nominals is obligatory where for plurals the projection of the #P is not necessary. Hence, the appearance of a quantifier or a definite marker is required to assign range to  $\langle e \rangle_{\#}$ , in (53) (cf. Borer, 2005a, 163-167).<sup>13</sup>

- (53)  $[_{DP} \text{ the } \langle e \rangle_d [\langle e \rangle_{\#} \text{ the } \langle e \rangle_{\#} [_{CL}^{max} \text{ cat.} \langle \mathbf{div} \rangle \langle e \rangle_{DIV} [_{NP} \text{ cat}]]]]$

[Borer, 2005a, Ex.13, P.167]

The discussion so far implies that null heads exist in Borer’s account but they are assigned function by means of morphemes that are capable of multiple range assignment; such as the article *the* in English. In (53) the article is considered as null in assigning both division and number. However, the null head discussed in this chapter for Azeri diverges from Borer’s null head account for Chinese-type languages, in which she argues that individuation can be realized by a null head. Borer’s (2005a) movement of the definite marker is similar to N-D movement in Longobardi’s (1994) account. According to Longobardi, in the syntax of Western Romance, there is a case of N-D movement. Such a movement is an instance of the theory of head movement. The theory argues that “A nominal expression is

<sup>13</sup>Another way to show the projection of singular in a gender-less environment is the movement of the noun to DivP and #P respectively (Borer and Ouwayda, 2015).

an argument only if it is introduced by a category D" (p.620). The assumption is that in these languages there is a projection of D even though it might remain morphologically null.

Building on the analysis from [Borer \(2005a\)](#) and [Longobardi \(1994\)](#) I argue that the division head for Azeri bare nouns is morphologically null for indefinite<sup>14</sup> constructions. The ambiguity between singular and plural reading is the result of the null projection of DivP. The null projection of the division is crucial in the Exo-Skeletal model to license the atomized reading of the noun. Unlike Azeri, in English the atomized noun necessarily requires a morphological division assigner, or else the noun gets a mass interpretation because the DivP or the #P are not projected, where in Azeri the null projection of a null DivP is necessary to derive an atomized reading. Now it becomes clear why in the presence of a plural marker in Azeri, the #P has a morphological instantiation and only a plural reading of the noun is available. The situation is different in English. For the singular reading of the noun, it is argued ([Borer, 2005a](#)) that the #P is projected, that is to say, the null DivP and #P in English is interpreted as singular whereas in the presence of the plural morphology, i.e. -s, the projection of the #P is not obligatory ([Borer, 2005a](#), 7b, p.163).

Based on the evidence that the bare form of the noun in Azeri is individuated but number ambiguous, we know that individuation is done by a null head in this language and likewise in languages with a similar general number interpretation. It is noteworthy that the existence of the plural marker in Azeri will need to be explained independently. This is because the bare form of the noun includes both the singular and plural interpretation. As it is observable from the example in (51) above, the appearance of the plural morpheme can only be interpreted as plural. This shows that the existence of the plural marker as an individuator on DivP is not necessary to distinguish the count noun from mass, at least for Azeri-type languages. More discussion on the role of the plural marker in Azeri will be given in chapter 3.

The general number interpretation of the bare noun in Azeri therefore is argued to be inclusive in its denotation. That means the bare form of the noun in Azeri has individual atoms and sets of their pairs, as in (54).

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<sup>14</sup>A complete discussion of definite and indefinite cases is offered in chapter 5.

(54) {a, b, c, ab, ac, bc}

To sum up, the plural morpheme cannot generate on DivP in Azeri for two reasons. First, numerals appear with the bare form of the noun, and they can also co-occur with a plural marker, optionally and in the presence of a classifier. Such a co-occurrence is not predicted in Borer’s (2005a) framework since the plural marker assigning  $\langle e \rangle_{Div}$  and the plural marker assigning the same range are expected to be in complementary distribution. On the other hand, the distinction between count and mass requires individuation which licenses an abstract head and does not have an overt instantiation. In spite of the existence of a plural marker in the language and for the reasons that will become clear in the next chapter I will consider that the division assignment of the plural marker is not universal, contra Borer (2005a). Additionally, a language like Azeri contains a null projection of division in its structure. Similar observation is suggested for D  ne: “Count and mass nouns are not distinguished for mass and count reading based on their number properties, but by their semantic property of atomicity” (Wilhelm, 2008, p.41).

Now that we have a picture of bare nouns and the plural marker in Azeri, I will introduce the mass form of the noun in the language and explain its projection in light of existing frameworks.

## 2.5 Count and mass distinction

This section introduces the notion of mass/count distinction as it is treated in the literature and illustrates the projection of mass nouns in Azeri. This section illustrates the distinction of mass nouns from general number in their broad sense. To begin, it is observable that mass nouns, similar to count nouns, can appear in the subject or object position. *ya  * ‘Oil’ in (55) is in subject position and *a  * ‘soup’ in (56) is in object position.

(55) **Ya  ** suyun y  z  n-d   dur-ar.  
oil water over-LOC stand-HAB.3SG  
‘Oil sits on top of water.’

- (56)    **Aṣ** al-dim.  
           soup get-PAST.1SG  
           ‘I got soup’

However, it needs to be clarified that we are discussing mass versus count in terms of their lexical content, whether the notion of count and mass is conditioned in the syntax. In addition, the syntactic and semantic definitions of mass and count vary in their lexical content. According to Chierchia (1998b) mass nouns are not atomic (cf. Link, 1983) but are coming out of the lexicon already plural. His evidence to support such a claim is the impossibility of mass nouns to be pluralized. In that respect, mass nouns need a classifier or a measure word to set them in atoms and allow them to become countable. This links Chierchia’s (1998b) denotation of mass nouns to Borer’s (2005a) view of individuation, with the exception that in Borer (2005a) all nouns enter syntax as number undetermined unless they go through individuation and became count.

The general notion for mass and count distinction relies on an interpretation shift for mass nouns in the presence of the plural morphology. When a mass noun receives the plural marker, namely in English, the noun gets a count interpretation of ‘type’ reading (Doetjes, 2012). *Two golds* may mean two types of gold and *two wines* may mean two types of wine.

On the other hand, pluralization of the mass nouns in the same way as the count nouns in one language might lead into the consideration that the language lacks the distinction for mass and count (cf. Mathieu, 2012b for Ojibwe). Pluralization of mass nouns carries a different semantics than count nouns and it is syntactically different from them as well. I will elaborate this issue here.

One analysis for the availability of the plural marker on all nouns comes from Wiltschko’s (2008) work on Halkomelem. In Halkomelem, plural marking appears on all kinds of nouns, mass inclusive, and this is an implication for the existence of a derivational plural marking versus functional plural marking. While in English the plural marking is functional and it attaches to the category N. In Halkomelem, however, the plural marker attaches to any category neutral root as the result of its being a modifier. Wiltschko’s analysis for mass/count distinction comes from the idea that mass/count distinction does not come lexically and it is rooted in the syntax of the NP (cf. Bloomfield, 1933; Allan, 1980). She adopts Ghomeshi (2003) in arguing that mass/count distinction is realized in the # head and since the



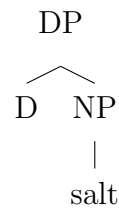
plural marker occupies the # and mass noun is also projected in #, hence the # head cannot take the plural marking and they are in complementary distribution.<sup>15</sup>

For this reason Wiltschko concludes that Halkomelem plurals should not be sensitive to the mass/count distinction as they do not occupy the # head. This allows Halkomelem mass nouns to take plural markers while in many other languages adding a plural marker to a mass noun is not allowed.

## 2.6 The distribution of mass nouns in Azeri

Following the above discussion and recalling from section 2.1, there is a syntactic distinction between count nouns and mass nouns in Azeri. While count, but number neutral, nouns contain an individuation in their projection, mass nouns do not license individuation in their structures (Borer, 2005a).

(57)



Nevertheless pluralizing the mass nouns is not evidence for the projection of the plural morpheme being on the same syntactic head. As it is observable from the previous studies, plural on mass nouns has a different semantics than plural on counts. The plural on mass is projected on a lower head than the plural on count nouns (Mathieu, 2012b). According to Mathieu (2012b) animate and inanimate nouns can pluralize in Ojibwe. Pluralization of mass nouns in Ojibwe does not follow from the conventionalized unit creation, observed in English, but receives a measure reading, in which the mass term is divided into portions or pieces. This process is argued to take place via gender shift for Ojibwe (Mathieu, 2012b).

<sup>15</sup>It needs to be explained that in Ghomeshi's analysis it is not clear what makes the distinction between mass and general number. It seems to me that she has to say that both mass and count are interpreted as mass. Her account does not consider general number reading as a count reading.

The appearance of plural markers on mass nouns can be due to several factors. On a different account plural of mass is observed in Persian with a ‘portion’ or ‘kind’ reading similar to English ([Hamedani, 2011](#)), as in (58) and (59) .

- (58) Çay-ha va ængur-ha-ye Irani xeili xoş tæʔm hæst-ænd.  
 tea-PL and grape-PL-EX Iran very good taste be.PRES-3PL  
 ‘The tea and grapes from Iran are very tasty.’ [[Hamedani, 2011](#), Ex.51, P.111]

- (59) Our restaurant serves only three waters (tap water, still mineral water, and sparkling mineral water). [[Tsoulas, 2008](#), Ex.4]

In Azeri, similar to Persian, the appearance of the plural marker on a mass noun derives an abundant meaning as in (60).

- (60) sel-**lər** ax-dı.  
 flood-PL rise-PAST.3SG  
 ‘There was lots of flooding.’

The existence of mass plurals is evidence to support the idea that the plural marker in Azeri is not a dividing plural. This observation confirms Mathieu’s (2014) argument that plurals come in different flavours. The plural on mass is not a dividing plural in the sense of Borer’s dividing plurals. The complete illustration for the syntactic position of the plural morphemes is presented in chapter 3.

- (61)
- $$\begin{array}{c}
 \text{DivP} \\
 \swarrow \quad \searrow \\
 \text{Div}^0 \quad n\text{P} \\
 \quad \quad \swarrow \quad \searrow \\
 \quad \quad n \quad \text{NP}
 \end{array}$$

Div<sup>0</sup>:

- broken plurals
- sound plurals
- singulative
- measure words

*n*:

- idiosyncratic plurals
- plural of collectives

[[Mathieu, 2014](#), Ex.52, P.31]

## 2.7 Summary

This chapter showed that Azeri has a distinction between count and mass nouns. However, bare count nouns do not project for number and the lack of number licenses the projection of general number reading in the language. I showed that bare count nouns cannot be explained in Chierchia's (1998b) framework, henceforth I adopted Borer's (2005a) structure for count and mass distinction. However, I showed that the plural marker in the language is not derived under division, unlike Borer (2005a), and it is not used to show individuation in the language. Instead, I proposed a null head version of the division head that gives rise to the appearance of general number. This proposal leaves the plural marker to mark plurality in the language instead of individuation. Mass nouns also take a plural marker in Azeri but based on the semantics of these nouns they are considered to be generated under a different head that gives rise to an abundance reading.

# Chapter 3

## Plural Marking

### 3.1 Introduction

The appearance of number in the world’s languages has been the subject of significant debates in recent years. In some languages, number is clearly marked, e.g. English, but in others the realization of number is less clear. For example, in Chinese-type languages, bare nouns can denote singularity or plurality without morphological number marking. These languages are generally recognized as classifier languages. It has been argued that this corresponds to a parameter: some languages are plural languages, others are classifier languages ([Greenberg, 1972](#); [Chierchia, 1998a](#)). For other models, ([Borer, 2005a](#)), plurals and classifiers are in complementary distribution under a dedicated functional head, i.e. Division.

As discussed in the previous chapter, in Borer’s ([2005a](#)) Exo-Skeletal model, languages do not recognize a count or mass distinction at the lexical level.<sup>1</sup> However, it is the type of syntax, triggered by count and mass meanings that makes a difference, particularly with respect to numerals ([Doetjes, 2012](#)). Therefore, nouns are generally not inherently divided (not referring to singulars or plurals - roots are devoid of grammatical information) and thus the presence of an individuator, in the form of a plural marker or a classifier, is required. Individuation of the noun is necessary before it can be counted. As such, in order to combine numerals with a noun, either a measure word or a numeral classifier has to be used or the noun

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<sup>1</sup>By lexical level I refer to a noun that enters the derivation but lacks any grammatical properties. [Borer \(2005a\)](#) considers lexical items at the starting point to be unmodified roots that enter syntax to receive formal properties.

must shift towards a (usually lexically determined) count meaning. In case a noun has a count meaning, several things may happen depending on the language. In a language such as Tagalog nothing happens: the numeral directly combines with the noun. In a language such as English, nouns with count meanings are usually marked with a plural marker, i.e. *-s*. If that is the case, plural marking would be necessary in combination with the numeral. However, for the numeral classifier in Chinese-type languages, nouns with count meaning are not marked with the plural marker, and in order to combine such a noun with a numeral, a sortal classifier has to be inserted.

Moreover, languages may have mixed properties, according to [Doetjes \(2012\)](#). The patterns that have been discussed for classifier and non-classifier languages are in accordance with the Sanches-Greenberg-Slobin generalization according to which the general use of classifiers is restricted to languages without compulsory number marking on the noun ([Greenberg, 1972](#); [Sanches and Slobin, 1973](#)). This is related to the fact that languages with compulsory number marking do not normally have number neutral count nouns. For that matter, classifiers predominantly combine with number neutral nouns. Such languages are argued to license facultative expression of the plural. In number neutral languages there is no distinction between singular or plural interpretation of nouns.

Additionally, Azeri-type languages, that I argue not to be numeral-classifier languages, include a plural marker that appears with both individuated (morphologically null) and mass nouns. Examples in (62) suggest that the plural marker is clearly not denoting a mass/count distinction since ‘kitab’ is already count without a number interpretation and the plural marker ‘-lar’ is solely interpreted as plural. The presence of the plural marker is also observable for mass nouns where it adds an abundance interpretation to the structure.

- (62) a. Kitap-lar-ı al-dım.  
book-PL-ACC buy-PAST.1SG  
‘I bought the books.’  
b. Sel-lər ax-dı.  
flood-PL rise-PAST.3SG  
‘There was lot of flooding.’

If we assume a system for Azeri-type languages that is similar to number neutral languages, in which the plural marker yields an individuated reading ([Borer,](#)

2005a), the occurrence of the plural marker and the numeral would be expected in the context of Azeri numerals. But the data in (63) shows otherwise. The co-occurrence of the numeral and the plural marker is not acceptable.

- (63) a. \*İki kitab-lar al-dım.  
           two book-PL buy-PAST.1SG  
           (intended)‘I bought two books.’  
       b. \*Beş guş-lar gör-düm  
           five bird-PL see-PAST.3SG  
           (intended)‘I saw five birds.’

Based on the facts introduced above, the following questions arise: What is the role of the plural marker in Azeri and is it an individuator as illustrated in the Exo-Skeletal model? Where is the position of the plural marker in the nominal spine in Azeri? In order to answer these question we need to know the syntactic position for the plural marker and its semantic interpretation.

The discussion in chapter 2 showed that, Azeri is not a classifier language since the bare noun can appear in the structure without the need for an obligatory numeral, a classifier or a plural marker. The fact that neither the classifier nor the plural marker are used to individuate the noun we might expect their co-occurrence. However the appearance of the plural marker and the numeral are not acceptable. Whether the plural marker and the numeral in Azeri belong to the same category and are responsible for the same function is a question that needs to be discussed.

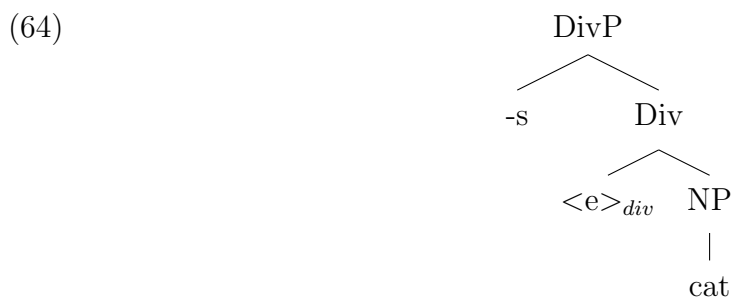
To address the questions raised in this chapter, I will present an overview of the previous literature on the syntactic and semantic position of the plural marker in 3.2. Then, I will explain how the plural marker is licensed in Azeri. Section 3.3, introduces plurals in Azeri and illustrates its applications. Section 3.4 compares inflectional and modificational plurals in the literature and provides some diagnostics for each type. It concludes that the plural marker in Azeri is inflectional. Section 3.5 introduces the position of the plural marker in different paradigms and defends that the plural in Azeri is of the count type. The plural marker is argued to be placed in a higher position, i.e. #P, than what is suggested in previous studies: usually, it is analyzed as an atomizer on a Division head (Borer, 2005a; Mathieu, 2014; Mathieu and Zareikar, 2015). Section 3.6 concludes this chapter.

## 3.2 Plural markers: In syntax and semantics

Plural marking shows variation across languages. That is to say, not all plurals denote individuals. The plural of abundance is one of the several forms (plural of modesty, exaggerative plural, hyperbolic plural, approximative plural, anti-associative plural, etc.) that has nothing to do with individuals (Corbett, 2000). The field has encountered many debates in recent years in order to explain the role of different plurals and whether they have a universal syntax and semantics (Butler, 2012; Wiltschko, 2008). All previous studies tackled distinct puzzles to show whether the plural is inflectional or derivational in nature (Mathieu, 2014; Wiltschko, 2008; Borer, 2005a) and hence can merge as a head or an adjunct.

In order to begin describing the meaning of the ‘plural’, we need to have a clear definition of what plurals are and how they are defined in the present work. The definition of plurals in this study goes beyond the traditional view of the plural (Quirk, 1985), which takes the plural to mean ‘more than one’.

Defining the syntactic nature of the plural morphology has been the focus of many studies. Plural morphology was considered to occupy the NumP.<sup>2</sup> At the NumP level, the plural marker behaves as a functional category.<sup>3</sup> Treating plurals as functional categories that determine quantity is attested in Borer (2005a), who considers plurals to instantiate a functional category that resides in DivP, in (64).



According to Borer’s (2005a) framework, plural marker in this position does not contribute to a number reading and the projection of #P is optional in English. In these cases the presence of a numeral or a quantifier is required to assign a number reading to the structure. For instance the plural form ‘cat-s’ does not

<sup>2</sup>Ritter (1995) considers that the category of NP is dominated by (a) functional projection(s). The projection of Number Phrase independently holds the specification of number and it dominates NP. According to Ritter, NumP is an intermediate projection between DP and NP.

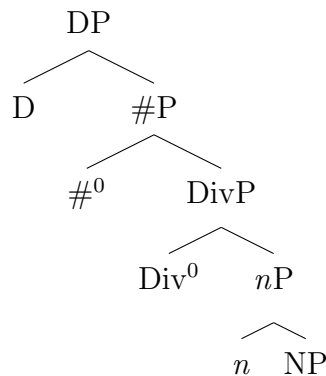
<sup>3</sup>NumP and #P are used interchangeably to refer to the functional category of number.

have a reference to the number of cats in the context and it requires a numeral to be able to refer to the number of cats.

However, more recent studies provide evidence that explains the variation of the category of plural. According to Wiltschko (2008), plurals can attach to more categories than merely NumP or #P. Wiltschko argues that plurals can attach at various points along the spine of DP (starting as low as the root all the way to DP). Furthermore, they can attach as heads or modifiers. This provides evidence for the fact that plural marking is not universally associated with #P.

The idea of plural marking being associated with various heads is discussed in more detail by Mathieu (2014, 2013). As Mathieu argues, not all plurals are dividing in nature and the plural comes in different flavours. The plural gets different interpretations based on the position it appears in the syntactic structure, on the *n*, Div or #. This is illustrated in (65).

(65)



| Div <sup>0</sup> : | # <sup>0</sup> :          | <i>n</i> :              |
|--------------------|---------------------------|-------------------------|
| - broken plurals   | - plural singulative      | - idiosyncratic plurals |
| - sound plurals    | - plural of plural        | - plural of collectives |
| - singulative      | - plural of measure words |                         |
| - measure words    | in English type           |                         |

[Mathieu, 2014, P.25]

For Mathieu's (2013; 2014) argument to be true, the plurality that occurs in multiple positions (including the DP joint) must be associated with different semantics. Intermediate positions suggest that there are two or three different types of plurals that occupy different positions. The plural marker that appears on the



*n* is the idiosyncratic plural that appears as plural of modesty, the evasive plural, the emphatic plural and more according to Corbett (2000). The plural marker on mass nouns is argued to be of the idiosyncratic type as well (Hamedani, 2011; Mathieu, 2013, 2014). In Borer’s (2005a), the plural marker is generated on the division head and is in complementary distribution with the classifier. However, according to Mathieu (2014), “the plural, numeral classifiers, and atomizing numerals are all different flavors Div<sup>0</sup> can take, but we can add the singulative” (p.25). The plural morpheme that shows up on the DivP is the classifying plural and induces an inclusive number reading on the noun. This is seen in languages such as English where the plural form of the noun contains the singular reading. An earlier discussion on the inclusive interpretation of the plural was provided by Krifka (1995) in which he shows that a plural noun such as ‘children’ in an interrogative context can refer to one or more children.<sup>4</sup> Furthermore, the plural marker on #P derives an exclusive reading, such as the plural that occurs on the measure words in English. In cases such as ‘two bottles of milk’ in English we are necessarily referring to two bottles. Mathieu (2014) argues that the exclusive reading is the result of the plural marker that gets generated higher on the # head.

On a similar account, Gillon (2015) looks at two types of plural marking on mass nouns in Innu-aimun (an Algonquian language), one where the mass noun retains its mass interpretation and the plural marker yields an ‘abundance’ interpretation and the other where the mass noun reflects a coerced reading, retaining its mass interpretation and giving an abundance reading. Her argument for the two kinds of plurals in Innu-aimun is inspired by Mathieu’s (2014; 2013) work on plurals, in which he accounts for the existence of two types of plurals: the counting plural, that requires atomic structure and the lexical plural, that does not require an atomic structure. The two types of plural markers in Innu-aimun are argued

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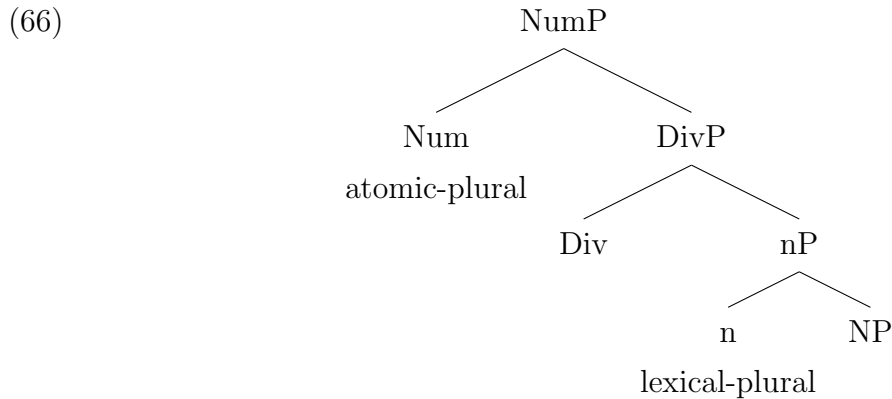
<sup>4</sup>As illustrated in (i) from Krifka (1989), plurals can have exclusive (can only refer to more than one) or inclusive (can refer to ‘one’ and ‘more than one’) readings.

- (i) Do you have children?  
       Yes, I have one child.  
       Yes, I have two children.

[Krifka, 1989]

The above example indicates that while the plural is morphologically marked, it is semantically unmarked. The fact that the question in (i) could be answered by *one* implies that the singular reading of the noun is included in its plural form, i.e. it is inclusive. And conversely when the noun is semantically marked for number, it is not necessarily marked morphologically. As an example the singular form of the noun in English, e.g. *child*, is morphologically unmarked, but it can only refer to one (single atom) and therefore it is always marked semantically.

to be of the first type, an operator that derives sums of atoms, also assumed by [Link \(1983\)](#). According to [Gillon \(2015\)](#) “plural nouns denote the proper sum of the atoms that make up the predicate NP” (p.129). Moreover, Gillon argues that the second type of plurals do not require an atomic structure and that they are different from the counting plurals. These two plural markers are argued to appear on different positions on the syntactic structure, as in (66).



Furthermore, to consistently support the argument in [Borer \(2005a\)](#) and show that all plural markers need to be generated on the Div-head, [Borer and Ouwayda \(2015\)](#) argue that one of the two kinds of plurals that appear in languages like Arabic is merely an agreement marker. *-Ah* in Arabic appears on certain nouns and it individuates them. However, there are cases in which the individuated noun gets another plural marker on top of it as in (67). For [Borer and Ouwayda \(2015\)](#) the second plural is an agreement marker and not a real plural, since the real plural is the one that appears on the division only. In this case the plural noun appears with an obligatory instantiation of a numeral or determiner and this motivates them to consider this marker as an agreement marker rather than a plural marker.

- (67)    šeft        tes? samak-eet bi l-jaaT  
          saw.1SG nine fish-*ah*-PL in the-bowl  
          I saw nine fish in the bowl.’ [[Borer and Ouwayda, 2015](#)]

Unlike [Borer and Ouwayda \(2015\)](#), [Mathieu \(2014\)](#) shows that the agreement argued by Borer and Ouwayda is not always necessary. Mathieu also shows that for duals in Arabic, no numeral is necessary. For singulars, the numeral ‘one’ is not necessary either. A second problematic point highlighted by Mathieu is, in Arabic pluratives are not used in numbers above 10 and a special singular form

is used. Another problem that is indicated in Mathieu (2014) is the ability of the broken plural to be pluralized in Arabic. Broken plurals being generated on Div-head receive a plural marker without the need to a numeral. The additional plural marker according to Mathieu is a higher plural in  $\#^0$  rather than an agreement marker.

On the other hand, the discussion on Azeri bare nominals in chapter 2 showed that individuation does not necessarily have a morphological representation. The bare nominal can be individuated without requiring an individuating morpheme.

In addition to the syntax, semantics of plural has received abundant attention in the literature. Chierchia (1998b) assumes that the domain of quantification contains plurals that are in the form of sets. These sets consist of atomic joint semi-lattices. In this domain, the singular individuals are considered to be ‘subgroups’ or atoms of the plurality they belong to. The individuals in (68) are singular and the ones in (69) are plural. The relation ‘ $\leq$ ’ illustrates that the singular individuals are ‘subgroups’ of any plurality they belong to, in (70).

(68)     a    b    c

(69)     {a,b}    {a,c}    {b,c}

(70)      $a \leq \{a,b\}$

Such a definition for plurals creates two distinct groups for count nouns. Nouns are either subgroups of plurals or they are plurals. Since mass nouns are considered to come out of derivation as plurals, there are only two categories for a noun to belong to. However, classifying a noun into two strict number groups is problematic as English plurals have implications for numbers as ‘one and more than one’, in (71) from Sauerland et al. (2005).

(71)     You are welcome to bring your children.  
           (The speaker is not sure about the number of children of the addressee)

The discussion provided on the syntax and semantics of the plural marker suggests that the strict system of plurals proposed in the Exo-Skeletal model is

not applicable in many languages. It seems that the semantic interpretation of plural marking maps with the syntactic position of this element. That is to say, whether the plural marker contributes to individuation or number marking are in complementary distribution. Nevertheless, when the plural interpretation diverges from individuation, we cannot assume a dedicated position in which the plural marker gets generated. I show in section 3.3 that Azeri supports the arguments in earlier studies and the Exo-Skeletal model is not explanatory the behaviour of plurals in this language.

### 3.3 Plurals in Azeri

As discussed in chapter 2, Azeri is not among languages that force the distinction between singularities and pluralities by means of a designated morphology as in English. Most languages force the choice between a singular or plural reading (Corbett, 2000). As shown in chapter 2, Azeri does not license a singular or plural distinction of its bare nouns and the bare form of the noun renders both readings without forcing a choice between a singular or plural interpretation. In (72) one or more than one book could be purchased.

- (72)    Kitap al-dim.  
           book buy-PAST.1SG  
           ‘I bought a book/s.’

Nevertheless for sentences like (72), the singular or plural interpretation of the bare noun is drawn from the context and it is the subject of discussion in chapter 5 where I explain in detail the parameters involved in the interpretation of number on the bare noun. In chapter 2, I argued that Azeri bare nouns derive an inclusive reading, meaning that they can refer to one or more items at the same time. I showed that Azeri bare forms are similar to English plural forms in their semantic interpretation. Despite the fact that bare nouns can offer a plural interpretation, Azeri has a plural morpheme *-lar/lər* that attaches to the bare form of the noun, in (73).

- (73)    a.    Kitap-lar miz    ustü-ndə.  
               book-PL    table on-LOC  
               ‘The books are on the table.’

- b. Kitap-**lar**-<sub>1</sub>    goy-du-m        miz    ustu-nə.  
 book-PL-ACC put-PAST.1SG table on-LOC  
 ‘I placed the books on the table.’
- c. Ayı-**lar**    gış-da        yat-ar.  
 bear-PL winter-LOC sleep.HAB.3  
 ‘Bears hibernate in winter.’

This plural marker is not sensitive to the semantic property of the noun it attaches to and its appearance on a count or mass noun derives a plural reading, as in (74). Nevertheless, as shown in chapter 2, pluralizing the mass noun is evidence for the projection of the plural morpheme on a different syntactic head than the # head. Plurality on the mass noun has different semantics than plurality on count nouns. Similar observation is provided for Persian in [Hamedani \(2011\)](#), discussed in section 2.6 in chapter 2.

- (74)    kitap-**lar** ‘books’                      su-**lar** ‘waters’

On the other hand, Azeri plural marking is not required in the presence of the numeral and its appearance creates an ungrammatical structure, hence their co-occurrence is prohibited, where both morphemes are associated with number marking in the nominal structure in (75). Nevertheless, the co-occurrence of the plural morphology and the numeral in (76) is possible. This is argued to be possible due to the position of the plural marker in relation to the classifier and is discussed in detail in section chapter 4. For cases such as (76), there is a forced definite reading of the structure. In most cases this combination creates a proper name rather than simple numeral structure. In all other cases the occurrence of the plural marker with the numeral is prohibited, shown in (75).

- (75)    a. \*İki kitap-**lar** oxu-dum.  
           two book-PL read-PAST.1S  
           (intended) ‘I read two books.’
- b. \*İki buluz-lar aldım.  
           two shirt-PL buy-PAST.1S  
           (intended) ‘I bought two shirts.’
- (76)    üç-ev-lər            yol-un        bu    uzun-də-dir.  
           three-house-PL road-DAT this side-LOC-be.3SG  
           ‘The triplet houses are on this side of the road.’

The fact that plural exists on both count and mass nouns in Azeri is not unique to this language and is observed for other languages. However, this occurrence of the plural marker on the mass noun must be an indication of the plural marker being modificational according to Wiltschko (2008). In the next section, I will provide some tests suggested by Wiltschko (2008) to show whether the plural marker is inflectional or modificational in Azeri.

### 3.4 Inflectional vs. modificational plurals: Wiltschko (2008)

In addition to Borer’s approach that considers the plural marker to occupy the division head, there are other views that claim the plural marker to be the root modifier. This is an explanation for languages such as Halkomelem (Wiltschko, 2008) in which the noun renders a singular or plural interpretation without the need for an overt plural morpheme. However, the appearance of the plural marker does not alter the meaning of the unmarked noun, neither does it add to the existing interpretation, as in (77). The reason why the plural marker appears in the second structure is not discussed in Wiltschko’s work. However she believes that optional agreement within the nominal phrase is the reason why the plural marker is not required.

- (77) a. te lhíxw swíweles  
           DET three boy  
           ‘the three boys’  
       b. te lhíxw swóweles  
           DET three boy.PL  
           ‘the three boys’ [Halkomelem, Wiltschko, 2008, Ex.3a,b]

Wiltschko’s (2008) approach has similar consequences to Borer’s (2005a) view. Wiltschko chooses a c-selection approach and assumes that in English D c-selects for #. Therefore, the presence of the plural morpheme gives a plural reading while its absence means singular. On the other hand, D does not c-select for # in Halkomelem and the result is the noun with an ambiguous number interpretation. Now, if we assume that (in Borer’s view), Division does not c-select for #, then it does not distinguish between the singular or plural interpretation either.

Therefore, ambiguity for number in both cases arises from a head that does not c-select for number (#). However these two views are different in many ways. Division in Borer's account c-selects for nouns and requires its complement to be of noun type but that is not the case for Halkomelem in Wiltschko's account. The plural marker in Halkomelem does not c-select for the noun and can attach to a non-categorial root.

Wiltschko (2008) argues that in her analysis plural marking is not universally merged as a syntactic (functional) head, it does not universally merges with nouns. Based on typological evidence (Corbett, 2000; Mithun, 1999), in most languages of the world the choice between the expression of singularities or pluralities is not a forced one. Wiltschko argues that "the characteristics of the so-called inflectional morphology can be viewed as the result of the obligatory presence of a functional category and specific properties of the features associated with that functional category. Under this view, many inflectional categories are essentially syntactic" (p.640).

On the other hand, Wiltschko argues that the difference between inflectional and non-inflectional plural marking is structurally conditioned. This means that inflectional plural marking instantiates a functional head, while non-inflectional plural marking is adjoined. In her analysis Wiltschko shows that the Halkomelem plural marker should be analyzed as being adjoined to category-neutral roots, in the sense of Marantz (1997). This leads her to conclude that plural marking is not universally associated with #. Her argument for English is that the obligatory singular interpretation of the unmarked noun derives from the obligatoriness of # in the presence of the category D. In English D c-selects for #, but in Halkomelem there is no such c-selection. The presence of the plural marker in English yields a plural reading while its absence derives a singular reading. Since the plural in Halkomelem is not associated with #, the lack of plurality yields either a singular or plural reading.

Wiltschko's analysis varies from Borer's (2005a) individuation for plurals. Wiltschko divides plural marking in languages to be either inflectional or modificational. While this analysis works for languages like Halkomelem, the existence of a modificational plural in a language does not deny the possibility of having an inflectional plural marker in the same language (Hamedani, 2011). Hamedani shows that Persian has both types of plurals. In (78) from Persian, Hamedani

shows that the plural marker *-ha* cannot appear inside derivational morphology, whereas other plural marker *-at* can appear inside the derivational morphology.

- (78) a. \*xub-ha-i  
good-PL-NOM  
b. ehsas-at-i  
emotion-PL-ADJ  
'emotional (for person)' [Persian, [Hamedani, 2011](#), Ex.52a,54]

Wiltschko and Hamedani's work are suggestive of different instantiations of the plural marker. The plural marker can either be a derivational or inflectional morpheme.<sup>5</sup>

[Wiltschko \(2008\)](#) claims that having systems that force a number distinction versus systems that do not, divides languages into inflectional and non-inflectional types. The inflectional plural marking system is the result of having a functional category. #P is argued to be associated with the functional category of number and the presence of the functional category is evidence for the inflectional number marking being syntactic ([Ritter, 1995](#)). Considering that inflectional plural marking renders the existence of a functional category, non-inflectional plural marking is proposed to be modificational ([Wiltschko, 2008](#)). According to Wiltschko, plural marking appears on roots in Halkomelem and is an indication that the plural marker does not always create a functional category in languages. Several arguments are provided in favour of calling plural markers non-inflectional in

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<sup>5</sup>Furthermore, there are languages in which plurals co-occur with classifiers. German is an example of this co-occurrence, as in (i). This will be illustrated in more detail in chapter 4.

- (i) zwei Holzstücke  
two wood.piece.PL  
'two pieces of wood' [German, [Ott, 2011](#), P.20]

A similar situation is observable in Azeri when the classifier and the plural marker co-occur, as in (ii).

- (ii) İki kəllə gət-lər-i gətir bura  
two cone sugar-PL-ACC bring.2SG here  
'Bring in the two sugar cones.'

Such a co-occurrence is observed in Hebrew by [Borer \(2005a\)](#) and she suggested a solution to consider two DivPs, each contain an NP, hence two NPs. For reasons that will become clear in chapter 4, this solution is not explanatory for all the other languages.





Halkomelem the plural marker does not change the category of the noun. The structures are illustrated in (80).

- (80) a. English                      #  
                                               /  \  
                                      #:PL  N
- b. Halkomelem                      N  
                                               /  \  
                                      Pluralizer  N

Wiltschko (2008) follows Déchaine and Wiltschko (2002) and assumes that the #P in English serves as an argument, where in Halkomelem the plural marker does not change the category of the noun and hence plural marked nouns in Halkomelem are not arguments. The conclusion is drawn that Halkomelem does not use bare plurals in its syntactic structures and the presence of a determiner in argument position is obligatory.

From what is discussed above, the instantiation of plural marking in Azeri looks much like Halkomelem. The unmarked form of a bare noun is not semantically marked. That is to say, the bare form can refer to a singular or plural item and has an inclusive interpretation. Unlike Halkomelem, Azeri distinguishes between the plural marked form of a noun versus the bare form. However, the bare plural in Azeri is exclusive (subject to further elaboration in section 5.3) in its semantics. The use of bare plurals in Azeri is limited to indefinite contexts such as (81), in which the bare plural is used with the preposition. This is the only context where the plural marker appears in the object position without the accusative marker *-i* (the plural noun in object position is usually case marked). The only other context in which the bare plural appears is in compounds that refer to proper nouns, as in (82). This suggests that the presence or absence of the plural marker is not redundant in Azeri, unlike in Halkomelem. Nevertheless, the interpretation of the plural marking in Azeri is not similar to English either. In addition to the ability of the plural marker in forming proper nouns, it can occur in the presence of a classifier and encode a definite reading in the structure, as in (83). The plural marker behaves uniquely in Azeri, yet, it has a plural interpretation once it appears. That is to say, the existence of the plural marker is meaningful in the language and denotes plurality similar to English.

- (81) Uşax-lar-a        kitap aldım  
       child-PL-PREP book buy-PAST.1S  
       ‘I bought books for the children.’ (any books)

- (82)    uş-ev-lər  
           three-house-PL  
           ‘the triplet houses’
- (83)    İki    dənə    yeralma    təlis-lər-in-i            apar            ora  
           two CL    potato    bag-PL-POSS-ACC take.2SG there  
           ‘Take the two potato bags down there.’

As the discussion follows in the upcoming subsections, I will show that plural marking in Azeri is inflectional. In order to highlight this claim, I will test the appearance of the plural marker in agreement constructions. From there, I will move to compounds and show how the plural marker appears on compounds in Azeri. Next, I will provide some evidence from selection and show how selection plays a role in the appearance of the plural. The lack of bare plurals and plurals inside derivational morphology are the two follow-up tests and finally the plural that appears on mass is the final step towards showing that the plural in Azeri is not modificational.

### 3.4.1 Agreement and selection

In English agreement marking is obligatorily between the noun and the determiner, in (84). The agreement process in these examples are adopted from Chomsky (2000, 2001), where the agreement is considered to be a long-distance rather than a Spec-Head relation.<sup>7</sup> In Halkomelem, according to Wiltschko (2008), there is no obligatory agreement and the agreement pattern is optional, in (85). Determiners are not required to agree with the noun. In such cases the D is argued not to contain [U#] features and does not select for number, hence it is not sensitive to number and does not trigger agreement. This goes in favour of an analysis that considers the plurals to be modificational in Halkomelem (Wiltschko, 2008). As pointed out in chapter 2, Wiltschko considers the plural markers to attach to non-categorized roots, the identity of which is not recognized by the attachment of number and the plural marked root is spelled out as a noun or a verb.

<sup>7</sup>According to Chomsky (2000, 2001)  $\varphi$ -features are considered to be interpretable on the N or D heads since they are inherently valued for  $\varphi$ -features. On the other hand, the AGR-head has unvalued  $\varphi$ -features. When the N/D enters into agree relation with the unvalued head, it can value the [<sub>u</sub> $\varphi$ ] features on the target head.



meaningful and the noun can reflect a plural reading in the presence of the plural marker.<sup>9</sup>

The agreement pattern between the demonstrative and the noun in Azeri is neither similar to English, nor Halkomelem. The demonstrative does not agree with the noun in number and the appearance of the agree marker on the verb is optional.

- |      |                                                                                                                |                                                                                                 |
|------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| (86) | a. Bu oğlan- <b>lar</b><br>this boy-PL<br>oxu-yur-( <b>lar</b> )<br>sing-PROG-3PL<br>‘These boys are singing.’ | b. Bu oğlan- <b>lar</b><br>this boy-PL<br>oxu-yur<br>sing-PROG.3SG<br>‘These boys are singing.’ |
|------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|

The preceding discussion highlighted the difference in plural marking among English, Halkomelem and Azeri in relation to agreement. Agreement in Halkomelem resembles Azeri and is not obligatory but the system in Azeri does not match with Halkomelem either. Here I show this optionality in various independent cases. The two demonstratives *o* ‘that’ and *bu* ‘this’ are compatible with the singular and plural form of the noun, (87) and (88). The demonstrative has a plural form but in the plural form it is used as an anaphor and will replace the noun, in (90). *Bu* by itself does not contain referential properties and needs to take the plural marker or case marker *bun-u* ‘this-ACC’ to replace the noun. This plural form that replaces the noun is referential, in (89) and (90). It is noteworthy that the agreement between the subject and the verb is not the point of discussion here.

- |      |                                                                                                         |      |                                                                                                                             |
|------|---------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------|
| (87) | <b>Bu/O</b> oğlan- <b>lar</b><br>this/that boy-PL<br>oxu-yur-lar<br>sing-PROG-3PL<br>‘These boys sing.’ | (88) | * <b>Bu/O-lar</b> oğlan- <b>lar</b><br>this/that-PL boy-PL<br>oxu-yur-lar<br>sing-PROG-3PL<br>‘(intended) These boys sing.’ |
|------|---------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------|

<sup>9</sup> It is argued by Bale et al. (2010) that the bare form of the noun in Turkish patterns with the plural form of the noun in English, meaning, the two forms are semantically inclusive, as in (i), *çocuk* ‘child’. Where the plural in Turkish has overlapping minimal parts and not singular individual parts, in (ii), *çocuk-lar* ‘children’, unlike English.

(i)  $\llbracket \text{çocuk} \rrbracket = \{a, b, c, ab, ac, bc, abc\}$

(ii)  $\llbracket \text{çocuk-lar} \rrbracket = \{ab, ac, bc, abc\}$

- |                                                                                                                                         |                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <p>(89) <b>Bu/O oğlan</b><br/>         this/that boy<br/>         oxu-yur<br/>         sing-PROG.3SG<br/>         ‘This boy sings.’</p> | <p>(90) <b>Bu/O-lar</b> oxu-yur-lar<br/>         this/that-PL sing-PROG-3PL<br/>         ‘These (boys) sing.’</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|

This is how the agreement between the determiner and the noun is explained in (87)-(90). In (87) the plural marker *-lar* is generated higher than the noun but lower than the demonstrative. The property of the plural marker as a suffix attracts the noun to move to the plural (head). Since there is only one plural head in the structure, the demonstrative cannot be pluralized. This is why the structure in (88) is ungrammatical. The structure in (90) is explained in the frame of ellipsis, where the noun is not morphologically present and the plural marker is pronounced after the demonstrative.

*Bu* in Azeri is similar to the unmarked demonstrative *in* ‘this’ in Persian. According to Hamedani (2011) for Persian, when the demonstrative inside the DP is singular, there will not be an agreement marking between the noun and the determiner. Similarly in Persian, the plural form of the noun is also compatible with the singular form of the demonstrative, in (91-a). Unlike English the plural form of the demonstrative in Persian is not compatible with the plural form of the noun and the resulting structure is ungrammatical, in (91-b).

- |                                                                                 |                                                                                            |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <p>(91) a. <i>in doxtær</i><br/>         this girl<br/>         ‘this girl’</p> | <p>b. <i>in*(ha) doxtær-ha</i><br/>         this-PL girl-PL<br/>         ‘these girls’</p> |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|

Agreement between the quantifier and the noun in Azeri is subject to optionality in some cases but not all. In (92) - (96) the agreement patterns differently depending on the type of the quantifier. Agreement is obligatory with some of the quantifiers and the absence of the plural marker results in unacceptable structures. Whereas, some other quantifiers are flexible and accept optionality. To explain this in comparison to the demonstratives, I claim that unlike English, demonstratives in Azeri do not have an unvalued number feature, i.e. [*U*#], whereas quantifiers, similar to numerals, have a # feature on them and need to agree with the # feature on the noun.<sup>10</sup> Nevertheless, forcing the agreement or allowing optionality

<sup>10</sup>The optionality of agreement on the verb is different compared to the agree process going on in the nominal domain. One proposal is that the agree marker is always there and does not get pronounced as it is pragmatically redundant.

is the feature on the quantifier. I argue that quantifiers that allow optionality are similar to numerals in their denotation. I will return to this issue in chapter 4 where I discuss numerals in Azeri.

- (92) a. **Bazı oğlan-lar**  
 some boy-PL  
 oxu-yar-(lar)  
 sing-HAB-3PL  
 ‘Some boys sing.’  
 b. **\*Bazı oğlan**  
 some boy  
 oxu-yar-(lar)  
 sing-HAB-3PL  
 ‘Some boys sing.’
- (93) a. **Hamı oğlan-lar**  
 all boy-PL  
 oxu-yar-(lar)  
 sing-HAB-3PL  
 ‘All boys can sing.’  
 b. **\*Hamı oğlan**  
 all boy  
 oxu-yar-(lar)  
 sing-HAB-3PL  
 ‘All boys can sing.’
- (94) a. **Bir çox**  
 a most/many  
**oğlan-lar** oxu-yar-(lar)  
 boy-PL sing-HAB-3PL  
 ‘Most boys sing.’
- b. **\*Bir çox oğlan**  
 a most/many boy  
 oxu-yar  
 sing-HAB  
 ‘Most/many boys sing.’
- (95) a. **Çox adam-lar**  
 most person-PL  
 oxu-yar-lar  
 sing-PROG-3PL  
 ‘Most people sing.’  
 b. **Çox adam**  
 many person  
 gal-ma-di  
 stay-NEG-PAST.3  
 ‘Not many people stayed.’
- (96) a. **Bir neçə oğlan**  
 a few boy-PL  
 oxu-du  
 sing-PAST.3  
 ‘A few boys sang.’  
 b. **\*Bir neçə oğlan-lar**  
 a few boy-PL  
 oxu-du-(lar)  
 sing-PAST-3PL  
 ‘(intended) A few boys sang.’

In Halkomelem, agreement happens optionally. Such an optional agreement results from the lack of selection between the D and # heads. “The Halkomelem plural determiner *ye* cannot be the spell out of a valued phi-feature (i.e., #: PL) because there is no corresponding head # which would serve to value # on D” (Wiltschko, 2008). Wiltschko argues that determiners in English are associated with *inherent #-features*, illustrated in (97).

- (97) a. syntax: [<sub>D</sub>D [<sub>#</sub>#: SG]]  
 spell-out *this*
- b. syntax: [<sub>D</sub>D [<sub>#</sub>#: PL]]  
 spell-out *these*  
 [Wiltschko, 2008]

I use this argument from Wiltschko (2008) to explain the behaviour of the demonstratives in Azeri. The demonstrative in Azeri seems to have an inherent #-feature, similar to English. However, the language reflects a difference in the morphological representation of the demonstratives. The demonstrative does not change form whether it enters into agreement with the singularity or the plurality feature of the noun, in (98).

- (98) O            giz-lar aṣ    ye-mə-di-lər  
 DEM.3SG girl-PL soup eat-NEG-PAST-3PL  
 ‘Those girls did not have soup.’

The discussion above derives the conclusion that agreement between the demonstrative and the noun is not obligatory, but the agreement between the quantifier and the noun is obligatory. This phenomena is not entirely in line with Chomsky (2008) feature spreading. Adapting Chomsky’s feature spreading here the noun is argued to be specified for an uninterpretable number feature, which can only be valued if a higher probe bearing its interpretable counterpart enters into an agreement relation with the noun. The fact that the noun agrees with the quantifier but not the demonstrative rules out the optionality for the agreement marking in Azeri.

Another suggested test to distinguish between the inflectional versus modificational plural marker is selection. A head has the property to select for specific feature values of the head of its complement. It is predicted that in English the DP head is sensitive to the # feature value but not in Halkomelem. Quantifiers in English agree with the number feature of their complement head, but there is no such requirement in Halkomelem. The plural form of the quantifier can take a singular or plural noun. However, some of the determiners in Azeri agree with the noun, in (87) - (90) and (92) - (96).

Wiltschko (2008) claims if the plural marking is a head in English but not in Halkomelem, there will be a prediction that we find DP-internal heads that are sensitive to the feature value of #, i.e. the case of *this book* versus *these books*, but not in Halkomelem. This is a syntactic difference, in the case that a given



linguistic object merges as a head, its properties become syntactically transparent, since the newly formed object is of the same type as the merged head. In contrast, if a given linguistic object merges as a modifier (an adjunct), its properties are syntactically opaque, since the newly formed object remains the same category as the linguistic object the plural marker merges with.

The sensitivity of the DP-internal heads to  $\#$  feature value in Azeri is a matter for further discussion in chapter 4. The data discussed above provided evidence that the quantifiers in Azeri do not necessarily select for the  $\#$  value of the head noun. This means that the quantifiers do not have a  $[_u\#]$  feature that gets its value from the plural marking. We need to note that the agreement between the nominal and the verbal phrase is not the subject of focus in this section.

### 3.4.2 Plural marking in compounds

Some languages do not allow inflectional morphology within compounds. Since the plural morphology is an inflectional morpheme, it is not expected to occur within compounds. English compounds do not take a plural marker inside them, shown in example (99). Such a property is an indication of the derivational property of the plural marker as it is discussed for Halkomelem by Wiltschko (2008), in (100).

(99) tooth-brush                      \*teeth-brush                      [Wiltschko, 2008, Ex.7a]

(100) tem-weléxes  
         time-frog.PL  
         ‘time of frogs’ (=March)                      [Wiltschko, 2008, Ex.8b]

Compound nouns in Azeri are formed by the combination of two nouns or the combination of an adjective and a noun, as in (101). The plural marker always appears after the derivational morphology, in (101)-(103). In that respect, Azeri is behaving like English and considers its plural marker to be of an inflectional kind. <sup>11</sup>

<sup>11</sup>As pointed out by Jaklin Kornfilt, there are some examples of compounds in which the non-head element can bear a plural marker, in (i). The examples of this kind are allowing the plural marker on the modifying noun rather than the head noun. However, these structures are mainly observed in the plural form and their singular form is not productive. If this holds and we find examples that allow the plural marking on the non-head element, then we have a case that puts Azeri plural marker in the category of a derivational plural marker.

- (101) ayax ‘foot’ + qab ‘case’ → ayaqqabı ‘shoe’  
boş ‘empty’ + qab ‘case’ → boşqab ‘plate’ [Lee, 1996]
- (102) \*ayax ‘foot’ + qab ‘case’ → ayaq-**lar**-qabı  
ayax ‘foot’ + qab ‘case’ → ayaqqabı-**lar** ‘shoes’
- (103) a. ‘(lit.) owl’  
əkin-çi-**lər**-iz-in  
sow-DERIV-PL-POSS-GEN  
‘of your farmers’  
b. \*gecələr guş-u  
night-PL bird-GEN
- b. (105) a. gön başmaq  
sow-PL-DERIV-POSS-GEN leather shoe  
b. \*gön-lər başmaq  
leather-PL shoe
- (104) a. gecə guş-u  
night bird-GEN

### 3.4.3 No bare plurals

Plural marking in English is categorial. The plural marker creates a number phrase attaching to the noun. However, if the plural marker is considered to be a modifier then it will not be sensitive to the category of the root it is attaching to. In Halkomelem the plural marker is not a functional category and does not change the category of the noun. In English the #P can appear as an argument without the need for a preceding determiner. According to Déchaine and Wiltschko (2002) the presence of some functional structure such as # is enough to turn a nominal predicate into an argument. However, since Halkomelem lacks such a category, the plural form of the noun cannot appear in argument position. The nouns in argument position must be preceded by a determiner.

Now considering bare plurals in Azeri, they do not appear as an internal argument. Examples like (106) are not acceptable structures in the language. However bare plurals can occur as an external argument, in (107), and in such cases they introduce a kind reading. Recall from chapter 2 that Azeri does not fit

- (i) a. güzel-ler güzel-i  
beautiful-PL beautiful-GEN  
'beauty of beauties'
- b. xanım-lar saat-ı  
lady-PL hour-GEN  
'ladies time'

in Chierchia’s definition of argumental or predicative languages. Bare nouns freely appear in argument position but plurals face some restrictions. #P having the plural marker as its head cannot appear in object position. Meaning bare plurals are not productive as an internal argument and structures like ‘*I saw bears.*’ is not possible in the language.<sup>12</sup>

The question remains unanswered, what is the argument determining category in Azeri? It is also hard to judge if a functional structure of # is enough in Azeri to turn the nominal predicate into an argument in Déchaine and Wiltschko’s analysis. In chapter 2, I argued that the smallest syntactic object that can be an argument is the noun in its divided or undivided form. The language does not require a determiner to turn a predicate into an argument.

- (106) #Mən kitab-**lar** oxu-dum  
I book-PL read-PAST.3SG

- (107) Ayı-**lar**        gış-da        yatar  
bear-PL.NOM winter-LOC hibernate  
‘Bears hibernate in Winter.’

Despite the fact that both Azeri and Halkomelem lack bare plural arguments, there is an important distinction. The bare form of the noun in Azeri is ambiguous between the singular or plural reading and needs to be distinguished in the context. In Halkomelem, however, the unmarked form of the determiner and the noun has a singular interpretation.

### 3.4.4 Plural marking inside derivational morphology

One other test to determine the nature of the plural morphology in Azeri is the possibility of the morpheme to appear inside derivational morphology. In case the plural marker is a modifier, in Halkomelem, it is expected to appear inside

<sup>12</sup>It is worth noting that the modified version of the bare plural is acceptable in the object position, as in (i). This implies that modification is contributing to referentiality of the object and makes less indefinite and identifiable in the context.

- (i) Bu-sabah    çox        güzəl    gız-lar gör-dü-m  
this-morning very/many beautiful girl-PL see-PAST-1SG  
‘This morning I saw very/many beautiful girls.’

the derivational morphology, as in the plural reduplication in (108). Such an occurrence is not allowed in English since the plural marker attaches to a functional head only, hence it is categorial as in (109). This also predicts that compounds can have plural markers inside them in Halkomelem. Such an assumption follows the rational that word formation is restricted to the merger of roots and semi-functional categories *n*, *v*, *a*.

(108) s-p‘eq’ ‘NOM-white’ → s-p‘eq’eq’ ‘white spots on skin’ [Galloway, 1993, P.379]

(109) dog-ish                    \*dog-s-ish                    [Wiltschko, 2008, Ex.10a]

Azeri acts like English in these cases and it does not allow inflectional morphology to appear between the root and the derivational morphology, (110) and (111).

(110) doğ- ‘give birth’ → doğ-**um-lar** ‘birth’

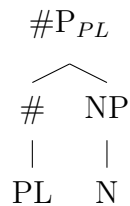
(111) doğ- ‘give birth’ → \*doğ-**lar-um** ‘birth’

The fact that the inflectional morphology does not appear between the root and the derivational morphology suggests that plural marker cannot be a derivational morpheme.

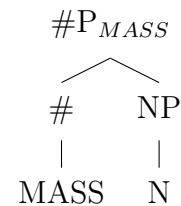
### 3.4.5 Mass plurals

Plural markers appear on mass nouns in many languages. Following Ghomeshi (2003), Wiltschko (2008) argues that the plural and mass interpretations are both manifested in the # head and they are in complementary distribution. The fact that Halkomelem has mass plurals is support for the argument that the language is not sensitive to the mass/count distinction because the plural marking does not occupy the # head. Wiltschko’s argument provides support for considering the plural marker in Halkomelem a modifier to the root rather than being generated on #P.

(112)



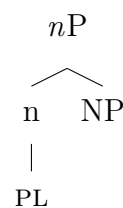
(113)



[Adopted from Ghomeshi, 2003, Ex.19, P.54]

Now considering Azeri, mass nouns do not require a plural marker to become arguments. These nouns can appear in argument position with or without a plural marker. The appearance of the plural marker in different positions has been studied for many languages (Mathieu, 2014; Gillon, 2015). I argued in chapter 2, following Hamedani (2011) and Mathieu (2014), that the plural on mass nouns in Azeri yields an abundance reading. When the mass noun takes the plural marking in Azeri, it is argued to be generated in a different position than the plural appearing on the count nouns. Therefore, the plural of abundance is generated on *n* and is the modifier to the nominal root, shown in (114).

(114)



### 3.4.6 Interim conclusion

If this analysis is on the right track, we can conclude that linguistic objects can merge as heads or as modifiers both above and below the word-level. Another important lesson to take away from the discussion above is that we cannot derive the categorial status of a given morpheme from its semantic properties. Just because the Halkomelem plural marker is a plural marker does not mean that it has to be of the same category as its counterpart in English. A plural morpheme that merges as the head of a phrase has the ability to change the label of the constituent with which it merges.

Wiltschko (2008) proposed a syntactic typology of plural marking according to which languages can vary by two parameters: (1) how the plural merges and (2) where the plural merges.

In conclusion, some of the arguments for Halkomelem in Wiltschko (2008) apply in Azeri but are not compatible with the idea that the plural is a modifier to the root in Azeri. The structure of the plural in Azeri, summarized in table 3.1, is neither similar to English nor Halkomelem. The table is adapted from Wiltschko (2008).

|                                       | English | Halkomelem | Azeri |
|---------------------------------------|---------|------------|-------|
| obligatory plural marking             | yes     | no         | no    |
| obligatory agreement                  | yes     | no         | no    |
| plural inside compound                | no      | yes        | no    |
| plural inside derivational morphology | no      | yes        | no    |

TABLE 3.1: Properties of plural marking in English, Halkomelem and Azeri

### 3.5 Plural marking and definiteness

Definiteness is defined in various major classes (Hawkins, 1978, as cited by Schwarz, 2013). For the purpose of my work I will focus on the major classes that exist in Azeri. Since the focus of this chapter is on plurals, I will limit the discussion to the plural marked definites. The most common application of the plural marked nominal in the object position is to refer to familiarity. With ‘Strong familiarity’, as suggested by Roberts (2003), the definite object is required to be anaphoric with respect to a preceding linguistic expression, as in (115).<sup>13</sup>

- (115)    Geçən ay        kitab al-di-m.                    Kitab-lar-ı    iki həftə-da  
           last    month book buy-PAST-1SG. book-PL-ACC two week-LOC  
           oxu-du-m.  
           read-PAST-1SG  
           ‘I bought books last month. I read the books in two weeks.’

<sup>13</sup> The expected form of the second sentence in (115) is most likely with the pronoun, as in (i), rather than repeating ‘kitab-lar’. With this in mind, I mean to show the anaphoric interpretation of the definite via repeating the expression itself. It is worth noting that the plural picks out plurality on the bare noun. In chapter 5, we will see how a singular reading is picked out from the context.

- (i)        Geçən ay        kitab al-di-m.                    On-lar-ı        iki həftə-da oxu-du-m.  
           last    month book buy-PAST-1SG. they-PL-ACC two week-LOC read-PAST-1SG  
           ‘I bought books last month. I read them in two weeks.’

Another form of definite interpretation of the plural marked nominal is observable in bridging cases, as in (116), where the plural marked and definite object relates back to the previous context (Clark, 1975).

- (116)    Aida çərx al-ıp.            Təyər-lər-i        göy-dü.  
           Aida bike buy<sub>PF-3SG</sub>. wheel-PL-POSS green-be.<sub>3</sub>  
           ‘Aida has bought a bike. Its wheels are green.’

Azeri also has immediate situation definites with plurals that involve reference to entities that are present at the utterance time, as in (117).

- (117)    Gül-lər    çox    gözəl-di.  
           flower-PL very beautiful-PAST.<sub>3</sub>  
           ‘The flowers are very pretty.’

Given that all forms of definites with the plural marking are possible in Azeri, it is crucial to explain the contribution of the plural marker on definiteness.

The interaction between the plural marker and definiteness has been discussed for other languages too. Ghomeshi (2003) argues that in Persian, plural marking “is licensed only on noun phrases contained within D/QPs” (p.72). Ghomeshi considers the plural noun to be constructed as definite unless an overt marker of indefiniteness appears (-i in Persian). Azeri, on the other hand, does not have a dedicated indefinite marker (except for the numeral ‘bir’ used with the singular) and the absence of any morphology (bare form) is considered to be indefinite. Yet, bare plural marked indefinites are rare in the language. The plot gets complicated at this point. On one hand, Azeri does not license definiteness by means of a plural marker, as singular definites also exist in the language. On the other hand, almost all the plural marked nouns in the object position are definite. However, the plural definite form does not render any limited number of definites in the structure. As shown above, the definite plural noun can be of various forms.

### 3.6 Number marking in Azeri

After identifying the nature of the plural marker in Azeri and showing that the plural marker in this language is inflectional, I will introduce the syntax and

semantics of the plural marker. Prior to that, I will introduce some of the existing views in the domain of plural marking and provide evidence that the type of the plural in Azeri is a count plural.

### 3.6.1 Dividing plurals

The idea of dividing plurals comes from Borer’s (2005a) proposal that roots are underlyingly neutral and enter the derivation without any formal properties. Plurals in English-type languages and classifiers in Chinese-type languages assign individuation to the open value  $\langle e \rangle_{div}$  and take part in the atomization of the noun, illustrated in (118).



The  $CL^1$  is the position for the individuator (cf. chapter 2 for more details) that assigns range to the open category  $\langle e \rangle$  and creates a function that atomizes the noun. The atomized noun does not have any number properties and number needs to be assigned via the range assignment in  $\#P$ . The process of individuation/atomization is subject to variation in languages. As mentioned above, in numeral classifier languages such as the Chinese-type, the classifier occupies this position and contributes to the atomization of the head noun. In Arabic, the collective<sup>14</sup> noun gets individuated via the process of gender shift and turns into a singulative noun that is able to take the plural morphology and become pluralized again (Mathieu, 2014).

The fact that numeral classifier languages do not have obligatory number marking on the noun (see Sanches-Greenberg-Slobin generalization, as discussed in Doetjes, 2012) goes hand in hand with Borer’s division head that accommodates the atomizer. In these languages where the numeral classifier assigns atomization, there is no place for the number marking on the division head.

Furthermore, division is argued to come in flavours, as discussed by Mathieu (2012a; 2014) for Ojibwe and Arabic. Mathieu argues that, in addition to the

<sup>14</sup>Mathieu (2014) introduces collectives as “nouns denoting groups that can be turned into individuals via the use of the singulative.”



plural marker and classifier, individuation can happen by means of gender shift and/or be morphologically null. In chapter 2, I showed that Azeri does not have a division-type morphology. I argued that the Div-head remains morphologically null and this allows the bare noun to appear in the structure without a plural marker or classifier. As a result, I argued that plurals are either of the lexical type (next subsection) or higher plural, discussed as count plurals ( $\#^0$ ) (Mathieu, 2014). This brings me to conclude that division in Azeri does not happen morphologically (i.e. plural marker or classifier) and it occurs only through the process of null individuation.

### 3.6.2 Lexical plurals

The other kind of plural marker that does not assign division properties to the noun is called a lexical plural. According to Acquaviva (2008) the study of lexical plurals requires taking into account both their morphology and semantics. “Focusing on morphology alone, symmetrically, would lead to a catalogue of idiosyncratic forms, missing the pervasive semantic generalizations within and especially across languages” (Acquaviva, 2008, p.2). Allocating different positions for the plural marker is widely discussed in the literature (Acquaviva, 2008; Alexiadou, 2011; Kramer, 2012; Mathieu, 2012a, 2014). The consequence of having different positions for the plural marker is also having different semantic interpretations.

The syntactic position of the lexical plural in previous studies is suggested to be the category *n*. This kind of plural usually gives rise to the ‘abundance’ interpretation on mass nouns since it does not introduce an atomic structure (Acquaviva, 2008; Alexiadou, 2011). This has been observed for many languages including English, Greek and Persian, as in (119).

- (119)    a.    the waters in the sea [Acquaviva, 2008, P.109]
- b.    nera ‘lots of water’ [Greek, Alexiadou, 2011, P.36]
- c.    ab-ha ‘lots of water’ [Persian]

The example of lexical plurals is also visible in languages in which the plural of abundance is used, when it is not possible to reflect the exact number of the

individuals, or when telling the exact number is irrelevant. This is reported for Banyun, a language of the West Atlantic branch of Niger-Kordofanian, spoken in Senegal and Guinea Bissau (Corbett, 2000).

Lexical plurals are not inflectional in nature and their syntax is similar to those discussed by Wiltschko (2008) for Halkomelem. It is worth noting that the landing site of the lexical plural is on the category of *n* and this introduces variation between the definition of the lexical and modification plural markers. The position of the lexical plural is shown to be adjoined to the root but in all the given examples the plural is attached to the nominal root. On the surface form, the lexical plural looks very similar to Wiltschko's (2008) modification plural but the fact that modification plurals do not recognize the nominal category of the root differentiates them from lexical plurals that attach to the category of noun. As I showed earlier, the plural marker in Azeri does not attach to the root and appears on nominals. The only time in which the plural marker appears on *n* is in the case of plurals on mass nouns.

### 3.6.3 Count plurals: inclusive/exclusive

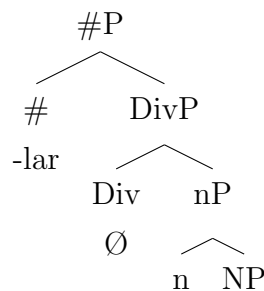
So far, two types of plural markers have been introduced, i.e. dividing, and lexical plurals; the former considered to be inflectional. Furthermore, there are more functions introduced for plurals in the theory of number. Mathieu (2014) argues that plurals have different functions in the grammar. He believes that the different role of the plural depends on where it operates in the nominal spine. According to Mathieu, in one of its functions, the plural can simply be used as a counter and refer to sums. This plural is argued to be a higher plural and is called the counting plural. According to his argument, the counting plural can only be exclusive (refers only to more than one) while a lower plural that is of an individuating type can be inclusive (refers to one and more than one).

Arabic has nouns that are collective in nature, according to Mathieu (2014). These collective nouns are turned into individuals through a singulative operation (via gender shift). The singulativized nouns refer to atoms only and have the potential to be pluralized. This plural is interpreted exclusively and refers to more than one at all times. Mathieu shows that in singulative languages like Arabic, the process of singulativization from the collective occurs through individuation. The individuated noun is singular and receives a plural interpretation from a

higher head which is the counting head. The fact that plural does not have a unique denotation is proposed by many people (Wiltschko, 2008; Kramer, 2012 among others). The existence of plurals with various interpretations gives rise to the puzzle of how to identify the role of an individuating plural from a counting plural. The key to answering this puzzle lies in the semantics of the plural marking. Whereas the dividing plural has inclusive and exclusive reading, the counting plural has exclusive reading only.

Now returning to Azeri, in chapter 2, I argued that bare nouns derive a general number reading, which encodes an ambiguous number reading. In addition to this reading, Azeri has a plural marker, which I argue derives an exclusive reading only. This plural is argued to be a higher plural generated on the # head and functions as a counting plural. The reason to consider the plural marker in Azeri to be of the counting type is that individuation in the language is morphologically null, therefore the plural marker is required to be generated higher. As a higher plural, its function matches the other counting plurals discussed in the literature. Therefore, we have enough evidence to consider the plural marker in Azeri to be a counting plural with an exclusive interpretation, as illustrated in (120). It is important to note that inclusiveness is derived from the plurals being in competition with singulars. The plural in Azeri is not in competition with the singular but the general number is. Hence the plural generates the exclusive interpretation.

(120)



### 3.7 Summary

In this chapter, I described the distinct behaviour of the plural marker in Azeri by providing comparisons with other studies. I showed that the plural morpheme in Azeri is inflectional. However, with such a distinct behaviour, the plural marker in Azeri does not map onto the inflectional plural marker in English. In addition, I provided some discussion to illustrate the syntactic position of this morpheme.

I argued that the plural morphology belongs to a higher category in the structure of the noun phrase and that it is generated on #P and yields an exclusive plural interpretation. In the next chapter, I will present a challenge that co-occurrence of the plural marker and classifier imposes on the Exo-skeletal model. I will provide a solution that enables the model to explain the co-occurrence of these two elements.

# Chapter 4

## Classifiers

### 4.1 Introduction

It became clear in previous chapters that number marking in the world's languages is realized in various ways. As discussed by [Borer \(2005a\)](#), in classifier languages, such as Mandarin, the noun is neutral for number and therefore the presence of the classifier is obligatory to allow number marking to appear. However, it needs to be stressed that Borer's definition of number neutrality refers to the unindividuated form of the noun. According to Borer, the classifier is generated on a division head in such languages, similar to the occurrence of the plural marker in English-type languages. [Borer \(2005a\)](#), argues that the presence of a classifier as an individuator makes the noun ready to be counted by a numeral. Individuation is necessary before nouns can be counted. As such, in order to combine numerals with a noun, either a measure word or a numeral classifier has to be used or the noun must shift towards a (usually lexically determined) count meaning. If the noun has a count meaning, several things may happen depending on the language. In a language such as Tagalog nothing happens: the numeral combines directly with the noun. In a language such as English, nouns with count meanings are usually marked for number, i.e. *-s*. In these cases, number marking in combination with the numeral is necessary. Finally, in numeral classifier languages such as Mandarin, nouns with a count meaning are not marked for number; in order to combine such a noun with a numeral, a sortal classifier has to be inserted. On the other hand, there are languages such as Hungarian in which the presence of an optional sortal classifier does not have significant impact on the meaning of the structure, as in

(121). Nevertheless, Hungarian is considered to be a classifier language similar to South-East Asian languages (Csirmaz and Dékány, 2014).<sup>1</sup>

- (121) két szem gyöngy = két gyöngy  
 two CL<sub>eye</sub> pearl = two pearl  
 ‘two pearls’ = ‘two pearls’ [Csirmaz and Dékány, 2014, Ex.50]

As discussed in chapter 2, the general number reading ( in Azeri-type languages ) yields number ambiguity but not a mass interpretation, and the presence of the classifier does not seem necessary to assign individuation as the forms without a classifier or a plural marker exist, in contradiction with Borer’s (2005a) claim. Therefore, bare count nouns do not require classifiers, and the presence of the classifier seems optional with a numeral, as illustrated in (122) and (123).

- (122) İki kitap al-dım.  
 two book buy-PAST.1SG  
 ‘I bought two books.’
- (123) İki dənə kitap al-dım.  
 two CL book buy-PAST.1SG  
 ‘I bought two books.’

In addition, Azeri contains a plural marker that appears with both individuated and mass nouns, showing that the plural marker does not denote individuation as in Borer’s paradigm, as illustrated in (124). This is used as evidence that the plural marker is not an individuator universally.

- (124) a. Kitap-lar-ı al-dım  
 book-PL-ACC buy-PAST.1SG  
 ‘I bought the books.’
- b. sel-lər ax-dı  
 flood-PL rise-PAST.3SG  
 ‘There was a lot of flooding.’

Furthermore, if the plural marker yields an individuated reading in number neutral languages (Borer, 2005a), the occurrence of the plural marker and the numeral

<sup>1</sup>Unlike sortal classifiers, group classifiers in Hungarian introduce a difference in the meaning of the structure.

would be expected in the context of Azeri numerals since the plural marker assigns individuation where the numeral assigns number. However, the data in (125) shows, otherwise. In (125), the occurrence of the plural marker and the numeral is not acceptable in Azeri.

- (125) \*İki kitab-lar al-dım.  
 two book-PL buy-PAST.1SG  
 (intended) ‘I bought two books.’

However, this plural marker does not occur with numerals unless the classifier is present in addition to the plural marker in the structure, as in (126).

- (126) İki dənə kitab-lar-ı al-dım.  
 two CL book-PL-ACC buy-PAST.1SG  
 ‘I bought the two books.’

Given the observations introduced above, the following questions arise for Borer’s Exo-Skeletal model. Can we treat optional classifiers in Azeri the same way as those in classifier languages, such as Mandarin? In order to answer this question we need to know where the syntactic position of these classifiers are, and whether they are individuator. In addition, we need to explain the dependency relation between the classifiers and numerals.

Before I explore these questions, I will introduce in section 4.2 a typological overview of the classifier, showing different types of classifiers from Azeri and other languages. In section 4.3 I provide existing views on the projection of classifiers and their syntactic position. The difference between the compulsory and optional classifier is discussed here. This section challenges views that consider the appearance of an obligatory classifier in number neutral languages and concludes that classifiers in these languages are not atomizers but are generated higher in the nominal structure. My findings for Azeri go hand in hand with findings for Persian by Gebhardt (2009), who considers Borer’s (2005a) analysis to be problematic, given that the occurrence of the classifier and the plural marker in Persian is acceptable. In section 4.4 I provide evidence for the generation of the classifier on a higher head. This higher head is labeled as a cluster head that contributes to counting. I show in section 4.5 that numerals can appear without a classifier and do not force

the presence of a classifier. Section 4.6 explains the dependency relation between the numeral and the classifier. Here I provide evidence from selectional features to explain the dependency between the classifier and the numeral. Section 4.7 concludes this chapter.

## 4.2 Classifiers: A typological overview

In this section I explore the nature of classifiers with a focus on their theoretical aspect, and examine how they are categorized in typological studies. Classifiers in many languages are special morphemes that appear next to a numeral or a quantifier, and are used to categorize the referent of a noun in terms of its animacy, shape, and other inherent properties (Aikhenvald, 2000).

According to Allan (1977), many unrelated and geographically separate, languages show remarkable similarities between classifiers. All languages have classifiers where “English has nouns corresponding exactly to Thai lexemes that everyone agrees are classifiers” (Allan, 1977, p.286). Yet not all languages are considered classifier languages. Allan suggests three criteria to distinguish classifier languages from non-classifier languages. First, classifier languages have classifiers: and some of these classifiers are restricted to classifier constructions. Second, classifier languages belong to one of the four types: numeral classifier, concordial classifier, predicate classifier and intra-locative. Third, classifier languages are distinguished from other languages in which nouns are classified “according to the inherent characteristics of the entities to which they refer” (p.304).

Following the above categorization, I illustrate the behaviour of each type. In numeral classifier languages, the classifier is obligatory in many expressions of quantity, as in (127) from Thai.

- (127)    mǎ-sì-tua  
           dog-four-body  
           ‘four dogs’ [Thai, Allan, 1977, Ex.2]

In concordial classifier languages, the classifier is affixed to the noun and its modifier, *-ba* as in (128) from Tonga, a Bantu language (Collins, 1962).



- (128)    ba-sika                ba-ntu   ba-bile.  
           ba-have.arrived ba-man ba-two  
           ‘Two men have arrived.’ [Tonga, [Collins, 1962](#), as cited by [Allan, 1977](#),  
           Ex.6]

In predicate classifier languages, the classification corresponds to some discernable characteristics of the objects that require a certain kind of predicate too, shown in (129) from Navajo.

- (129)    béésò   sì-nìl  
           money perfect-lie  
           ‘some money (small change) is lying (there).’ [Navajo, [Hojjer, 1945](#), as  
           cited by [Allan, 1977](#), Ex.10]

In intra-locative classifier languages, noun classifiers are embedded in the locative expressions. These locatives obligatorily accompany nouns in most contexts. The data for these classifiers are scarce since only three languages of this type are recognized ([Allan, 1977](#)).

In general, noun classifiers characterize the noun and co-occur with the noun in a noun phrase. Their appearance in a noun phrase is independent of other constituents inside or outside the phrase. However, they correlate with inherent semantic characteristics of the noun they are referring to, such as animals, humans, plants, shapes and their structure.

In the upcoming sections, I look closely at the typological and theoretical aspects of the use of classifiers as discussed in previous studies for different languages. I illustrate the distribution of the classifier element on the nominal spine and the resulting semantic interpretation in that position. The occurrence of classifiers with other morphological elements in the noun phrase is taken into account and potential challenges are discussed in detail. In what follows, I show the behaviour of classifiers in other languages and move on to show classifiers in Azeri.

#### 4.2.1 Classifiers in different languages

In this section I show that, despite the presence of a classifier, a language does not necessarily reflect the properties of a numeral classifier language. Azeri is not

an exception from this fact and the discussion will shed light on the behaviour of classifiers in Azeri. In numeral classifier languages, such as Mandarin, the presence of the numeral forces the obligatory appearance of a classifier. The classifier in this language is an expression that indicates a unit of counting or a measure [Doetjes, 2012](#). The interpretation of the classification varies in every language.

According to [Greenberg \(1972\)](#), languages that make use of numeral classifiers in their “basic mode of forming quantitative expressions” never have compulsory number marking on the noun ([Doetjes, 2012](#), p.2).

To mark number, numeral classifier languages have three elements in the structure of their nominals, compared to two in English-type languages. To clarify, in English we would say ‘five books’ while numeral classifier languages would use a structure like ‘five flat-object book’ in their grammar. Here, ‘flat-object’ is considered a numeral classifier, a classifier type that is abundantly available in the languages of Southeast Asia. “In many languages of Southeast Asia, a number is never used without being accompanied by one of the special morphemes known as classifiers” ([Burling, 1965](#), cited in [Greenberg, 1972](#)).

In some classifier languages, e.g. Mayan, the head noun can be absent and the numeral classifier can act as an anaphoric substitute. The absence is compensated either by the previously mentioned noun or it can be understood from the non-linguistic context. While defining numeral classifiers has never been easy, as [Greenberg \(1972\)](#) points out, in the case of ‘five flat-object book’, the book is a kind of a flat object, so the classification should be considered to exist in its semantics. In a similar sense, there are languages that use class type words to describe nouns of the same class. These languages are called noun-class languages. An example of these languages is Malay in which the word for ‘tail’ is used for animals.

Another type of classifiers observed in some languages is a mode of quantification that is considered to be counting by unit. An example from Khmer is for items such as *bùrì sǎŋ sǎŋ* ‘cigarette two pack’.

Although cases like ‘piece of meat’ and ‘strand of hair’ exist in English, similarly sporadic examples can be found in most languages and are not sufficient to qualify a language as a numeral classifier language. Such examples are claimed to be unit items and are countable. However, [Greenberg \(1972\)](#) argues that, things like, ‘grain of rice’ do not have the same arbitrariness as ‘piece’ in ‘piece of meat’.

The fact that things like ‘grain’ and ‘rice’ cannot be found in counting structures other than unit constructions, categorizes them as mass nouns in English. The sophistication of distinguishing the unit reading from the measure reading has never been easy and the observable facts from English cast doubts on its being defined as a numeral classifier language which in reality is not. Things like ‘bunch of carrots’ are not considered as unit counters in English, to my understanding this is because you can count ‘carrots’ with numbers but not the ones like ‘rice’. Therefore ‘bunch’ in ‘carrots’ does not qualify as a unitizer, whereas bunch in ‘bunch of parsley’ does.

Greenberg thinks that defining a set of necessary conditions to classify a language as a numeral classifier language is almost impossible. This derives from the challenge of determining whether the classifier is initially generated as a head noun or a classifier. This is not an easy puzzle to solve. The issue of whether the classifier can be generated as a head noun is discussed in [Borer \(2005a\)](#) for Hebrew measure constructions. In a similar discussion on Burmese and Thai, Greenberg suggests that some words can be their own classifiers. In such cases the first occurrence of the word is a noun and the second occurrence is a classifier.

Greenberg’s frame of mind could be summarized as follows: “It is our working hypothesis that unit counters are modelled after the construction of mass nouns which cannot stand directly with numerals but require a measure or quasi-unit counter as an intermediary” ([Greenberg, 1972](#), p.315). Such a statement predicts that the numeral classifier languages are number neutral.

According to [Greenberg \(1972\)](#), classifiers in the large majority of classifier languages without plural inflections resemble, for the most part, the individualizing function of singulative affixes in languages with collectives. Such a resemblance indicates that the classifiable noun when not accompanied by a classifier should show the same lack of numerical determination that we have found with collectives in languages like Arabic (cf. [Mathieu, 2014](#)).

Another piece of evidence for Greenberg’s ([1972](#)) argument on the resemblance of the numeral classifier and singulative languages comes from [Kononov \(1960\)](#) who states that in Uzbek words like ‘girl’ and ‘bird’ without any grammatical indication do not contain any indication of number, a case very similar to Azeri. Such words in Uzbek represent an undivided totality. When the suffix of plurality *-lar*

is added they become a totality consisting of individual members. What is hypothesized then is that in the usual classifier languages i.e. those without inflection for number, classifiable nouns in their isolated form, when not accompanied by a classifier or a plural marker, are like collectives in their semantic non-specification of number and in their avoidance of a direct number construction. The classifier is an individualizer, which performs the same function as a singulative derivational affix in languages with the collective/singulative opposition ([Greenberg, 1972](#)).

There are many more languages that show evidence for the occurrence of the classifier and plural marker. In Akatek, *eb* the numeral classifier for inanimate is used as a separate plural marker for human plurals, as in (130), and can co-occur with numeral classifiers and noun classifiers.

- (130)    ʔoſ-wan                      k'itan                      eb'                      nax  
           three-NUM.CL:HUMAN NUM.CL:SEPARATE PL:HUMAN NOUN.CL:MAN  
           winax  
           man  
           ‘three groups of men’                      [[Akatek, Aikhenvald, 2000](#), Ex.4.42]

Similarly, the occurrence of the classifier and plural marker is reported for Hungarian in [Schvarcz and Rothstein \(2017\)](#). In Hungarian, morphological plural occurs in classifier phrases when the classifier phrase is the complement of a plural demonstrative. Plural demonstratives occur with plural noun complements, as in (131).

- (131)    ez-ek    a    szál-ak    rózsá-k  
           DEM-PL the CL<sub>thread</sub> rose-PL  
           ‘these threads of roses’                      [[Schvarcz and Rothstein, 2017](#), Ex.18]

There are other languages that exhibit similar patterns. For example, Mayan has the optional occurrence of the plural marker with the classifier, whereas in Ojibwe the occurrence of the plural marker is meaningful and has a semantic effect, as in (132), where the pluralization of the mass noun yields a unit reading ([Mathieu, 2012b](#)).

- (132)    mashkosiw-ag  
           grass-PL.ANIM  
           ‘blades of grass’                      [[Mathieu, 2012b](#)]

In the next section I will discuss diminutives in German that behave like unitizers. This section will be followed by a discussion of the behaviour of the classifiers in Azeri.

### 4.2.2 Diminutives and unitizers in German

Borer's (2005a) strict model of classifiers and the plural marker as an individuator has been the subject for disagreement in some studies (De Belder, 2008; Ott, 2011). In contrast with Borer, De Belder (2008) considers Dutch count words to denote two kinds of count readings. The two types are *kind-count* and *unit-count*. These two are ambiguous in English since they can mean, 'two kinds of chocolate' versus 'two pieces of chocolate', as in (133) and (134); having *kind-count* and *unit-count* readings respectively. In Dutch, this ambiguity is removed by adding an indefinite article (135) or plural marker (136) to the mass noun.

- (133) I tasted a chocolate.  
       kind: 'I tasted a certain kind of chocolate.'  
       unit: 'I tasted a piece of chocolate.'
- (134) I tasted the chocolates.  
       kind: 'I tasted the different kinds of chocolate.'  
       unit: 'I tasted the pieces of chocolate.'
- (135) Ik proefde een chocolade.  
       I tasted a chocolate  
       'I tasted a certain kind of chocolate.'  
       # 'I tasted a piece of chocolate.'
- (136) Ik proefde chocolades.  
       I tasted chocolate-PL  
       'I tasted different kinds of chocolate.'  
       # 'I tasted pieces of chocolate.' [Dutch, De Belder, 2008, Ex.13-14,16-17]

In Dutch and German, such an ambiguity is resolved by means of two independent morphemes. The numeral classifier and the diminutive are argued to be

expressing the *unit-count* reading (see Ott, 2011,<sup>2</sup> Considering Borer (2005a) and assuming that the numeral classifiers and the diminutive can both assign individuation, their occurrence is predicted to be in complementary distribution. However, the occurrence of both is observed in Dutch and German, which is problematic for Borer's (2005a) framework.

It is possible in German to diminutivize the classifier, as in (137). Ott (2011) argues that such an occurrence happens when the numeral classifier is a modifier that contributes to the meaning of the diminutive. As a modifier, the numeral classifier is suggested to be the modifier of the Unit, as in (138). The tree in (139) illustrates the position of these elements.

- (137) a. zwei Glassieri Schnaps  
two glass.DIM schnaps  
b. zwei Blättchen Papier  
two sheet.DIM paper  
c. zwei Stückchen Holz  
two piece.DIM wood

[German, Ott, 2011, Ex.18]

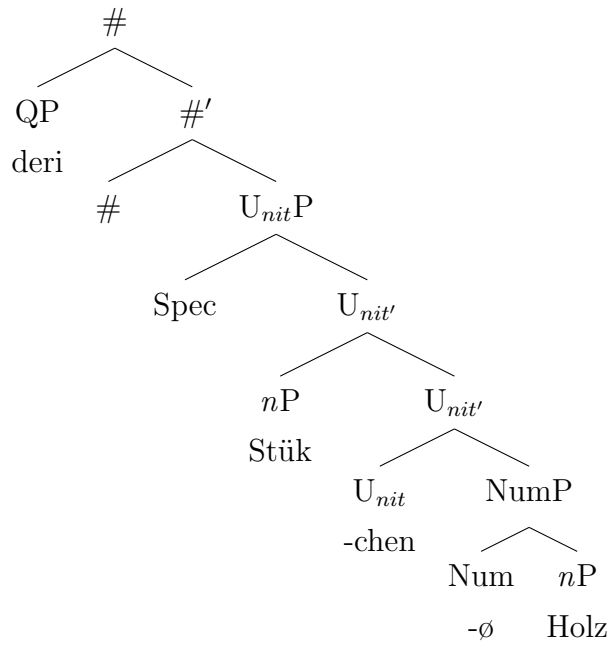
- (138) drei Stückchen Holz  
three piece.DIM wood

[German, Ott, 2011, Ex.45]

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<sup>2</sup>The reader is advised to note that in Ott (2011) what is considered as UnitP, is the equivalent of DivP in Borer (2005a). for more discussion). Diminutives are argued to assign individuation in Ojibwe and Arabic (Mathieu, 2013) in the same way that they assign individuation in German and Dutch.

(139)



[German, Ott, 2011, Ex.46]

The data shown above provide evidence that the classifier can co-occur with other individuating elements that are not necessarily in complementary distribution, as was expected in Borer's (2005a) model. In the next section I show more evidence for the co-occurrence of individuating elements, and argue that individuation does not necessarily occur by means of classifiers or plural markers in all languages, and that the predictions in Borer (2005a) are not applicable to languages like Azeri.

### 4.2.3 Classifiers in Azeri

Classifiers in Azeri are of various kinds. There are classifiers that are generally used with count nouns, such as *nəfər* 'person', *baş* 'head' in (140) and (141).

(140) on **nəfər** pəhlivan 'ten person warrior' > 'ten warriors' [Azeri, Lee, 1996, Ex.41]

(141) bir **baş** öküz 'one head ox' > 'an ox' [Azeri, Lee, 1996, Ex.42]

The classifier *cüt* ‘pair’ occurs with objects that appear in pairs, such as ‘shoes’ and ‘rugs’, in (142).

- (142) bir **cüt** xali ‘one pair rug’ > ‘a pair of rugs’ [Azeri, Lee, 1996, Ex.44]

Other classifiers that exist in Azeri include: *dəst* ‘set’, *tike* ‘piece’, *dəstə* ‘bunch, group’ and *ovuc* ‘palm, handful’. These classifiers take count nouns as their complements and do not occur with non-count nouns. Furthermore, Azeri has a generic classifier *dənə* ‘piece, item’ that can be used with count and mass nouns, illustrated in (143) and (144). What is common with all these classifiers is that they allow the head noun to combine with the plural marker *-lar*, hence the position they take on the nominal spine in relation to the numeral remains the same. The semantic contribution of each classifier varies depending on the kind of noun each appears with, as in (143) and (144), but their syntactic behaviour remains unchanged.

- (143) bir **dənə** qazan ‘one item pot’ > ‘a pot’ [Azeri, Lee, 1996, Ex.43]

- (144) bir **dənə** yaxşılıx ruhu ‘one item good spirit’ > ‘a good spirit’ [Azeri, Lee, 1996, Ex.43]

In this chapter, I have focused mainly on the generic classifier that appears with both count and mass nouns. The generic classifier *dənə* resembles classifiers in numeral classifier languages, while the remaining classifiers have more restricted behaviour and are only used with certain types of nouns. I have also focused on the typological description and syntactic analysis of classifiers in order to explain the generic classifiers in Azeri.

Now that the nature of classifiers should be clear from the typological evidence provided in this section, I will introduce the existing formal analyses with respect to classifiers and their syntactic and semantic contributions.



### 4.3 The process of classification: A theoretical overview

In order to categorize different types of classifiers and their occurrences, we need to be familiar with the cross-linguistic generalizations that are employed to distinguish different classifiers and their correlation with the noun which they classify.

The target of classification is normally the head noun or the noun phrase and there is a consensus that a classified noun is usually number neutral. When used as a bare noun, Mandarin *shu* ‘book(s)’ may be used to refer to one or several books (cf. [Krifka, 1995](#); [Rullmann and You, 2003](#)). A similar observation is provided by [Greenberg \(1972\)](#) in which he generalizes that classifiers are used predominantly with number neutral nouns; as was discussed in chapter 2, where the bare form of the noun, i.e. general number, does not have a reference to number. Greenberg argues that the loss of number (plural) marking on nouns in a language may lead to the emergence of a numeral classifier system, in which case the classifier construction is modelled after structures containing a measure term. In this study, however, a generalization as such is claimed to be working in one direction only. That is to say, languages without an obligatory plural marking will not necessarily have a general system of numeral classifiers. For example, in languages such as Azeri, where the plural marking is not mandatory, there is no obligatory system of numeral classifiers either. I believe, to study such a claim, the historical development of classifier system of the language should be the focus of the study.

From a cross-linguistic perspective, the generalization that applies to both measure terms and numeral classifiers works the same way for either of them. All such expressions combine with nouns that have cumulative referencing (similar in nature to the denotation of plurals in English) and refer to more than one. Cumulative reference in the sense of [Chierchia \(1998b\)](#)<sup>3</sup> is the point of discussion here. If this assumption is on the right track, for the same reason that English

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<sup>3</sup> [Chierchia \(1998b\)](#) assumes that the domain of quantification contains plurals that are in the form of sets. These sets consist of atomic joint semi-lattices. In this domain, the singular individuals are considered to be ‘subgroups’ or atoms of the plurality they belong to. The individuals in (i) are singular and the ones in (ii) are plural. The relation ‘ $\leq$ ’ illustrates that the singular individuals are ‘subgroups’ of any plurality they belong to, as in (iii).

(i)     a     b     c

(ii)    {a,b}    {a,c}    {b,c}

singulars (not being cumulative) are not used with plurality, only the plural marked nouns are allowed to be used with the plural marker, as in (145). In general, non-classifier languages tend to treat their measure terms as ordinary count nouns in the sense that they need to be marked for number, as in (146).

(145) \*one cup of teas

(146) two cups of tea

Syntactically, the classifier and the number can exhibit the same function - division - but semantically they vary in their function. Doetjes (2012) claims that “the denotation of the number neutral noun in a numeral classifier language is very close if not identical to that of a plural noun in a language with a systematic distinction between singular and plural” (p.13). Classifiers are ‘singularizers’, in the sense that they map an atomic semi-lattice into a set of atoms (Chierchia, 1998a; Cheng and Sybesma, 1999). Such an explanation does not predict any alternations in the behaviour of classified versus plural nouns. The only case in which this prediction might be ruled out is in the context of numerals, once we want to assign singular interpretation to plurals. In that case the plural marker is argued to reflect agreement rather than semantic plurality (cf. Ionin and Matushansky, 2006), who argue in favour of such an approach). If one were to accept such a proposal, the consequence would be that it does not explain why, in the absence of classifiers, languages tend to use both plural marked or number neutral nouns with numerals. The puzzle here is extended to the notion of pluralia-tantum (e.g. clothes, scissors, etc.). Pluralia-tantum, which is ambiguous for number and counting, is possible to be disambiguated for number. This shows us that ambiguity for number is equivalent between bare form of nouns and plural marked nouns. I believe that general number in Azeri needs to be disambiguated for number in the same way as pluralia-tantum. To disambiguate pluralia-tantum we need a classifier as in ‘2 pairs of jeans’ in English. Looking closely, general number seems to behave in a similar way and would be expected to get disambiguated with the insertion of a classifier. However, Azeri does not take obligatory classifiers which is the focus of the present study. The next section introduces the syntactic theories that have tackled these puzzles.

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(iii)  $a \leq \{a,b\}$

### 4.3.1 Plural markers and classifiers in the Exo-Skeletal model

In the preceding sections, classifiers are introduced as a medium to mark number in numeral classifier languages. However, it was also noted that the presence of a classifier in a language does not necessarily force a language to be defined as a numeral classifier languages. In what follows, I review some frameworks that have an independent view on the behaviour of classifiers.

Since the major theoretical framework that I follow in this work is [Borer \(2005a\)](#), I will start by introducing her view on classifiers in the Exo-Skeletal model. An illustration of the nominal spine for Borer is illustrated in [\(147\)](#). In the structure in [\(147\)](#), *cat* would enter the derivation without inheriting any grammatical properties (Borer refers to entries for the listed items as *listemes*, as introduced in chapters 1 and 2). We recall from chapter 2 that lexical items enter the syntax as neutral lexemes without any formal properties ([Borer, 2005a](#)). Borer argues that the  $CL^{max}$  functional category, i.e. the range assigner to the division head, individuates the noun and the word *cat* in [\(147\)](#) receives a count interpretation. The higher projection,  $\#P$ , above  $CL^{max}$  is the position for number assignment. The projection of *cat-s* before the projection of  $\#P$  does not have any interpretations for number and it is after this projection that it receives a number reading. The projection of  $\#P$  in singular structures in English is obligatory, and hence the singular form of the noun is marked for number. However, we are aware that in English the noun does not appear in its bare form, except in compounds, and it is the determiner in the language that assigns a number reading. The determiner is the highest projection and it is expected to assign both number (in the case of ‘a book’) and definiteness properties to the structure.



‘I have two umbrellas.’(\**cardinal, classifier, plural*) [Armenian,  
Borer, 2005a, Ex.6, P.94]

In this section, I only explain the instantiation of individuation in the Exo-Skeletal model and the other parts of the model are discussed in more detail in the forthcoming sections. To summarize what was discussed above, division is realized in various forms in different languages. In Chinese-type languages it is realized as a classifier. In languages like English, which lack Chinese-type classifiers, the individuation is realized by means of the plural marker. According to Borer (2005a), languages employ one of the two systems, meaning in a language such as English in which the plural marker does the division, there is no need for a classifier, hence the projection of both morphemes will be in strict complementary distribution. The complementarity was observed for Armenian and Chinese by Borer (2005a), however, the co-occurrence of the classifier and the plural marker is not prohibited in some languages. The next subsection explores some possibilities in Azeri.

### 4.3.2 The co-occurrence of plural marking and classifiers in Azeri

Classifiers and plurals are argued to be in complementary distribution in many languages (Greenberg, 1972; Sanches and Slobin, 1973). Derived from the structuralist view that complementarity indicates identity, when two morphemes are associated to the same functional category the appearance of both is expected to be in complementary distribution. In a language such as Halkomelem the classifier and the plural marker co-occur, which is expected, given that the plural marker in Halkomelem is not associated with the #. Since the plural is modificational in Halkomelem, it confirms the fact that the argument of the complementarity is syntactic (Borer, 2005a). On the other hand, Wiltschko (2008) concludes that non-complementarity is restricted to the languages in which the plural marking or the classifier are not generated in the functional head #. Examples from Persian (Ghaniabadi, 2010; Gebhardt, 2009) and German (Ott, 2011), show that

Wiltschko’s argument is not universal and the non-complementarity is driven by the generation of the classifier and the plural marker on independent heads.<sup>4</sup>

In Azeri, however, the classifier and the plural marker occur at the same time. Following from the discussion in the previous sections I hypothesize that the co-occurrence is not modificational in Azeri. In the next section, I will provide evidence that the modificational hypothesis is not practical for Azeri.

It is obvious that languages have different ways of using the numerals and classifiers. In English, numerals and certain quantifiers are used with the plural form of the count noun, and the classifier is necessary when the numeral is used with the mass noun in measure constructions, for example in *two glasses of wine*,

<sup>4</sup> The co-occurrence of the classifier and plural marker is reported in Persian by Ghaniabadi (2010). In his dissertation, Ghaniabadi asks whether the plural marker should be considered as a head or a modifier in the language. He provides evidence that plural marking in Persian does not trigger agreement, as in (i), which shows no agreement between the demonstrative and the noun.

- (i) in(\*â)    pesar-â mi-dov-and  
       this-(\*-â) boy-PL DUR-run-3PL  
       ‘These boys are running.’ [Persian, Ghaniabadi, 2010, Ex.45]

The unmarked form of the noun is compatible with plural interpretation, as in (i). There is a form-meaning mismatch in cases where the nouns that instantiate *pluralia-tantum* in English appear singular in form in Persian and are able to be pluralized. The pluralized forms refer to non-atomic sets of pairs (cf. Hamedani, 2011 for a reverse discussion). A summary of the number system in Persian by Ghaniabadi (2010) is summarized in table (ii).

- (ii) Number system in Persian

|          | NUMBER   | DEFINITE NUMBER            |
|----------|----------|----------------------------|
| Singular | Unmarked | -é(SG) <sub>DEF</sub> / -Ø |
| Plural   | -hâ(PL)  | -hâ(PL) <sub>DEF</sub>     |

[Persian, Ghaniabadi, 2010, Ex.44]

Explanation for the occurrence of the numeral+classifier and plural marking, Ghaniabadi assumes that there are two independent morphemes in Persian for marking plurality and argues that the phonological exponents of the morphemes are inserted at Vocabulary Insertion. The plural marker that occurs with the combination of numeral+classifier in Persian is claimed to be a portmanteau plural morphemes that contains the feature bundle of [+def, +pl], as in (iii). In cases where the noun phrase includes the combination of numeral+classifier, the appearance of the plural marker is optional in the sense that only a portmanteau plural marker can appear in these instances, but no plural marker is required.

- (iii) a. se-tâ    ketâb(\*-â)  
           three-CL book(\*-PL)  
           ‘three books’  
       b. se-tâ    ketâb(-â)  
           three-CL book(-PL<sub>DEF</sub>)  
           ‘the three books’

[Persian, Ghaniabadi, 2010, Ex.53]

(Doetjes, 2012). The way English uses the classifiers with the mass nouns resembles the use of the so-called numeral classifiers in Mandarin. In Mandarin, the use of the numeral forces the presence of the classifiers. According to Doetjes (2012) these expressions indicate a unit of counting or a measure, as in (150) (cf. Borer, 2005a).

- (150) a. sān bēn shū  
           three CL<sup>volume</sup> book  
       b. liǎng jìn mǐ  
           two CL<sup>kilo</sup> rice

[Mandarin, Doetjes, 2012, Ex.1]

Yet we have languages like Azeri in which the use of the numeral with the count noun does not require the necessary presence of the classifier, nor the insertion of the plural morphology. In chapter 2, I showed that Azeri nouns yield general number reading and individuation is done via a null head in this language. We also observed that the appearance of the plural morpheme can only be interpreted as plural, as in (151), meaning that the plural is generated on a number head, as in (152).

- (151) oğlan-lar  
       boy-PL

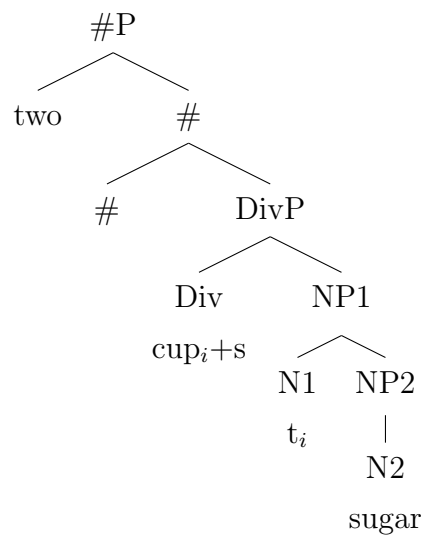
- (152) [<sub>#P</sub> -lar [<sub>DIV</sub>  $\emptyset$  [<sub>NP</sub> N ]]]

In Mathieu and Zareikar (2015), we have argued that there are different kinds of plurals in the grammar and, depending on its contextual function, the plural appears in different positions on the spine of the syntactic tree (see also Acquaviva, 2008; Wiltschko, 2008; Mathieu, 2012a, 2013, 2014). We believe that the lower plural marker on English nouns is generated on DivP, atomizing the noun, as illustrated in (153). This position accommodates the classifier in numeral classifier languages and the plural marker in English-type languages.

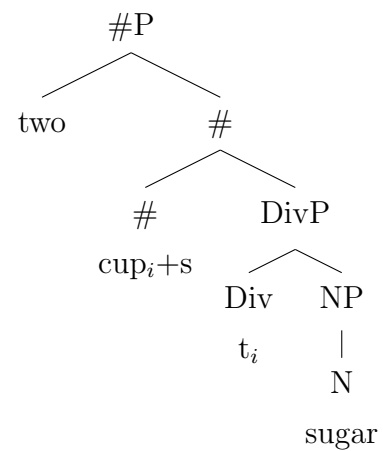
- (153)
- $$\begin{array}{c}
 \text{DivP} \\
 \swarrow \quad \searrow \\
 \text{Div} \quad \text{NP} \\
 \text{book}_i + s \quad | \\
 \quad \quad \text{N} \\
 \quad \quad t_i
 \end{array}$$

It is noteworthy that in measure constructions the plural marker is interpreted differently. Depending on the position, the plural marker can derive container or measure readings. This means that we have two different structures that give rise to two distinct readings on measure words. Consider the plural marker on the measure word, e.g. *-s* in *two cups of sugar* in English. The plural marker has a dividing function and derives a container reading if it is generated in DivP. However, it has a counting function and yields a measure reading if it is generated in the #P. Examples of this phenomenon are illustrated in (154) and (155).

(154) *container construction*



(155) *measure construction*



[Mathieu and Zareikar, 2015, Ex.16]

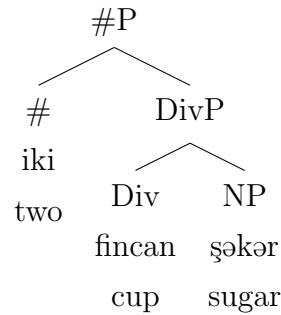
However, in Azeri the situation is different from English. I argued in chapter 3 that the plural marker in Azeri does not participate in the process of individuation since the process of individuation is different in Azeri and it happens under the projection of a null division head. Furthermore, in Mathieu and Zareikar (2015) we argue that measure words can participate in individuation. Words like *fincan* in (156) are generated on a division head and function as atomizers. Such structures generate a measure reading and the structure patterns with (155), as illustrated in (156) and (157).

(156) *iki fincan şəkər işlət-dim.*  
 two cup sugar used-PAST.1SG



‘I used two cups of sugar.’ [Azeri, [Mathieu and Zareikar, 2015](#), Ex.10a]

(157)



[Azeri, [Mathieu and Zareikar, 2015](#), Ex.19b]

In section 4.4, I claim that the idea of considering the measure words as atomizers is not extendable to all existing classifiers in the language. Building on the proposal suggested in this section and the previous ones, I will introduce a new projection onto the spine. This projection shows that unitization is a function that is assigned by a functional category that is different from number and individuation.

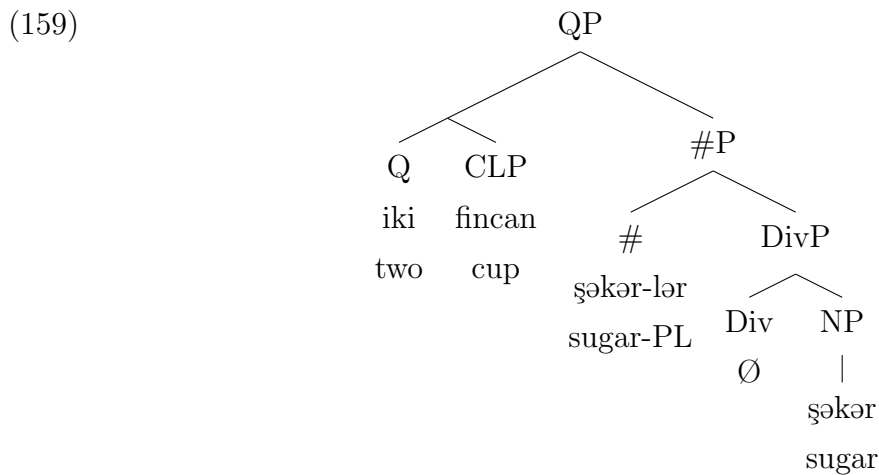
## 4.4 Evidence for a cluster head

Adding to the discussion in the previous section, I propose that in Azeri the measure word, that was argued in [Mathieu and Zareikar \(2015\)](#) to be generated on the division head, is actually generated higher in a head that I call CluP (cluster). Cluster, I argue, is part of the quantity phrase and contributes to the quantificational interpretation of the structure. Sentences like (158) are argued to include a CluP in their structure.

(158)    iki   fincan şəkər  
          two cup    sugar  
          ‘two cups of sugar’

Furthermore, in chapter 3, I argued that the plural marker is generated on the #P, and whenever the plural marker appears in the structure, it will attach to the

head noun. Since the noun is generated lower in the structure, the order needs to be explained. This order must be generated as the result of head movement. The argument is that the head noun ‘şəkər’ *sugar* undergoes head movement due to the clitic property of the plural marker and raises to the #P and the linear order is sorted out, as in (159). The attachment of the plural marker to the head noun ‘şəkər’ rather than ‘fincan’ is a crucial piece of morphological evidence that the measure word is not base generated in DivP, if it were the plural marker would attach to ‘fincan’, since ‘şəkər’ cannot move to a higher position.



In what follows, I provide evidence to show that Borer’s approach cannot account for the nominal structure in Azeri and argues that we need to modify the framework adequately capture languages of a similar kind. It is noteworthy that the distribution of the plural marker on different heads does not introduce any problems for Borer’s model. Essentially, the appearance of the plural morpheme on different heads suggests that the independence of syntax and morphology independent from one another.

In Borer (2005a), the role of the plural marker *-s* is to atomize the unspecified noun. In a similar way, the plural marker on a measure word; .e.g. *cup-s of sugar*, is argued to be identical to the plural of non-measure words. In such cases there are two projections of the noun, each of which has its own division head that accommodates the plural marker, as illustrated in (160).



Another piece of evidence for the plural marking being generated higher than the division head comes from the exclusive reading of the plural noun. The plural in Borer’s framework is expected to yield an inclusive reading. That is to say, in English, the plural form of the noun that is used in the interrogative form, as in (161), can get ‘one’ as a response. If we ask for the number of children someone has, they can answer as ‘I have one child’.

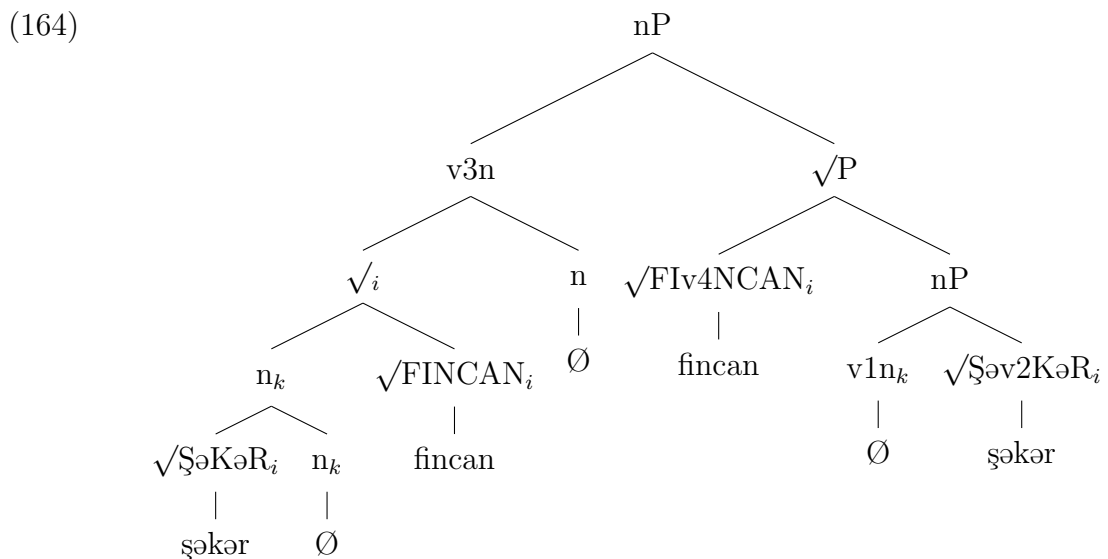
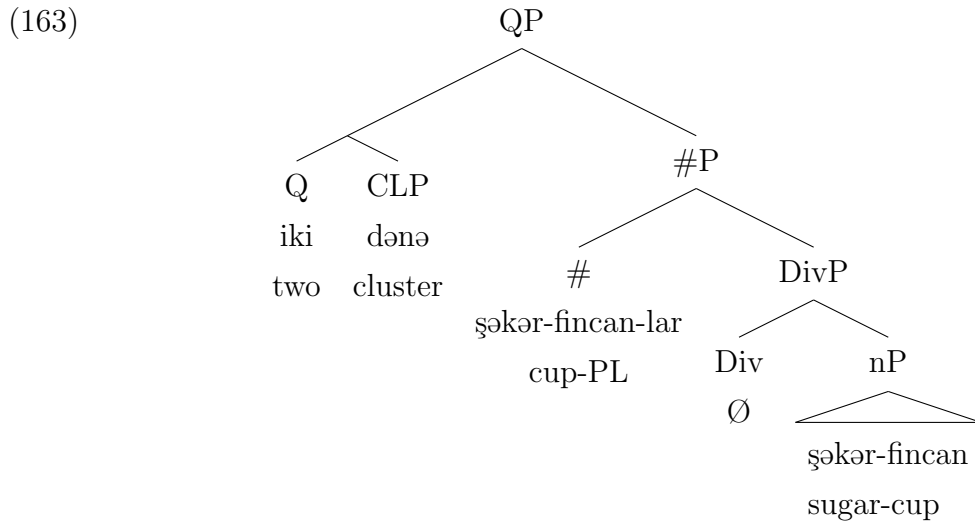
- (161) A: How many children do you have? B: I have one child. [Krifka, 1989, Ex.7]

However, in Azeri the plural form of the noun does not appear in interrogative structures, meaning that the bare form of the noun has inclusive reading (for a detailed discussion, see chapter 3). I argue that the plural marker in the language must be generated in a different position, i.e. #P; in the same way that plural marker is argued to be generated on #P for Persian, Arabic plural of singulative and English measure constructions (Mathieu and Zareikar, 2015; Mathieu, 2012a, 2013, 2014). As a result, the measure word acting as a classifier in nature can move to CluP and be part of the quantifier phrase, and the nominal head can attach to the plural marker.

The advantage of what I offer as the structure of measure word and plural marker comes in handy in compound nouns as well. By compounds I refer to the N-compound consisting of two independent nouns. This compound derives a container reading as opposed to the measure reading we viewed in the previous discussion. In Mathieu and Zareikar (2015), we argued that the container reading for the measure word is due to being generated on a different head than the division head. In this case, the measure word is argued to be generated on a noun head rather than a division. Building on this idea, I argue that this type of nominal head is the result of having a compound structure that moves together to combine with the plural marker, as in (162) and (163). Compounds such as *şəkər*

*fincan* ‘sugar-cup’ are an example of canonical synthetic compounds according to [Harley \(2011\)](#). Such compounds are built when the arguments of roots are merged with the root before the categorizing terminal node is added. Terminal nodes in Distributed Morphology are feature bundles (f-morphemes) and roots (l-morphemes). Feature bundles are category-forming terminals and include both inflectional and derivational terminal nodes ([Harley, 2011](#)). The categorized noun, i.e. *nP*, *şəkər-fincan* in this case is a compound now. This is illustrated in (164).

- (162) İki şəkər-fincan-lar-ı-nı işlət-dim.  
 two sugar-cup-PL-POSS-ACC used-PAST.1SG  
 ‘I used the two cups of sugar.’ [Azeri, [Mathieu and Zareikar, 2015](#),  
 Ex.10a]



As noted in the previous section, there is consensus that numeral classifier languages do not mark number on the noun itself and that the requirement of a classifier/singulative-marker/plural-marker as an individuator is required with the numeral in order to count the noun. However, I also showed that there are languages that exhibit similar in behaviour to numeral classifier languages, but do not require obligatory classifier to make the noun countable, since the numeral appears with the bare form of the noun. Such cases occur in languages with general number reading such as Azeri, Armenian<sup>5</sup>, Hungarian, and Persian, in which neither the plural marker nor the classifier are required for quantification.

Furthermore, languages with optional classifiers are reported to be as frequent as languages with obligatory classifiers (Haspelmath, 2005). Doetjes (2012) notes that some languages with optional classifiers have a set of sortal classifiers and thus resemble Mandarin and Mokilese (e.g. Khmer, Austro-Asiatic, Cambodia; Jacob, 1965). Other languages have only one optional sortal classifier, which is sometimes also called an enumerator (e.g. Hausa, Chadic, Nigeria; Newman, 2000).

If it is true that the occurrence of the classifier can be optional, such an optionality implies that the classifier in these languages does not involve the process of individuation. Repeating from the previous section, in Azeri the classifiers are common between count and mass nouns. There are also certain types of measure words like *nəfər* that only occur with selected nouns related to human beings. The fact that classifiers select for the type of noun they occur with is not unique for Azeri. Cross-linguistic evidence shows that there is a correlation between the choice of the classifier and the noun (cf. section 4.3 in this chapter). The existence of the generic classifier is not unique to Azeri either and is reported for other languages; e.g. *-ge* in Chinese. As noted by Doetjes (2012), “In many classifier languages there is one classifier that functions as a general classifier, which is semantically bleached and tends to combine with a large set of nouns in the language” (p.5).

As demonstrated by Doetjes (2012), when the measure word combines with a plural, it scopes over pluralities. Doetjes provides examples such as ‘two boxes of books’, in which each box contains a plurality of books. According to Doetjes, some measure terms are even restricted to plurals; examples are *bunch*, *crowd* and

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<sup>5</sup>In explaining optional classifiers in Armenian from Bale et al. (2010), Doetjes (2012) notes that in the Bale et al. (2010) argument, plurals in this language are real plurals in the sense that their denotation excludes the atoms. Under the assumption that the classifier needs atoms in the denotation of the noun with which it combines, it is incompatible with the plural form of the noun (recalling from Borer’s examples, plurals do not co-occur with the classifier in Armenian).

*flock*. The evidence drawn from Doetjes's work is that, when the classifier occurs with the plural marker and scopes over it, the classifier must not be the functor that assigns individuation. Having such observations in hand enables us to support the claim that classifiers should not be restricted only to an individuating type, which is observable in numeral classifier languages.

Considering that classifiers other than individuators exist, and knowing that a classifier and a plural marker can co-occur, the question arises: What is the position of each morpheme when they can co-occur in the syntactic structure? Referencing from the literature, classifiers are responsible for the presence of atomic structure in a very concrete way. [Denny \(1986\)](#) and [Lucy \(1981\)](#) among others argue that languages such as English have a lexical count/mass distinction while classifier languages do not, and the assumption that number marking does not introduce units of counting while classifiers do introduce such units. Based on psycholinguistic experiments with speakers of the numeral classifier language Yucatec (Mayan, Mexico), Lucy claims that Yucatec subjects have a substance-oriented way of viewing the world as compared to speakers of English. However, as shown by [Li et al. \(2009\)](#), a new set of experiments shed serious doubts on Lucy's interpretation of his results, and show convincingly that being speaker of a numeral classifier language does not affect one's perspective on substances and objects in the world.

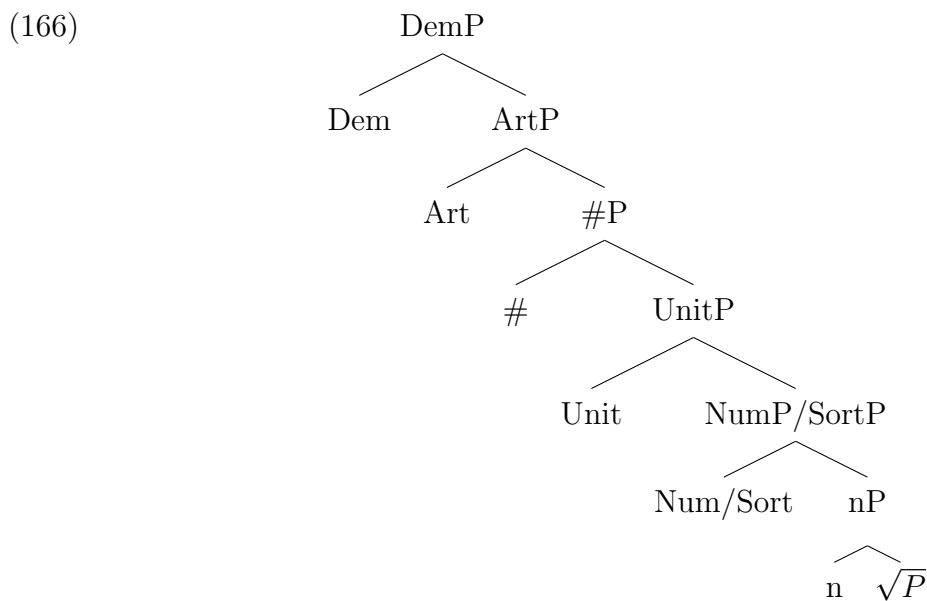
On the other hand, there are classifiers that provide no information about what the atoms would be. Therefore, such classifiers do not differ from number morphology (cf. [Doetjes, 1997](#)). Many classifier languages, for instance, have a so-called general classifier, that contain no information about the units to be counted, and may replace other sortal classifiers (e.g. Mandarin *ge* and Azeri *dənə*). Yet, general classifiers always trigger a count interpretation of the noun (see also [Adams, 1991](#)). Moreover, numeral classifier languages often do not use classifiers in combination with expressions corresponding to large numbers. Rather, these expressions behave like classifiers themselves and are similar to English nouns such as *pair* and *dozen*. Again, no criterion for counting is present, yet a count meaning of the noun is necessarily present.

The discussion above provides evidence for the existence of an independent head that accommodates the classifier in many languages, that do not fit in the definition of numeral classifier languages, yet license optional classifiers in their

structure. Therefore, the classifier is arguably distributed over the spine of the nominal phrase.

Svenonius (2007a) considers the occurrence of the plural marker and the classifier in the nominal spine and suggests a cross-linguistically hierarchical pattern, as in (165). He introduces three levels for the identification of classifiers. In this pattern, numeral classifiers are considered as UNIT since they are counted (and argued to be equivalent to Borer’s # head), sortal classifiers are comparable to Borer’s CL and noun classifiers that are shown as *n*. The plural is not included, presumably due to its scarcity.. A hierarchical structure proposed by Svenonius (2007b) is illustrated in (166).

(165) Art > UNIT > PL/SORT > *n* > N



[Svenonius, 2007b as cited by Ott, 2011, Ex.25]

Ott (2011) proposes a similar distribution for German. The UnitP is the position that takes the numeral classifier or the diminutive, as in (167) through (169). The exponents of the UnitP are argued to be assigning individuation the same way as DivP for Borer (2005a). The suggested order allows either the classifier or the diminutive to occur with the plural marker that occupies a higher position.<sup>6</sup>

<sup>6</sup>Other occurrences of the diminutive and noun or plural and noun are not discussed in this part.

This pattern is suggested to resolve the strict complementarity predicted in Borer's (2005a) model.

- (167)    die Wässer-ke-s  
          the water-DIM-PL

[Low Rhenish dialect, Ott, 2011, Ex.30a]

- (168)    zwei Stück/Stücke Holz  
          two piece/piece.PL wood

[German, Ott, 2011, Ex.31a]

- (169)    drei Stückchen Holz  
          three piece.DIM wood

[German, Ott, 2011, Ex.45a]

In Ott's (2011) model, the numeral classifier and the diminutive are argued to be in a modifier relationship. This is derived from the clitic nature of the diminutive in need of a host.

Furthermore, according to Grinevald (2005), sortal classifiers indicate a unit of counting while appearing to be semantically redundant in the sense that they specify an inherent characteristic of the noun they modify. "In many classifier languages there is one classifier that functions as a general classifier, which is semantically bleached and tends to combine with a large set of nouns in the language" Doetjes, 2012, p.5. An example is Mandarin *ge*, the classifier normally used with the noun *rén* 'person', which tends to replace more specialized ones (Li and Thompson, 1992). There are also many languages in which the sortal classifier may be left out without a change in meaning (see for instance Jacob, 1965; Adams, 1991 on Khmer, an Austro-Asiatic language spoken in Cambodia).

In an independent study on Persian by Cowper and Hall (2012), a classifier, such as *ta* in Persian, is argued not to be an individuator in numeral classifier languages. The morpheme is used with mass and count nouns, as in (170). When used with mass nouns, *ta* derives count interpretation of the noun, but since it is used by both types of nouns, it does not exhibit any contrast. *Ta* must be obligatorily preceded by a numeral or a quantifier and for that reason it is argued to be generated in the quantity head rather than the division head. The need for this kind of optional classifier in Persian is not discussed by Cowper and Hall,



however, the schema proposed below attempts to explain the generic classifier *ta* in Persian.

- (170) a. Se    ta čay, lotfæn  
           three ta tea    please  
           ‘Three teas, please.’  
       b. do    ta deræxt  
           two ta tree  
           ‘two trees’
- [Cowper and Hall, 2012, Ex.48]

The optional classifier in Azeri works for the most part like *ta* in Persian.<sup>7</sup> It freely occurs with count or mass nouns and does not contribute individuation to the head noun. It is argued in chapter 2 of this work that individuation in Azeri as a general number language is morphologically null, and so we need to explain the existence of a head that accommodates the generic classifier *dənə*.

To continue, I will provide a discussion on the dependency relation between the classifier and the numeral.

## 4.5 Classifiers are not forced by numerals

Now that the distribution of measure words and classifiers has been discussed for the theory of noun phrase, in this section I focus on the correlation of the numeral and the classifier in contexts where the classifier follows the numeral in the structure. The next few sections will offer various hypotheses on the syntactic and semantic understanding of these items and I will argue in favour of the one that I consider to be the most Representative for Azeri.

The relation of the classifier with the noun and the numeral varies in different languages (Doetjes, 2012). The classifier and the noun are fused with the numeral in some languages, e.g. Japanese (Downing, 1996) and Mokilese (Austronesian, Micronesia), Harrison and Albert, 1976. In other languages, e.g. Mandarin, they constitute a separate lexeme between the noun and the numeral and have been argued to form a constituent with the noun phrase first (cf. Cheng and Sybesma,

<sup>7</sup>Kahnemuyipour (p.c.) does not consider Persian *-ta* as a generic classifier, similar to *dənə* in Azeri. Considering *-ta* as a mandatory classifier in Persian categorizes this language among numeral-classifier languages. However, I agree with Gebhardt (2009) and Cowper and Hall (2012) and assume that *-ta* is a special classifier in Persian.

1999). However, there are languages in which the classifier forms a prosodic constituent with the noun rather than the numeral. Such cases are shown for Kana (Niger-Congo, Nigeria) by Ikoro (2006) and are examples of exceptional cases (Aikhenvald, 2000).

As argued by (Ott, 2011), cross-linguistically, languages do not use a single type of classifiers for their nouns. Using classifiers to identify the shape or form or identity of the noun is merely for purposes of semantic clarification. However, it seems like there are variations in the interpretation of the behaviour of classifiers in relation to number. Doetjes (2012) generalizes that non-classifier languages tend to treat their measure terms as ordinary count nouns in the sense that they need to be marked for number. Such a generalization arises from structures like *two cup-s of sugar* in English-type languages. Given the discussion in the plurals section, the number on the measure constructions is argued to be a plural of # type that yields an exclusive reading (Mathieu, 2014).

Doetjes (2012) refers to Ott's examples from German (discussed above in (167) to (169)) but does not consider them as instances that would require a solid explanation. "Dutch and German do not always require the presence of the plural morpheme on the measure term, as in *twee liter wijn lit* 'two liter wine'. However, only a small number of measure terms can be used this way. In general non-classifier languages tend to treat their measure terms as ordinary count nouns in the sense that they need to be marked for number" Doetjes (2012, p.4). Azeri is an example of this type of language. It is noteworthy that number is assigned by means of the numeral rather than the plural marker on the classifier. The classifier almost never gets pluralized in the language and this is of interest where the plural marker is considered to be on #P that is lower than the head that accommodates the classifier.

In other languages such as Hebrew, measure constructions reflect a similar pattern to what discussed above for German. However, Borer (2005a) provides a different analysis than what is discussed here, in (171). According to Borer (2005a), the bare form of the measure word in the case illustrated below has a singular number. Such a bare form is capable of assigning number. It is shown in section 4.2, that both the singular form of the noun, as well as the measure word when it is generated as a noun phrase, are marked for number and yields a singular interpretation. Borer argues that the #P is necessarily generated when

the bare form of the noun receives a singular reading. The number is interpreted due to the projection of #.

- (171)  $[\#_{P-1} \text{baqbuq} \langle \text{div-}\# \rangle \langle \text{e} \rangle \#(DIV) [\text{bottle} [\text{olive} \langle \text{div-}\# \rangle \langle \text{e} \rangle \text{DIV}(\#) \text{olive}]]]$   
 $[\#_{NP-1} \text{baqbuq} \dots [\text{olive} \langle \text{div-}\# \rangle \langle \text{e} \rangle \text{DIV}(\#) \text{olive}]]]$   
 olives
- [Hebrew, [Borer, 2005a](#), Ex.42d, P.254]

On the other hand, according to [Greenberg \(1972\)](#), it seems to be the case that the classified noun is normally not marked for number. In what follows it will become clear that Greenberg’s version of the observation is on the right track: classifiers are used predominantly with number neutral nouns. Greenberg argues that the loss of number marking on nouns in a language may lead to the emergence of a numeral classifier system, in which case the classifier construction is modelled after structures containing a measure term. This is an argument that is pursued in the present work and clearly states that Chierchia’s ([1998a](#)) and Borer’s ([2005a](#)) arguments for classifiers being individuating elements is not entirely a universal claim, if we assume that number neutrality is independent from the absence of the mass/count distinction.

Looking at the puzzle from a different perspective, Chierchia’s (1998a) proposal reflects the widespread perception that number inflection and numeral classifiers are in complementary distribution, both across languages and within a single language (Sanches and Slobin, 1973; Greenberg, 1972; Krifka, 1995; Doetjes, 1997; Wiese, 1997; Link, 1983; Cheng and Sybesma, 1999; Borer, 2005a). This perception has led theories of nominal reference to assume that bare nouns are in some way not countable or ‘individuated’ and, because of this deficiency, require either number inflection or numeral classifiers to be counted.

The fact that classifiers occur with numerals was discussed previously. [Allan \(1977\)](#), for example, proposes a universal principle in which the classifier concatenates with a quantifier, locative, demonstrative, or predicate to form a nexus that cannot be interrupted by the noun which it classifies. The following paradigm is given for the permissible combination of quantifier, classifier, and noun ([Allan, 1977](#)).

Q C N: Semitic languages, Bengali

C Q N: Kiriwina

N Q C: Thai, Japanese

N C Q: Louisiade Archipelago

In many languages numerals combine directly with number neutral nouns (Doetjes, 2012 cf. Gil, 2005). Even though this type of strategy is rarely taken into account in the literature on the mass/count distinction, the difference between count and mass does play a role in this type of languages as well (cf. Wilhelm, 2008, who reached similar conclusions to the ones presented here on the basis of facts from Dëne Sųliné, Athapaskan, Canada). As discussed in chapter 2 for Dëne Sųliné, even in the absence of the singular or plural specification, the nouns with atomic denotation are count. As I discussed above sections and in chapter 2, Azeri bare nouns are atomic and hence occurs with the numeral.

Wilhelm (2008) notes that according to ?, if numerals are of type  $\langle n \rangle$ , the noun is of type  $\langle e, t \rangle$ . If that is the case, nothing will prevent Krifka's introduced numerals from combining with a number neutral bare form of a noun (general number) or a set of pluralities (English-type). Since we already know that this is not the case for all languages, there must be another function that causes such a co-occurrence. The phenomenon of the occurrence of the numeral with the bare noun is argued to be because the *OU* function can only access the atoms/minimal units provided by a noun's denotation. According to Wilhelm, *OU* function does not create atoms. Its function is to access the atoms that are provided by the noun's denotation. Count nouns are argued to have such a denotation and this explains the inability of the mass nouns to combine with a numeral and remain in need of a classifier to atomize them. In sum, Wilhelm (2008) believes that the *OU* is an intermediate function that is not part of the lexical meaning of numerals and that there are separate elements that express the meaning, i.e. classifiers in numeral classifier languages and plural marker in others. However, in languages like English, the function is part of the meaning of the numeral. Wilhelm points out that many classifiers are quite specific and require the units of counting to be; e.g. long and thin things, flat things, fruits, humans, etc. (cf. Hundius and Klöver, 1983, p.205, for a list of Thai classifiers). However, often there is also a general or default classifier that simply means 'unit', for example, Mandarin *ge* (Doetjes, 1997, p.33), *ta* in Persian and *dənə* in Azeri.

The approach suggested in [Chierchia \(1998a\)](#) goes through accessing the atoms; and numerals are suggested to access a set of atoms. For Chierchia, atoms are accessible if a noun has a singular denotation, or if a noun denotes a set derived by the plural operation from a set of atoms. Formally, a set  $A$  is countable if  $SG(A)$  is defined ( $A$  is the set of atoms in the domain)

For any set  $A$ :

- (172)  $SG(A)$ :  $A$ , if  $A \subset At$  or if  $A = PL(B)$ , for some  $B \subset At$  undefined, otherwise

[[Chierchia, 1998a](#), P.71]

Since number neutral noun denotations are neither a (sub)set of atoms nor are they built from a set of atoms by a plural operation,  $SG(A)$  is undefined. In this case, a classifier must intervene between the numeral and the noun. The classifier maps plurality onto a set of atoms made up of members of the plurality; i.e. it singles out a set of atoms from the denotation. In other words, the classifier turns a reportedly uncountable number-neutral denotation into a singular, countable one.

Dëne, Korean, Turkish, Hungarian, and Armenian are examples of languages with optional classifiers, as illustrated above. Following [Krifka \(1995\)](#), I propose that all languages that do not have obligatory numeral classifiers have numerals with a general atom-accessing ability.

Wiese ([1997](#); [2000](#)) also proposes that number-neutral nouns are not countable directly. For Wiese, not unlike Chierchia, these nouns denote aggregates – atomic sets whose members are not ‘individuated’ and hence not accessible to numerals. Individuation is achieved by a classifier. Wiese thus predicts that all number-neutral nouns require a classifier for counting. This forces her to claim that languages without apparent classifier such as Dëne and Hungarian, have a phonologically empty general classifier in the extended nominal projection.

[Doetjes \(1997\)](#) and [Cheng and Sybesma \(1999\)](#) propose that number-neutral

nouns have non-atomic denotations, while nouns compatible with numeral classifiers have atomic, number-neutral denotations. They distinguish between classifiers, which are merely name existing units, and measure or container constructions, which create units for counting. In my proposal, the former provide access to atoms, while the latter map non-atomic onto atomic denotations (see also [Kang, 1994](#); [Krifka, 1995](#)). In more recent work, [Bale and Coon \(2014\)](#) show that [Wilhelm \(2008\)](#) and [Krifka \(1995\)](#) are on the right track. They show that numeral classifiers are required because of the syntactic and semantic properties of the numeral (as in [Krifka, 1995](#)); rather than the noun (as in [Chierchia, 1998a](#)). The difference henceforth lies in the numerals. [Krifka \(1995\)](#) hypothesizes that there are two different types of numeral interpretations cross-linguistically (see also [Wilhelm, 2008](#)). On the one hand, there are numerals in non-classifier languages like English. These have an incorporated measure function, #, and combine directly with nouns. On the other hand, there are Mandarin-like numerals such as *liang*. These do not have an incorporated measure function and thus require classifiers to introduce a measure.

A general piece of evidence is the fact that in classifier languages, numerals but not nouns are deficient; classifiers appear to form a constituent with numerals, not with nouns. In a similar sense, [Greenberg \(1972\)](#) states: “There are many indications that in the tripartite construction consisting of quantifier (Q) [=numeral], classifier (Cl), and head noun (N), Q is in direct construction with Cl and this complex construction, which will be called the classifier phrase, is in turn in construction with N” (p.227).

Among the indications are (i) that of the possible orders of Q, Cl, and N, only those in which Q and Cl are adjacent to each other occur, i.e. Q and Cl may not be separated by N; (ii) that the order of Cl and Q in a given language is usually fixed, while the order of classifier phrase and N may vary; and (iii) that in many languages Q and Cl form a prosodic unit or even a single word.

Considering the discussion above and knowing that the numeral does not force the appearance of the classifier, I will suggest two hypotheses for the co-occurrence of the classifier and the numeral in Azeri.

## 4.6 Selectional features on numerals

It became clear from the discussion in previous sections that the classifier in Azeri is bound to the numeral. This is to say that the occurrence of the classifier in the absence of the numeral is not possible, unlike the example we saw for the Hebrew container word, repeated below in (173). Azeri does not allow any occurrences of a classifier of any sort in the absence of a numeral, meaning, structures like (174) do not exist in the language.

- (173) 
$$\begin{array}{l} [_{\#P-1} \text{baqbuq} \langle \text{div-}\# \rangle \langle e \rangle \#(DIV) [_{CL^{max-1} \text{baqbuq} \langle \text{div-}\# \rangle \langle e \rangle DIV(\#)} \\ \text{bottle} \\ [_{NP-1} \text{baqbuq} \dots [_{NP-2} \text{zayit}]] ] ] \\ \text{olives} \end{array}$$
 [Hebrew, Borer, 2005a, Ex.42d, P.254]

- (174) \*nəfər adam  
CL person

Franks and Pereltsvaig (2004) propose that the lexical category determines the type of functional categories that will dominate the noun. This is an example of a minimalist approach that occurs in the form of either head movement, feature movement, or Agree. Such a view is inspired by Bošković's (1997) account in which he claims that in numeration, the lexical items generally bear grammatical features. These lexical items correspond to features of functional categories and they need to be checked. Under such an assumption, the functional heads are selected to merge in the course of the derivation in order to check formal features on their corresponding lexical items. Following such a discussion, the noun should be the lexical item that determines the type of functional heads appear in the structure. Hence, the numeral that appears so that the noun can check its  $\#$  feature, but the reason for the presence of the classifier does not get a convincing explanation in the course of the syntactic derivation. However, the dependency between the numeral and the classifier (two functional categories) needs to be explained too. In what follows, I look into the dependency relation between the classifier and the numeral, and explain that the classifier and the numeral both belong to QP. However, this cannot explain the optionality of the classifier in the structure or its dependency with the numeral.

### 4.6.1 General number and plurality

As we saw in chapter 2, numerals in Azeri choose the bare form of the noun. The bare form of the noun is however unspecified for number and is different from English numerals that necessarily choose the plural form of the noun. In Bale et al. (2010), numerals are argued to be restrictive modifiers.<sup>8</sup> These restrictive numerals, according to Bale et al. (2010), are considered to be of two types, intersective and subsective. The numerals in Turkish are subsective according to Bale et al. (2010). This subsective interpretation of numerals in Turkish derives from the fact that bare nouns in Turkish “denote the set of all singular individuals as well as any group formed from these individuals” (Bale et al., 2010). In such cases the numeral will obligatorily combine with the bare form of the noun. For Azeri, I argue that numerals behave very similarly in cases where they appear with a general number. It seems that bare nouns in Azeri have non-overlapping minimal parts in a similar way to Turkish. In plural nouns the minimal parts overlap and fall out of the criteria of numerals. However, as we saw in this chapter, the occurrence of the plural marker with the numeral is not impossible.

In trying to find out whether or not classifiers are individuating the noun, several hypotheses have been presented. It is obvious that nouns like *furniture* behave like mass nouns in the sense that they do not take number morphology and do not allow for direct modification by a numeral (Doetjes, 2012). We do not have forms such as ‘*\*two furnitures*’ in English. Furthermore, Doetjes (2012) criticizes Chierchia’s chierchia2010 argument and argues that if a count interpretation automatically created by a mass-to-count shift in the lexicon results in count syntax, it would be strange to assume that furniture has a count semantics and yet no access to count syntax. Doetjes argues that if we want to “stick to a ‘senses

<sup>8</sup>Bale et al. (2010) disagree with Ionin and Matushansky (2006), who consider the numerals to be non-restrictive. The non-restrictive numerals map sets of singularities to sets of pluralities. In order for this argument to be true, the bare form of the noun should semantically be singular. In that case the set  $(a, b, c)$  is disjoint from  $(ab, ac, bc)$ . An example from Turkish is given for Ionin and Matushansky (2006) who argues that, to be true we need to have such a description for the noun; “If the meaning of the noun *çocuk* were the set of singular male children (similar to the meaning of *boy* in English) and if the meaning of *iki çocuk* were the set of pairs of male children (similar to *two boys* in English), then the numeral modifier *iki* would not be a restrictor” (p.584). The bare form of the noun in Turkish and English is suggested to vary in the following terms.

- (i) In a context where the boys are  $a, b, c$ .
  - a.  $[[\text{çocuk}]] = \{a, b, c, ab, ac, bc, abc\}$
  - b.  $[[\text{boy}]] = \{a, b, c\}$



approach' to count/mass distinction, while taking into account the existence of count senses without count syntax into account (as in the case of *furniture*), is to assume that collective mass nouns enter the lexicon with a count meaning and are lexically incompatible with number (cf. Chierchia, 2010 for a similar view)" (p.16). However, such a view will be related to the group interpretation associated with these nouns (cf. Borer, 2005a, p.103, note 13). Collective mass nouns could be seen as the mass counterparts of group nouns such as *committee* (cf. Chierchia, 1998b, p.68).

In comparison, bare nouns in Azeri cannot be considered as mass since they are compatible with number. They appear with a numeral and receive a number reading (plural) in these cases. The compatibility of Azeri bare nouns with numerals entails an existing difference between the nouns with a general number interpretation and the nouns with a mass interpretation. The plurality is assigned to general number reading nouns by means of numerals and without the need for number inflection on the noun itself.

The order of functional categories in the skeleton of the noun phrase has been discussed in many studies. Svenonius (2007a) expresses different factors that take up the DP-internal order. These three factors are listed as the basic hierarchical structure (Svenonius assumes function-argument semantics that determines the structure). The order in which the hierarchical structure is derived by the function and the argument getting linearized as they combine. Movement is the last and the only important factor for determining of order, according to Svenonius (2007a), since the other two factors are considered to be invariant. Setting aside the order of adjectives in the nominal skeleton, I will adopt his argument that Art > PL > N is the underlying structure across languages, and proposed that Azeri fits in the mirror order of this pattern in which N precedes the plural marker. Such mirror orders are the result of head movement in N-PL cases or phrasal movement in N-PL-Art cases. According to Svenonius (2007a) the order of the Art-PL-N often shows a cluster effect that does not allow an intervening adjective to get inserted.

#### 4.6.2 Dependency

This subsection looks closely at the potential feature dependency between the classifier and the numeral in Azeri. It builds upon the proposal that the correlation between the numeral and the classifier in Azeri is the result of selection. Since

the functional category is known to be sensitive to s-selection, it needs to become clear that the dependency under discussion follows such a selection.

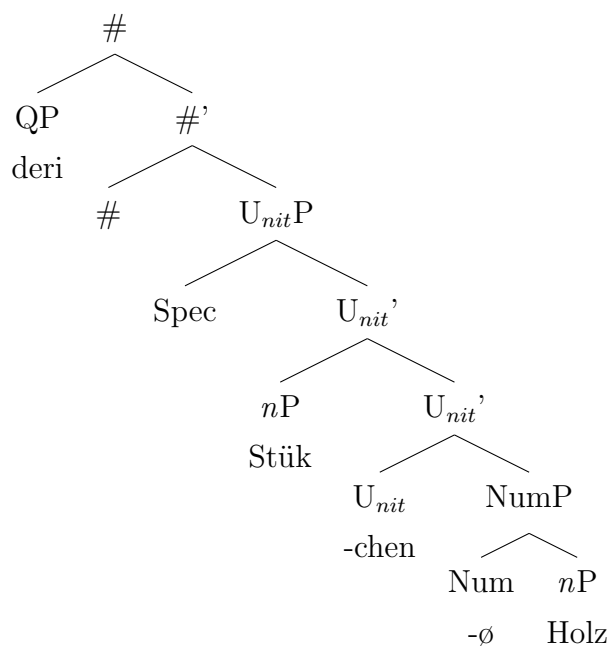
As discussed in the previous section from [Greenberg \(1972\)](#), in many languages, the classifiers are fused with the numeral; e.g. Nivkh (Nivkh, Siberia; Gruzdeva 1998), Japanese ([Downing, 1996](#)) and Mokilese (Austronesian, Micronesia, [Harrison and Albert, 1976](#)). The numeral and classifier connection is noted in previous studies for many languages. “The connection between the numeral and the classifier is so close prosodically that they may have one accent, in which case it is on the numeral and there may be fused forms such that analysis becomes difficult” ([Greenberg, 1972](#), p.311). This numeral and the classifier behave together as one word in most of these cases and even build an anaphoric structure without an overt noun in the structure. Azeri is not an exception, and as shown in the previous section the classifier is part of the quantifier phrase and conjoins the semantic interpretation of the quantifier phrase, likewise it creates a prosodic unit.

Recalling from [Ott \(2011\)](#) in section 4.2.2, the occurrence of the numeral classifier as the modifier of the diminutive (the individuator in more technical terms) was only possible due to its contribution to independent projections in the structure, *Stük* ‘piece’ and *chen* ‘DIM’ in (175). Moreover, since the Unit head c-commands Num, illustrated in (176) ([Ott, 2011](#)), it follows immediately that Unit can determine allomorph selection for Num (cf. [Harley and Noyer, 2000](#)). Such a view would predict that the occurrence of the diminutive in this case is dependent on the classifier. However, we need to note that the occurrence of two classifiers as individuators is not in this discussion for reasons of redundancy, and that the only reasonable solution, as it is also indicated by [Ott \(2011\)](#), is that the two morphemes are combined as one unit. Diminutive is the head of the UNITP and the classifier is in the specifier of the UNITP. This resolves the issue of the co-occurrence of two morphemes with the same syntactic interpretation. Nevertheless, the existence of the diminutive should be explained for its semantic interpretation.

- (175)    drei   Stückchen Holz  
           three piece.DIM wood

[German, [Ott, 2011](#), Ex.45a]

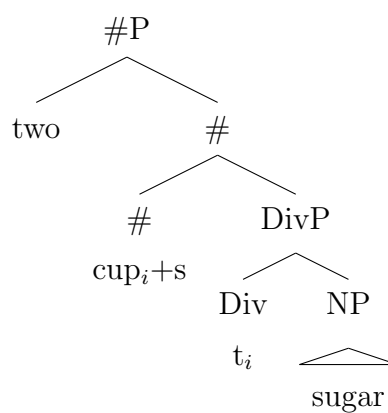
(176)



[German, Ott, 2011, Ex.46b]

It is also pointed out in Mathieu and Zareikar (2015) that the plural on measure words in English is a higher plural that is generated on #P and assigns number to the structure. The numeral in such cases is considered to be generated in the specifier of #P, as in (177).

(177)



[Mathieu and Zareikar, 2015, Ex.16b]

What is of issue here is how the correlation of these items is established. The categorial features of the functional categories has been a puzzle since Pollock

(1989). As discussed in Panagiotidis (2014), the fact that T cannot select an N type category but only a V type category, illustrated in (178), provides evidence that functional heads are sensitive to the category of what they are selecting, and not to the meaning.

- (178) \*The beautiful balled of Sissy with Franz-Joseph. [Panagiotidis, 2014, Ex.6]

Panagiotidis further explains that functional heads undergo c-selection rather than s-selection. He provides evidence from other studies, such as Ouhalla (1991), who argues that functional heads do have c-selectional properties. Ouhalla's argument comes from Chomsky's (1986) Complete Functional Complex, in which Chomsky asserts that functional heads share the categorial specification of the lexical head inside their Complete Functional Complex, meaning T in English has a [V] feature and D has an [N] feature. These explanations are very much in line with Borer's (2013) Categorial Complement Space (CCS) proposed by her for the derivation morphemes. According to Borer, only derivational morphemes have the ability to license the category of the unmodified root. In that case, the derivational morphemes are selecting for the category equivalent to the properties they are carrying, namely that an A has the ability to select an N-equivalent since it has an N-equivalent space. This could mean that the numeral has some classifier feature in it and c-selects for it.

For English, Doetjes (2012) denotes that numerals and certain other quantity expressions (*several*, *many*) can only be used with plural nouns, while others need a singular count noun (each, a) or a mass noun (a bit). This is because numerals and some quantifiers select for atoms, as argued by Wilhelm (2008), and the classifier does not select for atoms. If a numeral combines with a mass term, one has to add a measure word, as in *two glasses of wine*. Such a process is similar to what happens in so-called numeral classifier languages such as Mandarin, Chinese. In order to count, languages need to have their nouns individuated (Borer, 2005a). In Mandarin, the appearance of the numeral forces the presence of a numeral classifier to license the count reading of the noun. In Azeri, however, the numeral appears with the bare form of the noun, as discussed in chapters 2 and 4. Due to the fact that the individuation process is morphologically null in Azeri, the numeral can

c-select for atoms. And such an ability of the numera, on its own, is evidence for the null process of individuation in Azeri.

To explain the dependency between the classifier and the numeral, the first thing that comes to mind is the agreement relation. However, the agreement relation seen here is rather different from the agreement relation seen in the verbal domain. Nevertheless, this is how agree would work in a reverse direction. The numeral has # feature and the classifier and the noun need to agree with it in number. For reasons that are beyond the discussion in this work, I will not consider reverse agree as a potential solution.

Instead, I suggest the dependency between the numeral and the classifier to be of a selectional relation. The numeral seems to select for a category without # feature. There are two categories to choose from: the classifier and the noun. This is a licit derivation but in the presence of the classifier, the numeral select for the classifier which is also lacking the number feature. One question is how this selection occurs? How does the numeral choose one or the other? We need to note that the classifier is in a dependency relationship with the numeral when they both select for the noun, but in cases where the classifier is absent, its absence is not meaningful in the structure. This implies that the classifier does not have a syntactic effect in the structure and its presence should be explained via semantics.

I believe that clusters in Azeri have more of a quantifier feature since they refer to bundles (units) of atomized items for counting and appear only when counting happens. But the question still persists, of why we need a classifier, and a generic one in particular. To respond, we can say that in non-generic contexts the classifier is selecting for unit and not for atoms but the generic classifier selects for atoms. The fact that they are considered to occupy the same position means that they are in complementary distribution and are not able to co-occur. The reason for not wanting to say that the generic classifier is the individuator is that its absence is not meaningful. So the remaining issue is the need to explain the reason for having it.

The question to tackle here is what kind of nouns need a classifier to be a licit candidate that can remerge at the next level with a numeral. What I mean by remerge, derives from considering the higher projection as having selectional features (Chomsky, 2008), and checking its features with the lower projection.

## 4.7 Summary

This chapter explored the appearance of the optional classifier in a general number language, Azeri. I provided evidence that the classifier in Azeri does not generate as an individuator, unlike numeral-classifier languages ([Borer, 2005a](#)). I proposed that classifiers in Azeri-type languages generate in a higher projection, above the number head ( $\#P$ ). I labeled this higher head a CluP since it brings the individuated and/or plural noun in bundles that can be counted. Cluster selects for already individuated units and not for atoms. I explained that the dependency between the cluster and numeral in Azeri is due to s-selection.

# Chapter 5

## Aspect and Number

### 5.1 Introduction

In previous chapters, I presented the syntactic interpretation of bare nominals and the interaction of functional categories such as *DivP*, *#P*, and *CluP* with the head noun. This chapter goes beyond the syntax of bare nouns on the nominal spine and investigates the syntax and semantics of bare nominals within the TP and explores the interaction of the operators in the verbal domain on the DP (mainly in the object position). I inspect two puzzles for bare nominals in this domain. The first is the change in the interpretation of the bare noun depending on its position in the structure. The other puzzle is, the change in the interpretation of the bare noun in relation to the viewpoint aspect. I propose that these two puzzles are connected to each other and that the presence or absence of the inner aspect impacts the interpretation of the bare noun in both cases. Before proposing a solution, I provide an overview of the existing literature on noun-incorporation, including some early accounts. In many studies, bare nominals are proposed to yield number neutral interpretation through the interaction of noun-incorporation and narrow scope, with incorporated nouns blocked from being interpreted as definites (Bittner, 1994). Considering that Azeri bare nouns reflect pseudo-noun incorporation, I propose a syntactic approach towards the number neutral reading of bare nominals in telic and atelic event structures.

The primary focus of this chapter is on the relation between the syntactic and semantic representation of bare nouns with a particular emphasis on quantification in relation to the scope of operators such as case and aspect. This subject is

addressed differently in the literature with the focus given to the cross-linguistic distinction between telic and atelic aspects that is signaled by morpho-syntactic alternations, such as object shift, object case-marking, or object agreement (Ritter and Rosen, 2010). Case marking contributes to a telic reading of the predicate and the non-case marked form is expected to give rise to atelic predicates. However, I show that the bare form of the noun in Azeri derives both telic and atelic readings of the predicate. If both readings are available in the same structure, I hypothesize that the object must undergo some movement. I provide two hypotheses to explain this movement. The first hypothesis is that, movement is probably due to the presence of a specificity operator higher in the structure. Specificity is marked in various ways in different languages and not all languages have a dedicated morpheme to mark specificity. *Samoan*, an Austronesian language, has a distinct morpheme *le* which is chosen when a new referent is salient and important (Mosel and Hovdhaugen, 1992). Articles, demonstratives, plural markers, etc. are among morphemes that are argued to be employed to mark specificity (Enç, 1991; Ghomeshi, 2003; Aydemir, 2004). Specific nominals are expected to be part of a telic event structure, whereas non-specific nominals appear in atelic structures. The second hypothesis, adapted from Borer's (2005b) account, is that the telic and atelic readings are the result of two different structures. Telic structure contains a projection called *Asp<sub>Q</sub>*, whereas the atelic interpretation arises via the projection of *F<sup>s</sup>P* in the structure. Borer argues that the presence of *Asp<sub>Q</sub>* allows the movement of the nominal to the *Spec-Asp<sub>Q</sub>*. Since the projection of the *Asp<sub>Q</sub>* creates a quantity predicate, the DP placed in the specifier position will become the subject of quantity as a result.

Furthermore, I show that, the appearance of number neutral bare nouns with various number interpretations is not limited to Azeri – and other languages are reported to reflect such an occurrence as well (Dayal, 2011). Dayal demonstrates the distribution of number neutral bare nominals in Hindi in which the neutrality is driven via iterativity or by operators that work at the sentence level. According to Dayal, number neutrality does not arise from incorporation and pseudo-incorporated nominals can be singular in Hindi. Dayal argues that number neutrality arises from atelicity and not from incorporation.

Given these observations, I begin the discussion by introducing the behaviour of bare nominals in specific and non-specific contexts in section 5.2. Then, I discuss the notion of specificity cross-linguistically and illustrate the appearance of the



specificity on definite and indefinite structures in Azeri. In section 5.3, I provide a theoretical overview of the notions of definiteness and specificity in the literature. In section 5.4, I summarize some of the literature on the connection between noun-incorporation and number marking and concludes that number neutrality is not the result of noun-incorporation. Further, I show that Azeri nominals undergo pseudo-noun-incorporation. In section 5.5, I expand the discussion from nominals to argument structure and looks for evidence that shows the nominal is part of the event structure and should not be considered as an independent part. The syntactic position of the aspect operator is introduced in this section. In section 5.6, I describe the syntactic position of the aspect operator as it is discussed in the literature. In section 5.7, I introduce the notion of telicity in three different accounts and explain why I am choosing Borer's (2005b) approach as a theoretical framework. Section 5.8 demonstrates number marking in Hindi exhibits similar behaviours to Azeri nominals. In section 5.9, I conclude that the findings in this chapter are consistent with Dayal's (2011) proposal on Hindi bare nominals, but I argue that telic and atelic interpretations are the result of a syntactic operation. In section 5.10, I present a summary the findings in this chapter.

## 5.2 Specific and non-specific bare nouns

In this section, I show that bare nouns exhibit an ambiguous reading for specificity in the same way that they are ambiguous for number. That is to say the bare form in the same structure is interpreted as both specific and non-specific. I argue that it is the context that motivates choosing one reading or the other. In his section I provide contexts that show ambiguous readings of bare nouns in the object position.

### 5.2.1 Specificity cross-linguistically

While some languages have no dedicated morphology to distinguish between specific and non-specific nouns, other languages mark specificity overtly. Samoan, an Austronesian language, has a dedicated morpheme *le* to mark salient and specific objects, and *se* to make objects non-specific (Mosel and Hovdhaugen, 1992). Languages that use the bare form of the noun often employ mechanisms other than morphology to distinguish specific and non-specific forms.

Given that bare nominals can yield both specific and non-specific readings, they may appear, at first glance, to be some ambiguity as to whether they are marked for, or unspecified for  $\pm$ definite. Being marked for  $\pm$ definite allows bare nominals to satisfy the felicity requirements for definites and indefinites, while being unspecified for  $\pm$ definite leaves the nominal unable to satisfy the felicity requirement (Dayal, 2004).<sup>1</sup> Dayal shows that a hypothesis like the felicity requirement, discussed above, does not work for Hindi and Russian. Such evidence leads into the conclusion that  $\pm$  definite on bare nominals should be structural.

The notion of specificity does not have a single definition. Many semanticists have studied specificity in relation to scope, familiarity, uniqueness, discourse link, choice function, speaker identifiability, and more (Ioup, 1977; Kratzer, 1998; Fodor and Sag, 1982; Ionin, 2013). What concerns us here is the readings of the noun in relation to scope. A noun phrase that scopes over an operator in the structure, is considered to be specific. The operators under discussion include negation, modals, conditionals, and universal quantifiers. I will examine some data in English and Azeri to show that there is a mismatch between the morphology with respect to specificity. That is to say, the choice of a determiner does not reliably determine scope, as in (179). The article *a* in English can derive both specific and non-specific readings. On the other hand, this example shows that, there is not a mismatch between scope and specificity and that wide scope enforces the specific reading. Since scope interaction is not observable in all sentences, we cannot rely on scope identification as a criterion to determine specificity.

- (179) John wants to buy a book.
- i) He was talking about it all day. (specific)
  - ii) He went to chapters to browse the titles. (non-specific)

The definition that I adopt in this dissertation is as follows: the noun must be identifiable to the speaker at all times. Such a definition does not include the addressee in the identification of specificity. Nevertheless, a salient object is considered as definite when it is familiar for both the speaker and the addressee. The examples provided in the next subsection illustrate indefinites in Azeri that are referential in relation to the speaker point of view. Furthermore, in the sentences provided

<sup>1</sup>The examples in Azeri are different from the ones in Dayal (2004) for Hindi and Russian. Both of the languages discussed in her paper have singular versus plural distinction and the bare form of either the singular or the plural noun can be read as definite or indefinite.

in this chapter, the indefinite noun in the original context can be referential if it is specific from the speaker point of view. In (180), the speaker was involved in the process of fixing a bike and the bike in the conversation is a particular bike that is known in the speaker's world. The addressee does not have access to the reference of the bike and the bike is not familiar to the hearer. The bare form of the noun in Azeri is not specified for (in)definiteness.

- (180) Bütün süp      çərx düzəlt-dix.      Nahar-dan sora sür-əcəyix  
 all      morning bike fix-PAST.3PL. lunch-COM after ride-FUT.3PL  
 biləsin  
 that  
 'We fixed a bike all morning. We will ride it this afternoon.'

I aim to examine the interpretation of number in specific and non-specific nominals in this section. For this purpose, the focus is on the referential reading of the nominals, and bare nominals in particular. In these readings, the specific nominal is salient to the speaker, though not necessarily to the addressee with respect to its reference.

### 5.2.2 Specificity in Azeri

Cross-linguistically, bare nouns tend to take narrow scope. However, nouns with a determiner represent wide scope. As the result of taking a narrow scope, bare nouns can only introduce novelty. Paul (2009) takes such a semantic generalization into account for Malagasy bare nouns and employs the traditional view of scope for specific readings of noun phrases. In my work, I adapt Paul's tests for Malagasy to illustrate scope for Azeri bare nouns. In Paul's analysis, noun phrases are considered as specific when they scope over other operators in the sentence, such as quantifiers, negation, modals, or intentional verbs. The example in (181-a) shows that *döhdür* 'doctor' is in the scope of *want* and it is not marked for specificity. The support for this is provided by means of examples (181-b), which has a narrow scope, and (181-c), which has a wide scope.<sup>2</sup>

<sup>2</sup>The aim of the discussion in this part is to introduce the behaviour of specific and non-specific bare nouns in Azeri in relation to scope. Hence, more in depth exploration of specificity in relation to domains of discourse or speaker/addressee familiarity are not included (cf. Engç, 1991).

- (181) a. *Istir-əm döhdür-ə ged-əm, amma ...*  
 want-1SG doctor-ABL marry-1SG, BUT ...  
 ‘I want to marry a doctor but ....’  
 b. *... tap-ma-miş-am ...*  
 ... find-NEG-PERFP-1SG ...  
 ‘... I still have not found one...’  
 c. *... uzak-lar-da yaşır*  
 ... far-PL-ABL live.3SG  
 ‘... He lives far away.’

In examples, (182-a) the word *it* ‘dog’ has narrow scope with respect to *axtar* ‘look for’. On the other hand, ‘dog’ takes a wide scope in (182-b).

- (182) a. *It axtar-ır-am, hər nəjur olur olsun*  
 dog search-IMPERF-1SG, what ever be become  
 ‘I am looking for a dog, any dog.’  
 b. *It axtar-ır-am, balaja va gara dir*  
 dog search-IMPERF-1SG, small and black is  
 ‘I am looking for a dog, it is small and black.’

The next examples illustrate the scope of bare nouns in Azeri with respect to quantificational and modal elements. In (183), the quantifier *hamme* ‘all’ scopes over the noun phrase and exhibits a non-specific reading of the bare noun. In (183-b), the case marked noun scopes over negation and *uşağ* ‘child’ receives a specific reading. Whereas in (183-c) the bare noun *kitab* ‘book’ scopes under negation and the result is a non-specific reading.

- (183) a. *Hamme şag—id-lər Fəransə kitab-ı oxudu-lar*  
 all student-PL French book-DAT read.PAST-3PL  
 ‘All the students read a French book.’  
 b. *Döhdür üşag-ı toxtad-a-ma-dı. o çox*  
 doctor child-ACC cure-EP-NEG-PAST.3SG. S/He very  
*nəxoş-iy-di*  
 sick-be-PAST.3SG  
 ‘The doctor could not cure the child. S/He was too sick.’  
 c. *Kitap oxu-ma-dim çunki çətin-iy-di*  
 book read-NEG-PAST.1SG because difficult-be-PAST.3SG  
 ‘I did not read a book because it was difficult.’ (I had the option of  
 reading a book, watching a movie and playing board games.)

The examples in (184) illustrate that the bare noun in the absence of a modal derives a general number reading, whereas the presence of the modal enforces two scopal readings. When the modal scopes over the bare noun, it yields a non-specific reading, and in the reverse scenario, the noun gets a specific interpretation in both examples.

- (184) a. Ali alma yedi  
 Ali apple ate.3SG  
 ‘Ali ate an apple/apples.’  
 b. Ali *gərək* alma yesin  
 Ali must apple eat.3SG  
 ‘Ali must eat a certain apple/any one or more apples.’

A summary of the interpretation of the bare nominal in Azeri with respect to scope is presented in table 5.1.

| <i>scope</i>     | wide                                             | narrow                                           |
|------------------|--------------------------------------------------|--------------------------------------------------|
| <i>bare noun</i> | IND/SP/SG                                        | IND/SP/GN                                        |
| <i>modals</i>    | $\exists > \text{modal}$<br>IND/SP/SG            | $\text{modal} > \exists$<br>IND/SP/GN            |
| <i>if</i>        | $\exists > \text{if}$<br>IND/SP/SG               | $\text{if} > \exists$<br>IND/SP/GN               |
| <i>Neg</i>       | $\text{Neg} > \exists$<br>$\exists > \text{Neg}$ | $\text{Neg} > \exists$<br>$\exists > \text{Neg}$ |
| $\forall$        | $\exists > \forall$                              | $\forall > \exists$                              |

TABLE 5.1: Bare nouns: the interaction of scope in Azeri

In addition to cases where the scope decides for a specific versus non-specific reading of nominals, it is shown that scope is not entirely a reliable criterion to determine specific and non-specific interpretation of the nominals. The examples below are provided with the ambiguous number reading, as is shown for each case, the number reading is reinforced by operators other than the scope. The bare form of the noun derives two different readings in Azeri. While both readings are indefinite, they differ in their specific or non-specific interpretations. The specific interpretation denotes a singular reading, whereas the non-specific interpretation gives rise to number ambiguity (general number reading).

I illustrate various interpretations of the bare noun in different aspectual environments in Azeri. The examples from (186) to (238) illustrate that specific

interpretation of bare and non-bare nominals are strictly linked to the type of the temporal expression that is present in the structure.

In the series of examples from (186) through (196), I show the interactions of bare, case marked, and number marked nominals with time adverbials, ‘in x time’ and ‘for x time’, that are used to address telic and atelic events. The viewpoint aspect in these examples is perfective. Before adding a time adverbial, I provide the bare form without an intervening operator with its scope. In (185), the bare noun in the perfective aspect generates an ambiguous reading between singular/specific and general number/non-specific interpretations. The bare noun *kitap* ‘book’ yields singular and specific reading with the adverbial ‘in two hours’ and the event is telic, in (186). The same structure with the adverbial ‘for two hours’ is atelic and the noun is number ambiguous and non-specific, in (187). The accusative marked form of the noun forces a singular definite and specific reading in both telic and atelic event structures, in (188), (189) and (190). The reverse set of examples in (191), (192) and (193) show the combination of *bir* ‘one’ and the noun, that reflect an indefinite singular specific and non-specific readings in both telic and atelic event structures. The combination of *bir+N+ACC* derives a singular and specific reading in both telic and atelic structures, in (195) and (196).

### 5.2.2.1 Perfective aspect

- (185) Aida kitap oxudu.  
Aida book read.PFV.3SG  
‘Aida read a book/books.’ [a particular book/any one or more books]
- (186) Aida iki saat-da kitap oxudu.  
Aida two hour-in book read.PFV.3SG  
‘Aida read a book in two hours.’ [a particular book]
- (187) Aida iki saat kitap oxudu.  
Aida two hour book read.PFV.3SG  
‘Aida read a book for two hours.’ [any one or more books]
- (188) Aida kitab-i oxudu.  
Aida book-ACC read.PFV.3SG  
‘Aida read the book.’ [a unique familiar book]

- (189) Aida iki saat-da kitab-i oxudu.  
 Aida two hour-in book-ACC read.PFV.3SG  
 ‘Aida read the book in two hours.’ [a unique familiar book]
- (190) Aida iki saat kitab-i oxudu.  
 Aida two hour book-ACC read.PFV.3SG  
 ‘Aida read the same book for two hours.’ [a unique familiar book]
- (191) Aida bir kitap oxudu.  
 Aida one book read.PFV.3SG  
 ‘Aida read one book.’ [any one book]
- (192) Aida iki saat-da bir kitap oxudu.  
 Aida two hour-in one book read.PFV.3SG  
 ‘Aida read one book in two hours.’ [a particular book]
- (193) Aida iki saat bir kitap oxudu.  
 Aida two hour one book read.PFV.3SG  
 ‘Aida read one book for two hours.’ [any one book]
- (194) Aida bir kitab-i oxudu.  
 Aida one book-ACC read.PFV.3SG  
 ‘Aida read a particular book.’ [a particular book]
- (195) Aida iki saat-da bir kitab-i oxudu.  
 Aida two hour-in one book-ACC read.PFV.3SG  
 ‘Aida read a particular book in two hours.’ [a particular book]
- (196) Aida iki saat bir kitab-i oxudu.  
 Aida two hour one book-ACC read.PFV.3SG  
 ‘Aida read the book for two hours.’ [a particular book]

In sum, in the perfective examples above, when the noun is bare, the adverbial forces a telic or atelic reading, as in (186) and (187). When case marked for accusative, the reading is necessarily specific and familiar, as in (188), (189) and (190). The numeral *bir* ‘one’ forces an indefinite and non-specific reading in atelic event structures, as in (191) and (193), but a singular and specific reading in telic event structures, as in (192). The co-occurrence of the numeral *bir* with the

accusative marker takes away the familiarity reading, but the noun is still specific, as in (194), (195) and (196).

### 5.2.2.2 Imperfective aspect

The next viewpoint aspect that I explore is the imperfective form. In (197), the bare noun without a time adverbial generates a singular specific reading; whereas number ambiguous and non-specific reading depends on the previous context. The context is as follows: in the former scenario, the speaker enters the house and finds Aida reading a book. In the latter scenario the speaker enters the room and sees Aida with a few books in front of her and she is busy reading. The speaker is reporting this on the phone. The ambiguity remains with the time expression that renders an atelic reading, in (198). Due to the nature of the imperfective, it is not possible to force a telic adverbial in these structures. In (199), the accusative marked noun exhibits a definite and specific singular interpretation, whereas in (200) the case marked noun cannot be acceptable even in the presence of a time adverbial forcing an atelic reading. However, portioning out two hour blocks a day seems acceptable in these structures, as in (203) and (204). It is important to note that while these structures automatically derive habitual interpretation, that is not the reading here. The numeral *bir* in the context of portions of time derives a singular and non-specific noun reading in (202). The number ‘one’ in this context can only mean a singular and non-specific book, as in (201). Derive telic and atelic readings in imperfective aspect remains an unresolved challenge that is not the focus of this dissertation.

- (197) Aida kitap ox-yur.  
 Aida book read.PROG.3SG  
 ‘Aida is reading a book/books.’ [a particular book/any different books]
- (198) Aida iki saat-dir kitap ox-yur.  
 Aida two hour-long book read.PROG.3SG  
 ‘It has been two hours since Aida has been reading a book.’ [a particular book/any one book]
- (199) Aida kitab-ı ox-yur.  
 Aida book-ACC read.PROG.3SG  
 ‘Aida is reading the book.’ [a unique familiar book]



- (200) \*Aida iki saat kitab-ı ox-yur.  
 Aida two hour book-ACC read.PROG.3SG  
 (intended) ‘Aida is reading the book for two hours.’ [a particular book]
- (201) Aida bir kitap ox-yur.  
 Aida one book read.PROG.3SG  
 ‘Aida is reading one book.’ [any one book]
- (202) Aida hər gün iki saat bir kitap ox-ur.  
 Aida every day two hour one book read.PROG.3SG  
 ‘Aida is reading a book every day for two hours.’ [any one book]
- (203) Aida hər gün bir kitab-ı ox-yur.  
 Aida every day one book-ACC read.PROG.3SG  
 ‘Aida is reading a book everyday.’ [any one book]
- (204) Aida hər gün iki saat bir kitab-ı ox-yur.  
 Aida every day two hour one book-ACC read.PROG.3SG  
 ‘Aida is reading a book for two hours everyday.’ [any one book]

### 5.2.2.3 Habitual aspect

In the habitual aspect, the bare form of the noun in (205), generates a number ambiguous and non-specific reading. Forcing telicity onto the habitual in (206) brings in a singular interpretation, whereas with an atelic adverbial in (207), it remains ambiguous in number. Nevertheless, the specificity condition of the nominal is non-specific in both cases. AS with the other aspects, the addition of the accusative marker in (208) and (209) derives a definite and specific reading, even though the temporal aspect is atelic. The presence of the number *bir* ‘one’ can only mean a singular and non-specific book, in (210) and (211). The combinations of *bir* ‘one’ and accusative marker in (212), (213) and (214) keeps the singular and non-specific interpretation.

- (205) Aida hər gün kitap oxu-yar.  
 Aida every day book read.HAB.3SG  
 ‘Aida reads books everyday.’ [any one book or more different books]

- (206) Aida hər gün iki saat-da kitab oxu-yar.  
 Aida every day two hour-in book read.HAB.3SG  
 ‘Aida reads books in two hours every day.’ [any one book]
- (207) Aida hər gün iki saat kitab oxu-yar.  
 Aida every day two hour book read.HAB.3SG  
 ‘Aida reads books for two hours every day.’ [any one book or different books]
- (208) Aida hər gün kitab-ı oxu-yar.  
 Aida every day book-ACC read.HAB.3SG  
 ‘Aida reads the same book every day.’ [the unique familiar book]
- (209) Aida hər gün iki saat kitab-ı oxu-yar.  
 Aida every day two hour book-ACC read.HAB.3SG  
 ‘Aida reads the same book for two hours every day.’ [the unique familiar book]
- (210) Aida hər gün bir kitab oxu-yar.  
 Aida every day one book read.HAB.3SG  
 ‘Aida reads one book every day.’ [any one book each day]
- (211) Aida hər gün iki saat-da bir kitab oxu-yar.  
 Aida every day two hour-in one book read.HAB.3SG  
 ‘Aida reads one book in two hours every day.’ [any one book each day]
- (212) Aida hər gün bir kitab-ı oxu-yar.  
 Aida every day one book-ACC read.HAB.3SG  
 ‘Aida reads one book every day.’ [any one book each day]
- (213) Aida hər gün iki saat-da bir kitab-ı oxu-yar.  
 Aida every day two hour-in one book-ACC read.HAB.3SG  
 ‘Aida reads one book in two hours every day.’ [any one book each day]
- (214) Aida hər gün iki saat bir kitab-ı oxu-yar.  
 Aida every two hour day one book-ACC read.HAB.3SG  
 ‘Aida reads one book for two hours every day.’ [any one book each day]

#### 5.2.2.4 Perfect aspect

In the perfect aspect, similar to the habitual, the bare form is ambiguous between one or more than one book, in (215). The addition of telicity does not introduce specific interpretation but the number is singular in (216). The atelic context yields non-specific and number ambiguity, in (217). The accusative marking derives specific and definite interpretation, in (218), (219) and (220). The numeral *bir* ‘one’ generates singular and non-specific readings, in (221), (222) and (223). The combination of the numeral ‘bir’ and the accusative marker, however, derives different interpretations in telic and atelic environments. In both environments, we receive a singular specific interpretation for (224), (225) and (226).

- (215) Aida bugün kitap oxu-yup.  
Aida today book read.PF.3SG  
‘Aida has read books today.’ [any one book or different books]
  
- (216) Aida iki saat-da kitap oxu-yup.  
Aida two hour-in book read.PF.3SG  
‘Aida has read a book in two hours.’ [any one book]
  
- (217) Aida iki saat kitap oxu-yup.  
Aida two hour book read.PF.3SG  
‘Aida has read books for two hours.’ [any one book or different books]
  
- (218) Aida bugün kitab-ı oxu-yup.  
Aida today book-ACC read.PF.3SG  
‘Aida has read the book today.’ [a unique familiar book]
  
- (219) Aida iki saat-da kitab-ı oxu-yup.  
Aida two hour-in book-ACC read.PF.3SG  
‘Aida has read the book in two hours.’ [a unique familiar book]
  
- (220) Aida iki saat kitab-ı oxu-yup.  
Aida two hour book-ACC read.PF.3SG  
‘Aida has read the book for two hours.’ [a unique familiar book]
  
- (221) Aida bir kitap oxu-yup.  
Aida one book read.PF.3SG  
‘Aida has read a book.’ [any one book]

- (222) Aida iki saat-da bir kitap oxu-yup.  
 Aida two hour-in one book read.PF.3SG  
 ‘Aida has read a book in two hours.’ [any one book]
- (223) Aida iki saat bir kitap oxu-yup.  
 Aida two hour one book read.PF.3SG  
 ‘Aida has read one book for two hours.’ [any one book]
- (224) Aida bir kita-1 oxu-yup.  
 Aida one book-acc read.PF.3SG  
 ‘Aida has read a book.’ [one particular book]
- (225) Aida iki saat-da bir kita-1 oxu-yup.  
 Aida two hour-in one book-acc read.PF.3SG  
 ‘Aida has read a book in two hours.’ [one particular book]
- (226) Aida iki saat bir kita-1 oxu-yup.  
 Aida two hour one book-acc read.PF.3SG  
 ‘Aida has read a book for two hours.’ [one particular book]

#### 5.2.2.5 Future Aspect

All the interpretations for the future aspect are the same as for perfect aspect.

- (227) Aida sabah kitap oxu-yacax.  
 Aida tomorrow book read.FUT.3SG  
 ‘Aida will read a book/books tomorrow.’ [one or more different book]
- (228) Aida sabah iki saat-da kitap oxu-yacax.  
 Aida tomorrow two hour-in book read.FUT.3SG  
 ‘Aida will read books in two hours tomorrow.’ [any one book]
- (229) Aida sabah iki saat kitap oxu-yacax.  
 Aida tomorrow two hour book read-FUT.3SG  
 ‘Aida will read a book/books for two hours tomorrow.’ [one or more different books]
- (230) Aida sabah kitab-1 oxu-yacax.  
 Aida tomorrow book-ACC read-FUT.3SG

‘Aida will read the book tomorrow.’ [a unique familiar book]

- (231) Aida sabah iki saat-da kitab-ı oxu-yacax.  
 Aida tomorrow two hour-in book-ACC read-FUT.3SG  
 ‘Aida will read the book tomorrow.’ [a unique familiar book]
- (232) Aida sabah iki saat kitab-ı oxu-yacax.  
 Aida tomorrow two hour book-ACC read-FUT.3SG  
 ‘Aida will read the book for two hours tomorrow.’ [a unique familiar book]
- (233) Aida sabah bir kitap oxu-yacax.  
 Aida tomorrow one book read-FUT.3SG  
 ‘Aida will read a book tomorrow.’ [any one book]
- (234) Aida sabah iki saat-da bir kitap oxu-yacax.  
 Aida tomorrow two hour-in one book read-FUT.3SG  
 ‘Aida will read a book in two hours tomorrow.’ [any one book]
- (235) \*Aida sabah iki saat bir kitap oxu-yacax.  
 Aida tomorrow two hour one book read-FUT.3SG  
 (intended) ‘Aida will read a book for two hours tomorrow.’ [any one book]
- (236) Aida sabah bir kitab-ı oxu-yacax.  
 Aida tomorrow one book-ACC read-FUT.3SG  
 ‘Aida will read a particular book in two hours tomorrow.’ [one particular book]
- (237) Aida sabah iki saat-da bir kitab-ı oxu-yacax.  
 Aida tomorrow two hour-in one book read-FUT.3SG  
 ‘Aida will read a book in two hours tomorrow.’ [one particular book]
- (238) Aida sabah iki saat bir kitab-ı oxu-yacax.  
 Aida tomorrow two hour one book read-FUT.3SG  
 ‘Aida will read a book for two hours tomorrow.’ [one particular book]

| <i>Aspect →<br/>temporal object ↓</i> | perfective            | imperfective          | habitual           | perfect            | future             |
|---------------------------------------|-----------------------|-----------------------|--------------------|--------------------|--------------------|
| <i>bare noun</i>                      | SG/SP-GN/NSP<br>(185) | SG/SP-GN/NSP<br>(197) | SG/GN/NSP<br>(205) | SG/GN/NSP<br>(215) | SG/GN/NSP<br>(227) |
| <i>telic</i>                          | SG/SP<br>(186)        |                       | SG/NSP<br>(206)    | SG/NSP<br>(216)    | SG/NSP<br>(228)    |
| <i>atelic</i>                         | GN/NSP<br>(187)       | GN/NSP<br>(198)       | GN/NSP<br>(207)    | GN/NSP<br>(217)    | GN/NSP<br>(229)    |
| N+ACC                                 | DEF/SG/SP<br>(188)    | DEF/SG/SP<br>(199)    | DEF/SG/SP<br>(208) | DEF/SG/SP<br>(218) | DEF/SG/SP<br>(230) |
| <i>telic</i>                          | DEF/SG/SP<br>(189)    |                       |                    | DEF/SG/SP<br>(219) | DEF/SG/SP<br>(231) |
| <i>atelic</i>                         | DEF/SG/SP<br>(190)    |                       | DEF/SG/SP<br>(209) | DEF/SG/SP<br>(220) | DEF/SG/SP<br>(232) |
| <i>bir+N</i>                          | SG/NSP<br>(191)       | SG/NSP<br>(201)       | SG/NSP<br>(210)    | SG/NSP<br>(221)    | SG/NSP<br>(233)    |
| <i>telic</i>                          | SG/SP<br>(192)        |                       | SG/NSP<br>(211)    | SG/NSP<br>(222)    | SG/NSP<br>(234)    |
| <i>atelic</i>                         | SG/NSP<br>(193)       | SG/NSP<br>(202)       |                    | SG/NSP<br>(223)    |                    |
| <i>bir+N+ACC</i>                      | SG/SP<br>(194)        | SG/NSP<br>(203)       | SG/NSP<br>(212)    | SG/SP<br>(224)     | SG/SP<br>(236)     |
| <i>telic</i>                          | SG/SP<br>(195)        |                       | SG/NSP<br>(213)    | SG/SP<br>(225)     | SG/SP<br>(237)     |
| <i>atelic</i>                         | SG/SP<br>(196)        | SG/NSP<br>(204)       | SG/NSP<br>(214)    | SG/SP<br>(226)     | SG/SP<br>(238)     |

TABLE 5.2: The interaction of inner and viewpoint aspects. Numbers in parentheses refer to the examples in the data.

Table 5.2 illustrates that telic and atelic predicates are available in all viewpoint aspects. The bare noun yields a specific and singular interpretation with the telic predicate, and a general number reading with the atelic predicate. The remaining three aspects appear with atelic predicates and the bare noun, and as a result, have a general number reading.

The presence of the numeral *bir* ‘one’, forces a non-specific singular reading in both telic and atelic structures with all aspects. The presence of the accusative marker forces the noun to receive a familiarity interpretation in addition to reference to a unique object. This is observable in all aspects and both telic and atelic predicates. The notions of uniqueness and familiarity have been the subject of debate in the literature. Therefore, it is necessary to discuss how these notions are handled in this study. The final point that is observed in the data is the occurrence of the number *bir+noun+ACC*. This combination does not have the clarity

of the number and noun combination. The resulted readings are a combination of singular and specific or singular and non-specific interpretations. All the forms are singular in number and the variation is in their specificity feature.

### 5.3 Definiteness and specificity: A theoretical overview

Introducing definiteness immediately brings to the discussion the various theories that have developed in relation to the notion of definiteness, such as: ‘definiteness and familiarity’, ‘definiteness and uniqueness’ and ‘inclusiveness’ (Schwarzschild, 2002). In identifying the types of definite expressions we arrive at proper names, personal pronouns, demonstratives and universally quantified phrases.

From a semantic point of view, Chierchia (1998b) considers the *iota* or  $\iota$ -operator to provide definite interpretation to the noun. The  $\iota$ -operator can attach to a noun in the singular form, e.g. *the dog* in English, or to a set of pluralities, e.g. *the dogs*, (in which the plural refers to the largest plurality in that extension). However, Chierchia argues that the use of definiteness cannot be reduced to the function of the *iota* operator. His reasoning is that, although the *iota* operator picks the maximal element of a semilattice and the maximal element must be unique, more than uniqueness must be available for the speaker to use the definite marker, e.g. *the* in English. Where the *iota* applies to a set of singularities, it searches for the largest one. In the case of singulars, no atom is larger than any other atom and therefore such a result is achieved when the predicate contains only one object in its extension Chierchia (1998b). Therefore, a feature other than uniqueness needs to be present in the discourse of the speaker and the addressee to identify the definite object. This feature is considered to be specific, i.e. the object is considered to be salient for both the speaker and the addressee (Gebhardt, 2009).

On the other hand, borrowing from Heim (1982) and Kamp (1981), Bliss (2004) suggests that definiteness carries some familiarity with the referent. Noun phrases that are indefinite will generally refer to novel referents in the discourse that have not been previously introduced. Definites on the other hand are familiar and previously introduced. In other words, the speaker and the addressee are both able to identify the intended referent in the discourse.

Notions of specific and non-specific are also recognized for definite and indefinite objects. Bliss (2004) suggests that one other way to view specificity is with respect to familiarity with the referent. Non-specific noun phrases have a referent that is novel to both the speaker and the addressee. Specific indefinites are defined as noun phrases whose referents are familiar to the speaker, but novel to the addressee, as in (239).

- (239)    Get-dix        bazara,    Aida **don** al-dī.  
           go-PAST.3PL shopping, Aida dress buy-PAST.3SG  
           ‘We went shopping and Aida bought a dress.’

Furthermore, Enç (1991) claims that “both definites and specifics require that their discourse referents be linked to previously established discourse referents, and both indefinites and non-specifics require that their discourse referents not to be linked to previously established discourse referents. What distinguishes these notions is the nature of the linking” (p.9). Definites and specifics are distinguished for Enç in terms of identity relation to their discourse antecedents. In other words, the referent of a definite NP is exactly the same as the referent of its antecedent. Specifics, on the other hand, establish an inclusion relation to their discourse antecedents. That is to say, the referent of a specific NP, according to Enç, must be included in the set of referents of the antecedent.

On the other hand, in addition to semantic notions of definiteness, Borer (2005a), in a syntactic approach, defines definiteness as a function assigned to an entity,  $\langle e \rangle_d$ , by either an f-morph (free functional morpheme), in English-type languages, or through head movement, in Hebrew-type languages. According to Borer, bare nouns are definite when the range assignment is done either “by a member of the functional lexicon of the given language, dedicated to the assignment of range to a specific open value, and projecting as a head” (Borer, 2005b, p.17), or an abstract head feature in which the noun moves to D in order to check its definiteness feature. The two preceding approaches, proposed by Borer, are examples of direct range assignment. The range assignment to an open value, i.e.  $\langle e \rangle$ , is considered an indirect range assignment once it is established either by an adverb of quantification or via a discourse operator which involves spec-head agreement.<sup>3</sup> In English definite structures, whenever the specifier contains

<sup>3</sup>It is worth noting that the spec-head agree relation in Borer’s framework is different from other existing models in describing the agree concept (Koopman, 2006). In Borer’s approach,



an f-morph such as, *the, this, that, etc.*, it can assign a direct value to the head.

I will provide more explanation on the indirect range assignment when telicity is introduced in Borer's model in 5.8.2. In section 5.4, I introduce noun-incorporation – an operation that gives rise to a non-specific reading of the noun.

## 5.4 Noun-incorporation and number neutrality

Noun-incorporation studies the combination of the noun and the verb (verbal complex). The complexities of noun-incorporation (NI) have occupied linguists for many years (Kroeber, 1910; Sapir, 1911). There has been plenty of discussion on the nature of noun-incorporation and the phenomenon is studied from both a morphological perspective and/or a semantic aspect. The syntax and semantics of NI has been the focus of study since Mithun (1984), Mithun (1986), and Baker (1988).

According to Massam (2009), “there has been much discussion about which constructions can rightly fall under this name, and about where in the grammar NI should be handled” (p.1091). Massam illustrates that the focus on NI has shifted from the morphology, in earlier studies, to the understanding of the semantics of incorporated constructions in more recent studies. The study of NI intersects with research in areas such as “bare nominals, implicit arguments, discourse reference, complex predicates, possessive constructions, and classifier systems” (p.1091).

One of the ongoing debates has involved whether noun-incorporation should be viewed as a lexical or a syntactic process. Mithun (1984; 1986), among others, supports the lexicalist view and considers noun-incorporation to be morphological. Mithun argues that two parts of the incorporated structure exist independently and derive a new entry in the lexicon via incorporation. This means that the noun root and the verb root simply combine and the resulting structure is a complex verb that is a new verb stem. The lexicalist view considers syntax and morphology as independent components of grammar. The schema of the lexicalist approach is represented in (240).

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the spec-head configuration is bidirectional, meaning that either the specifier or head are able to value one another depending on the one that contains the designated value.



[Baker, 2009, Ex.2]

The incorporated noun has now made a complex verb and can either be transitive or intransitive depending on the language. The transitive form can have an object/theme, but the intransitive form can no longer take an object, as in (241) and (242).

- (241) Juan ngilla-waka-lel-fi-y.  
 Juan buy-cow-APPL-3O-IND.3SG  
 ‘Juan bought a cow for him/her.’ [Mapudungun, Baker, 2009, Ex.10a]

- (242) Ñi chao kintu-waka-le-y.  
 my father seek-cow-PROG-IND.3SG  
 ‘My father is looking for the cows.’ [Mapudungun, Baker, 2009, Ex.1b]

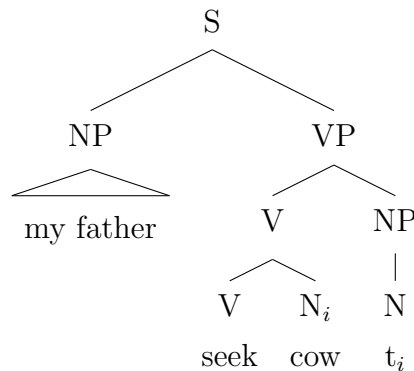
Non-lexicalist views on noun-incorporation takes various forms, of which, head movement, phrasal movement and, semantic incorporation are of the most prominent. In contrast with non-lexicalist views, the lexicalist view does not require NI to obey common syntactic principles. The next part of the discussion illustrates some of these variations on noun-incorporation in further detail.

Among those who view noun-incorporation to be a syntactic phenomenon, Baker (1988; 2009) argues that the process of noun-incorporation occurs through head movement. Yet, there is evidence from some languages that head movement is not always plausible for the noun-incorporation. Massam (2001; 2009) shows that in Niuean it is the noun phrase that is involved in the process of incorporation rather than the head noun. Massam (2001) argues that in Nieuuan, the noun is a noun phrase rather than a head noun and therefore cannot undergo morphological merge with the verb.

In Baker’s head movement approach, the incorporating noun moves from the object position and attaches to the verb. Having phrasal movement in mind, Baker

emphasizes that NI is a head movement phenomenon: “In brief, I have analyzed noun incorporation as an instance of head movement, distinct from but similar to the better-established phenomenon of phrase movement” (p.150). Baker analyzes noun- incorporation as an operation on a base-generated structure of a normal verb phrase containing a verb and an object noun phrase, in accordance with the Uniformity of Theta role Assignment. After the verb phrase is formed, the head of the object noun phrase undergoes syntactic movement to adjoin to the verb, as illustrated in (243).

(243)



[Baker, 2009]

In contrast, Massam (2001) argues that a verb merges with an NP in Niuean and creates a VP. In this case the noun and verb form a verb phrase at the merge level such that the noun cannot scramble anymore and has to move with the verb inside the phrase to the specifier of TP to create the predicate-initial order. This is a case of ‘pseudo-noun-incorporation’ that occurs in Niuean. Massam points out a crucial issue for Baker’s (1988) head movement: the incorporated nominal can be referential in some languages, that is, it can be referred back to later in the discourse, whereas referentiality is not an expected property of incorporated nominals. To highlight this issue, Massam (2001; 2009) argues that in Niuean, existential verbs are responsible for creating discourse referentiality for incorporated nouns, in contrast with non-existential verbs, which do not have this property, as in (244).

- (244) **Fai mena kai** a ia ia he fano, **ko e fua niu.**  
**Have thing food** Abs she her at go, **Pred Abs fruit coconut**  
 “She had food with her when she went: (namely) a coconut. [NAH:ch.1]

Additionally, Dayal (2011) shows that in Hindi, animate and inanimate objects reflect case marking differently. Animate direct objects are incorporated when they lack case marking and are DPs when case marked. Inanimate objects, however, optionally take case, as in (245). According to Dayal, case marking in Hindi is obligatory when the object has a determiner, but is optional when there is no determiner, as in (246).

- (245) a. anu har kitaab/har kitaab-ko paRhehii.  
 Anu every book/every book-ACC read-FUT  
 ‘Anu will read every book.’  
 b. anu kitaab/kitaab-ko paRhehii.  
 Anu book/book-ACC read-FUT be-PRS  
 ‘Anu will read a book/the book.’ [Hindi, Dayal, 2011, Ex.6]
- (246) a. anu \*har bacce/har bacce-ko samnhaaltii hai.  
 Anu every child/every child-ACC look-after-IMP be-PRS  
 ‘Anu looks after every child.’  
 b. anu bacce/bacce-ko samnhaaltii hai.  
 Anu child/childACC look-after-IMP be-PRS  
 ‘Anu looks after (one or more) children/the child.’ [Hindi, Dayal, 2011, Ex.7]

The Hindi case marking system is not symmetric between animate and inanimate nominals. Under the assumption that DPs cannot be incorporated, an accusative marked nominal, and hence a DP, is quantified and considered as a normal complement. However, if we consider that the accusative case is optionally null in inanimate nominals, then the case marking will not remain as valid evidence to determine incorporation.

The fact that case marking is not obligatory in Hindi inanimates, means bare nominals may or may not undergo incorporation. As a result, the bare nominals that agree in Hindi (the verb agrees with the highest non-case marked argument) might not have undergone incorporation and may simply be ‘(non-familiar) definites’ (Dayal, 2011). Furthermore, the bare form of the noun can yield singular or plural readings without the presence of a plural morphology. Dayal proposes that ‘the object bare singular in (247) can be incorporated because it is in the right syntactic position for incorporation. “Number neutrality, we must conclude, is a feature of incorporated nominals, not of Hindi bare singulars in general” Dayal,

2011, p.132. Table 5.3 illustrates the interpretation of all occurrences (of bare and case marked forms) in Hindi.

- (247) annu puure din *cuuha* pakaRtii rahii.  
 Anu whole day mouse catch-IMP PROG  
 ‘Anu kept catching mice (different ones) the whole day.’ [Hindi, Dayal, 2011, Ex.16b]

|             | definite | specific indefinite | non-specific indefinite |
|-------------|----------|---------------------|-------------------------|
| case marked |          |                     |                         |
| animate     | ✓        | X                   | X                       |
| inanimate   | ✓        | X                   | X                       |
| NI          |          |                     |                         |
| animate     | X        | X                   | ✓                       |
| inanimate   | X        | X                   | !                       |

TABLE 5.3: Hindi case marked and bare nominals

Dayal (2011) argues that bare nominals in Hindi could not be taken to be true indefinites.<sup>4</sup> To support her argument, she shows that these bare nominals allow weak indefinite readings and take scope under negation and intentional verbs, as in (248).

- (248) a. kamre meN *cuuhe* nahiN haiN.  
 room in mice not be-PRS  
 ‘There aren’t mice in the room.’  
 b. mujhe lagtaa hai ki kamre meN *cuuhe* ghuum rahe  
 I-DAT seem be-PRS that room in mice move-around PROG  
 haiN.  
 be-PRS  
 ‘It seems to me that there are mice moving around in the room.’  
 [Hindi, Dayal, 2011, Ex.12]

Dayal argues that the number neutrality of incorporated nominals, by which the nominal is neither singular nor plural, can arise through the interaction with aspect. This suggests that the neutrality arises from the interaction with aspect

<sup>4</sup>Dayal (2011) considers Hindi incorporated nominals to be distinct from weak indefinites too. She assumes that the weak indefinite reading of bare plurals in Hindi derives from their kind reading.

and should not be considered as a necessary function of incorporation. That is to say, there are aspectual expressions that support iterative interpretations of the incorporated nominals and this interaction will give rise to a number neutral interpretation.

To conclude the discussion above, following [Massam \(2001\)](#) and [Dayal \(2011\)](#), I propose that bare nouns in Azeri undergo pseudo-incorporation rather than head incorporation. I argue that Azeri has pseudo-incorporated nouns rather than incorporated nouns. Pseudo-incorporated nouns are not referential and they share the behaviour of incorporated bare nouns discussed in other studies. However, such noun phrases do not have reference to number either. To highlight an observation reported in most of the studies on incorporation, the application of incorporated nominals occurs with habitual activities. Following from here, I show that similar behaviour of bare nominals in Azeri supports the argument that bare nouns are pseudo-incorporated nouns and cannot have an argument status.

The tests below suggest that Azeri shows pseudo-noun-incorporation in its grammar. As illustrated in (249), the modified and/or conjoined nominals must be an NP rather than an N category, since they can be modified by an adjective.

- (249)
- a. Aida ginə köhnə kitap alacak.  
Aida again old book buy-FUT  
'Aida will buy old books again.'
  - b. Aida üzün gərə manto axtar-ır.  
Aida long black manteau seek-PROG.3SG  
'Aida is looking for a long black coat.'
  - c. Aida it və pişih sax-lır.  
Aida dog and cat keep-PROG.3SG  
'Aida is keeping dogs and cats.'

Incorporated nominals do not follow strict adjacency with the verbal element, as shown in (250). Evidence is provided from negation and scrambling. In cases of pseudo-noun-incorporation (PNI), the noun does not need to be adjacent to the verb. This goes against [Diesing \(1992\)](#), who claims that non-specific NPs cannot be scrambled.

- (250)
- a. Gül sat-mı-yacax boyuyə.  
flower sell-NEG-FUT grown-up  
'S/he will not sell flowers when grown up.'

- b. Alma, gundə bir dənə yi-yər-əm.  
 apple everyday one CL eat-HAB-1SG  
 ‘As for apples, I eat one every day.’<sup>5</sup>

Now that I have introduced the core theoretical issues discussed in relation to (pseudo-)noun-incorporation, and demonstrated the existence of pseudo-noun-incorporation in Azeri, I further show that number marking plays an important role in the derivation of noun-incorporated structures.

## 5.5 Number neutrality and aspect in Hindi

Dayal (2011) conducted a study on number neutrality of bare nominals in Hindi, in which she argues that Hindi bare nominals license number. That is to say, the bare form of the noun is singular in Hindi. Dayal shows that Hindi has pseudo-incorporation in its nominals and the incorporated nominals are specified for number. These pseudo-incorporated nominals are semantically singular and the number neutral reading of them arises from their interaction with aspectual operators. It is important to note that Dayal considers the bare form of the noun to have a singular reading in its base form. In this sense, we can say that Hindi bare forms are similar to English bare forms that are semantically marked for number.

Hindi bare nominals are not true indefinites according to Dayal, and they are ambiguous between kinds and definites. In (251), the bare plural takes scope under negation and the intentional verb. However, a definite interpretation is also available with some specific intonational patterns. On the other hand, Dayal declares that with definite cases, the bare plural does not take wide scope existential reading, and this special form is considered to have non-narrow interpretation that “picks out the maximal set of mice in the context, a definite reading” (p.129).

- (251) a. kamre meN *cuuhe* nahiiN haiN.  
 room in mice not be-PRS  
 ‘There aren’t mice in the room.’

<sup>5</sup>Scrambling reflects a contrastive topic and is not the subject of discussion in this work.

- b. mujhe lagtaa hai ki kamre meN *cuuhe* ghuum rahe  
 I-DAT seem be-PRS that room in mice move-around PROG  
 haiN.  
 be-PRS  
 ‘It seems to me that there are mice moving around in the room.’  
 [Dayal, 2011, Ex.12, P.129]

Considering that Hindi bare (incorporated) nominals are not true indefinites, they must receive their existential force from a different source other than the existential force of weak indefinites. Bare nouns in Hindi are singular unless they have undergone incorporation. The bare singular can take an accusative or instrumental case, and while the former yields a definite reading, the latter derives unique interpretation which may or may not derive familiarity interpretation. According to Dayal, familiarity in this case depends on the additional requirements imposed by the verb. In conclusion, if bare nominals are singular in number, the incorporated bare nominals should be number neutral. According to Dayal, since Hindi does not have an overt morphology to mark the singular, incorporation of NPs are mistaken for incorporation of NumPs. Arguing that incorporated bare singulars are not semantically number neutral in Hindi, Dayal assumes that neutrality is dependent on aspectual specification rather than incorporation.

Further, Dayal argues that in Hindi, the plural incorporated nominals denote only in the plural domain, but the bare form may denote in both the singular and plural domains. This maps with the fact that in languages with general number interpretation, the denotation of the bare noun is inclusive. That is to say, the denotation includes atoms or non-overlapping minimal parts (this was discussed in chapter 3; see Bale et al. (2010) for further discussion) and sets of possible pairs, but the plural nominal denotes only for sets of possible pairs and their overlapping minimal parts. Dayal considers incorporated nominals to be NumPs given that they are able to have number interpretation, and incorporated bare forms to be NumPs or NPs. This is illustrated in (252).

- (252) a. anu apne beTe ke-lye *laRkii/#laRkiyaaN* DhuunDh rahii  
 Anu self’s son for girl/girls search PROG  
 hai.  
 be-PRS  
 ‘Anu is searching for a bride/#brides for her son.’  
 b. anu *botal/botaleN* ikaTTThaa kartii hai.  
 Anu bottle/bottles collect do-IMP be-PRS



‘Anu collects bottles.’

[Dayal, 2011, Ex.31, P.141]

The interesting puzzle here is to explain how telicity forces/selects the NumP rather than the NP when the bare noun receives a singular interpretation. That is to say, incorporation in Hindi is of NumP-type in all instances. The evidence for this argument is the fact that the neutral interpretation of incorporated singulars is not available in sentences with accomplishment readings, as in (253). However, one might hypothesize that telicity is incompatible with incorporated nominals, and that the number neutral reading does not manifest with telic predicates since incorporation is not possible with telic predicates. However, Dayal (2011) shows that, such an assumption cannot be true. The standard diagnostic that is established here is that, accomplishment readings are possible for incorporated forms in Hindi, and that incorporated bare singulars yield strictly singular readings in those cases.

- (253)    *anu-ne    tiin ghanTe meN / \*tiin ghanTe tak kitaab paRh*  
           Anu-ERG 3    hours    in    / 3    hours    for book    read  
           Daalii.  
           COMPL-PFV  
           ‘Anu read a book in three hours’ = exactly one book [accomplishment]  
           [Dayal, 2011, Ex.32a, P.142]

Furthermore, Dayal (2011) notes the expectation that incorporated nominals are number neutral only is due to the fact that non-specific indefinites are typically not compatible with telicity, while non-specificity is exactly what is expected of incorporated nominals. As illustrated in (254), what seems to be going on is that although there is no specific girl to be chosen, the choosing of a girl, any of the girls, provides the set terminal point which is how the requirements of telicity and incorporation are satisfied.

- (254)    a.    *anu-ne    das minaT    meN laRkii-ko/ anu-ko    cun    liyaa.*  
               Anu-ERG ten minutes in    girl-ACC    Anu-ACC choose COMPL-PV  
               ‘Anu chose the girl/Anu in ten minutes.’  
           b.    *anu-ne    das minaT    meN laRkii/ \*anu-ko cun    lii.*  
               Anu-ERG ten minutes in    girl    Anu    choose COMPL-PV  
               ‘Anu chose a girl in ten minutes.’                    [Dayal, 2011, Ex.33, p.142]

Table 5.4 summarizes the occurrence of bare nominals and their number interpretation.

|                    |        |           |                                         |
|--------------------|--------|-----------|-----------------------------------------|
| Hindi Perfective   | telic  | singular  | accomplishment                          |
|                    |        | plural    | pluractionality operator                |
| Hindi Perfective   | atelic | singular  | single event extends over time          |
|                    |        | neutral   | iterativity                             |
| Hindi Imperfective | telic  | singular! | single atomic event                     |
|                    |        | plural    | temporal adverbial quantifies over time |
| Hindi Imperfective | atelic | singular  | single event extends over time          |
|                    |        | neutral   | habitual                                |

TABLE 5.4: Hindi number interaction with telicity

The table above summarizes the interaction between number and telicity in Hindi. The semantics of incorporation and iteration only requires there to be one instance of the atomic entity per sub-event, leaving it entirely open as to whether there are one or more entities across the different sub-events. The number neutral reading of the incorporated bare singular, as this demonstrates, does not come from its ability to denote in the plural domain but, rather, from its ability to be part of the iteration.<sup>6</sup>

In the case of singular interpretation of a telic event with a perfective aspect, Dayal argues that a single event extends over a period of time specified in the context. For the case of neutral interpretation of a telic event in a perfective aspect, Dayal suggests that a pluractionality operator<sup>7</sup> is involved and the plural event extends over a period of time specified in the context.

To explain the possibility of having both singular and number neutrality with atelic predicates, Dayal notes that: “the universal quantification over sub-events comes from the pluractional operator and not from the measure adverbial, which simply specifies the run time of the event” (p.151).

The neutral reading of the incorporated nominal in atelic perfective aspect arises from the iterativity of the event. Iterativity entails plurality of sub-events

<sup>6</sup>It is noted that in this plural event, shorter sub-events of book-reading are considered, in which a single book or different books could be involved (Dayal, 2011)

<sup>7</sup>A pluractionality operator encodes universal quantification over sub-events.

and delivers number neutrality of the incorporated nominal directly. Habituality delivers it indirectly, and entails a quantificational structure that presupposes a plural quantificational domain, which in turn delivers number neutrality for the incorporated nominal in its scope. Iterativity is compatible with extensional or intensional contexts, and occurs with progressive, perfective, or imperfective morphology. Habituality has an intensional dimension and requires imperfective morphology. Iterativity involves an operator that takes scope at the level of the verb, while habituality takes scope at the clausal level.

According to Dayal, there are ways to distinguish between iterativity and habituality. In her account, supported by many others, telic predicates that are identified by the diagnostic of the adverbial ‘in x amount of time’, are incompatible with an iterative interpretation.

Furthermore, Dayal (2011) concludes that number neutrality of the incorporated bare singular arises from its ability to be part of the iteration but not come from its ability to denote in the plural domain. It is worth noting that this is possible because the pseudo-incorporation structure does not have an explicit theme argument in its representation.

In the end, Dayal (2011) notes that “all higher aspectual expressions that support iterative interpretations will allow for a number neutral interpretation of the pseudo-incorporated singular term. In addition, an incorporated nominal that is not part of iteration may come to have a number neutral interpretation if a higher aspectual operator induces a quantificational structure” (p.150).

In order to study the interaction of telicity and viewpoint aspect, I begin with an overview of some discussions on event structure and telicity.

## 5.6 Argument structure and Aktionsart

In the previous section, I showed that the discussion of noun-incorporation and number neutrality is linked with the interaction of aspect and number in the structure. In order to elaborate this interaction, a discussion on the nature of argument structures seems essential. Argument structures consist of an event argument and its denoting type  $e$  participants (agent and/or theme), depending on the nature of the event argument (Davidson, 1967). Traditionally, eventualities

(events) are classified into four types: two classes of events, i.e. accomplishments and achievements, and two other classes, namely, states and processes (Vendler, 1957; Parsons, 1990). Using this classification system, we are able to determine telicity. For accomplished-type eventualities, we can ask: how long the event has been going on. That is to say, accomplishment-type eventualities have an inherent end point. On the other hand, achievement-type eventualities are instantaneous in nature such that we are not able to ask how long they went on for. State type eventualities do not have an end point and process type eventualities refer to process or activities that also do not have a natural end point. The temporal constituency of events, also referred to as Aktionsart (inner or lexical aspect) is traditionally considered to be an inherent temporal feature that belongs to the lexical content (Klein, 1994). However, in recent views, Aktionsart is independent of the lexical content and is syntactically represented (Ramchand, 1997; Borer, 1998; Ritter and Rosen, 1998; Kratzer, 2004; Borer, 2005b).

Furthermore, Ramchand (2005) defines eventualities as, “abstract entities with constitutive participants, and with a constitutive relation to the temporal dimension” (p.372). This implies that, Ramchand considers the eventuality variable to establish a link between the predicate and the participants that are described by the subject and the object. The aspect operator is mentioned as one of these linkers, which I discuss in the next subsection. In what follows, I expand the discussion into the syntactic representation of Aktionsart and the aspectual operator.

## 5.7 Syntactic position of the aspect operator

As demonstrated earlier, temporal features of events are demonstrated to derive telic versus atelic interpretations. Events with an inherent end point, i.e. accomplishments, are demonstrated to be linked with telic predicates, while atelic predicates describe activities without an inherent end point. The nature of atelic predicates brings them to be comparable to states, meaning that they are not sensitive to the temporal location of the event.

For the purpose of this dissertation, I focus on two classes of events: accomplishments and activities. In the domain of events, an activity is defined as an atelic event that has no inherent end point or no specified quantity. Accomplishments on the other hand are telic and have a natural end point and determine

a specific quantity. The examples in (255) and (256), illustrate these different interpretations.

(255) John read books. (activity)

(256) John read the book. (accomplishment)

Cross-linguistically, activities and accomplishments are distinguished by morpho-syntactic alternations. Accomplishments require a specific measurement, whereas activities do not have precise measurements. In English, for instance, the distinction is highlighted by using the plural morphology for activity-type eventualities, versus the use of an article for accomplishments (Ritter and Rosen, 2010).

Now, after looking at the existing theories on the inner aspect and how it is discussed in syntactic and semantic theories, I propose an analysis that explains the behaviour of bare nouns in the light of aspectual representation and the relevancy of its position in the structure. In order to reach my goal, I begin with a description of Aktionsart, which I will call inner aspect, and its interaction with number reading.

Before delving deep into a discussion on aspect, I would like to take a step back and unpack some of the existing puzzles in the study of two syntactic categories, the noun and the verb. There is a fair amount of agreement on the compositional properties of verbs and the fact that verbs need to build up states of affairs from their constitutive participants, whereas nouns have inherent identity criteria and do not need arguments (Ramchand, 2005). In a view that she calls Post-Davidsonian, Ramchand considers the event variable to be the essential variable type that is the basis for the clause. This event variable undergoes internal complexity and is modified by means of functional projections. In other words, various functional positions in the clause are semantically responsible for introducing those (cf. Kratzer, 1996; Ernst, 2002).

According to Ramchand (2007), from a Davidsonian perspective, nominals are considered to be inherently object or matter descriptors. As such, the noun ‘book’ in (257) can predicate over things.

(257) ‘book’ :  $\lambda x[\text{book}(x)]$

Eventuality variables are a significant part of the discussion, according to the Davidsonian view of event structure. In the Davidsonian view, argument positions are considered to be variables described by the lexical content of the predicate. It is important to note that the verb does denote the property of events but does not select the event variable (Ramchand, 2005). This means that event positions in the verbal domain are similar to the individual variables that are induced by nouns. In the Davidsonian frame of event structures, nominals are inherent matter descriptors but verbs need to constitute what is called states of affairs, i.e., verbs are in need of arguments, and they build these states of affairs compositionally. In order for these states of affairs to be constructed, the verb needs an eventuality variable that links the constitutive participants, i.e. arguments, to the verbal description.

However in building eventualities, verbs should not be considered as the only entities that introduce the event. There are variables that should be considered as prominent providers of constitutive relations. These variables make accessible modification and referentiality during the process of syntactic derivation. Furthermore, different types of eventualities have different linguistic properties, meaning that the participation of operators and arguments will induce different interpretations of eventualities depending on their constitutive relations to temporal dimensions or other properties (Ramchand, 2005).

The participation of the direct object DP and its aspectual influence on the (a)telic interpretation of the verb phrase has been known since work by Verkuyl (1972). Outside of the existence of thematic participants, which form the necessary core of the event description, we see that a verbal event can also be modified by higher aspectual operators, such as adverbials (also discussed for Exo-Skeletal model range assignment, see Borer, 2005a,b). Moreover, those adverbials can occur at various hierarchical heights in the syntactic structure (Ramchand, 2005). Following the logic of the arguments based on modification, different levels of eventuality variables seem to be required here.

Modern research on the syntax-semantics interface and on the interpretation of functional projections makes it more difficult to think of the event as a monolithic entity that is introduced once and for all by a verb. Ramchand (2005) provides an example from English, as in (258), and explains that the demand for different eventuality variables at different levels of the structure can also be seen with the addition of aspectual operators such as the progressive in English, and the

habitual past tense. As an example in (258) the progressive and habitual aspects have different internal temporal properties from what can be expressed by the verb alone.

- (258) a. John was crossing the street (\*in five seconds/for five seconds, before he changed his mind).  
 b. John crossed that street for years on his way to work. [Ramchand, 2005, Ex.5b,c]

In contrast, in some languages, telicity is introduced by means of prefixes, e.g. Slavic languages (Borer, 2005a), and in others, light verbs can contribute to the telic interpretation of the verbal element, e.g. Hindi-Urdu (Ramchand, 2003, 2005). Observations such as these, provide evidence that temporal properties of the verbal element do not independently determine the eventuality of the predicate structure.

To solve the puzzles, such as: whether or not eventualities are encoded on verbs, Vendler (1967) introduces events of different kinds. The advantage of discussing the event types and how verbs encode eventualities brings us closer to studying the process in which the states of affairs are composed. Events are divided into dynamic events and non-dynamic events by Vendler (1967). Dynamic events are divided into accomplishments and achievements that include telicity and events that simply denote activities and do not endorse telicity. Some events also have more than one subevent and I believe that, this is the result of the interaction with other operators, such as aspect. For further elaboration, consider the examples in (259):

- (259) a. John hammered the metal.  
 b. John hammered the metal flat. [Ramchand, 2005, Ex.4]

As Ramchand (2005) explains, “The logic of eventuality decomposition demands that the event position of the former sentence is typologically and linguistically different from the complex event position of the latter, having different constitutive properties” (p.362). The addition of the aspectual operator in (258) is evidence for this explanation.

As shown in this section, the telic interpretation of a predicate is not carried in the lexicon and is introduced via the interaction of the verbal element with operators, e.g. adverbials, and morpho-syntactic elements, e.g. prefixes, in the syntactic structure. In the next section, I discuss three proposals that demonstrate the property of telicity in the structure.

## 5.8 Telicity in the structure

Since the aim of this dissertation is to study number in Azeri, the effort is made to disentangle the complex relationship between number marking and bare nominals. In this section, I continue to investigate the process of number marking by looking at the existing discussions in the domain of event structure (Verkuyl, 1972; Kratzer, 1996; Borer, 2005b; Ramchand, 2007).

In the previous section, I illustrated the consequences of adding an aspectual operator to the event structure. In this section, I show that telicity is not a property of the verb, and is in fact a property of the syntactic structure. To support my argument, I will present data from Azeri, along with evidence from three other accounts (Borer, 2005b; Krifka, 1998; Ramchand, 2007) as additional support, and contrast these with Kratzer (1996).

For the purpose of my analysis, I rely mainly on Borer (2005b). Prior to introducing these accounts, I provide a brief overview of the history of telicity.

The origin of the notion of telicity goes back to Vendler's (1957) action-denoting predicates. Vendler distinguishes between 'activities' and 'accomplishments', which later developed into atelic and telic predicates respectively. Activities such as 'John ate eggs', unfold over time and have no end point or a specified quantity. *John* could be eating any number of eggs during the course of time, for example 'John ate eggs for 2 hours'. On the other hand, accomplishments such as 'John ate the egg' unfold over time and have an inherent end point and are determined by the quantity of the object. *John* has eaten one specific egg during the course of time, for example 'John ate the egg in two hours'. Additionally, Verkuyl (1972) argues that boundedness of the direct object corresponds with the boundedness of the event. Specific objects are bounded, and so are their events but non-specific objects are not bounded and neither are their events. In later syntactic theories, bounded events were considered as [+telic] or [+quantity].



The study of a link between telicity and the nominal and temporal reference began with Verkuyl’s (1972) and Krifka’s (1989) work, and the connection between quantity and telicity is an important subject that these studies have tackled.

Verkuyl (1993) proposes that since the nature of the event in sentences such as (260) is constant, it must be the aspectual difference that grants the distinction in their interpretation. Verkuyl attributes this distinction to the NPs with the difference in their ability to be quantified or mass.

- (260)    a. They ate sandwiches.  
            b. They ate three sandwiches.  
            c. They ate a sandwich. [Verkuyl, 1993, Ex.37-39, P.15]

Moreover, Verkuyl proposes that the aspectual behaviour of bare plurals and mass nouns is similar, and they do not induce a terminative interpretation in contrast with specified quantity, which entails a terminative event.

Nevertheless, the similar behaviour of plurals and mass nouns, with respect to aspect, is not extendable to nouns with general number reading. Since singularity and plurality are both embedded in the semantics of the noun with a general number reading, whether they induce a terminative interpretation or not remains a puzzle for Verkuyl's generalization. 'Sandviṣ' in (261) does not necessarily mean they ate more than one sandwich. Therefore, the terminative reading is freely available for the bare noun.

- (261) **Sandiviş** ye-di-lər.  
sandwich eat-PAST-3PL  
'They ate a sandwich/sandwiches.'

In the remainder of this chapter, I discuss the interaction of telicity with number and specificity, I begin by introducing several accounts that discuss the connection between telicity and quantity.

### 5.8.1 Telicity in Krifka (1998)

According to [Krifka \(1998\)](#), what distinguishes a telic predicate from an atelic predicate is not in the nature of the object that is described, but in the description

applied to that object. To clarify his point, Krifka compares the atelic predicate, e.g. *running*, and the telic predicate, e.g. *running a mile*, and explains how the same event could be called both telic and atelic. The fact that the same event can be described by both the telic and atelic readings is further reflected not in the nature of that object, but in the description that is applied to it. Krifka's views on telicity place him in the same camp as those who consider both verbal and nominal elements to relate verbal parts and object parts to each other. For example, a verb like *eat* relates parts of the event of eating to parts of the object e.g. *apple*, and makes structures such as 'eat an apple/two apples' available. Krifka further explains that early accounts, such as Verkuyl (1972), considered the verb *eat* having a feature [+ADD TO] that allowed the verb to percolate the feature [+SPECIFIED QUANTITY] from the NP *an apple* to the VP *eat two apples*. However, according to Krifka, the feature percolation rules are believed to be semantically motivated.

Assuming a "one-dimensional directed path structure for *time*" (p.8), Krifka considers time to be non-atomic. He provides an example to explain the non-atomic time path. If we consider that 'Mary sings from 3pm to 5pm', then her singing from 3pm to 4pm is part of that singing event. Krifka demonstrates the structural relationship of the events and times as such: "if a telic predicate applies to an event 'e', then it does not apply to a part of 'e' that begins or ends at a different time" (p.9). In other words, telicity is characterized "as the property of an event predicate X that applies to event 'e' such that all parts of 'e' that fall under X are initial and final parts of 'e'" (p.9), as illustrated in (262).

$$(262) \quad \forall X \subseteq U_E [\text{TEL}_E(X) \leftrightarrow \forall e, e' \in U_E [X(e) \wedge X(e') \wedge e' \leq_E e \rightarrow \text{INI}_E(e', e) \wedge \text{FIN}_E(e', e)]]$$

[Krifka, 1998, Ex.37]

The denotation above indicates that quantized predicates (things like three liters of water) are telic. "If a quantized predicate X applies to some event 'e', then it does not apply to any proper part of 'e', hence the only e' such that X(e') and e' ≤ e is e itself, which is both an initial and final part of e" Krifka, 1998, p.9.

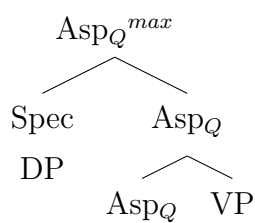
On the other hand, a cumulative predicate (water or apples), that means 'e+e', has two events with two independent run times. This means that these two events cannot end at the same time and, as a result the cumulativity gives rise to an atelic reading of the predicate. The fact that Krifka relates quantity to telicity,

and cumulativity to atelicity is also considered in Borer (2005b) – the topic of the next section.

### 5.8.2 $Asp_Q$ in Borer (2005b)

In Borer’s Exo-Skeletal model,<sup>8</sup> “lexical entries do not contain any information about the projection of arguments, nor are there any specified links between the lexical semantics of individual lexical items and syntactic positions” (p.69). In the predicative domain, Borer introduces  $Asp_Q^{max}$  as a syntactic projection that is responsible for a telic interpretation. As a functional category, the projection of  $Asp_Q^{max}$  is rather optional. A DP or a copy of it is in the specifier of the  $Asp_Q^{max}$  and is interpreted as the subject-of-quantity. The structure is illustrated in (263).

(263)



In Borer’s system, as in Kratzer’s, telicity is syntactically represented. There is an  $Asp_Q$  head associated with the telic semantics. The  $Asp_Q$  head needs to be licensed, i.e. assigned range in Borer’s terms, and the licensing can be done via a spec-head relation with a +quantity DP (which, in turn is assigned accusative case).  $Asp_Q$  can also be licensed by an appropriate head feature on v, merger of a functional morpheme in  $Asp_Q$  or an adverb of quantification. The illustration of telicity in Borer (2005b) is presented in (264). Recalling from the discussion

<sup>8</sup>It is noteworthy that Borer’s (2005b) Exo-Skeletal model “is distinct from, and akin to” (p.55) the Universal Theta Assignment Hypothesis by Baker (1988). Borer argues that in Baker’s system, similar to Exo-Skeletal model, modification of the argument structure occurs via the existence of syntactic structures. Further, Borer demonstrates that in the Exo-Skeletal model (here, in the verbal domain), the variation in the argument structure arises from its association with the same verbal listeme syntactically. As a result, Borer considers the Exo-Skeletal model to be a continuation to Baker’s UTAH agenda. Furthermore, Exeo-Skeletal model and UTAH, share the assumption that “particular syntactic positions are inherently linked with particular argumental interpretations” (Borer, 2005b, p.55). Nevertheless, there are differences between the two systems. UTAH, according to Borer, “is fundamentally committed to viewing the constant relations between the structure and the interpretation of arguments as mediated through the head selecting those arguments” (p.55). On the other hand, Exo-Skeletal model, to fix the interpretation of a particular role, the mediation by a lexical item is not necessary.

on the range assignment in the nominal domain, the range assignment can occur directly or indirectly.

(264) Telicity (through direct range assignment)

- a.  $[_{AspQ} (DP_{\pm\#}) V.<\alpha> <e>_{\#} [_{VP} \Psi ]]$
- b.  $[_{AspQ} (DP_{\pm\#}) [f\text{-morph}] <e>_{\#} [_{VP} V ]]$
- c.  $[Adverb^{\alpha} [_{AspQ} (DP_{\pm\#}) [f\text{-morph}] <e>_{\#} [_{VP} V ] Adverb^{\alpha} ]]$

[Borer, 2005b, P.123]

In order for the telic interpretation to arise the  $[[_{spec, Asp} DP][Asp_Q]$  should be well-formed. The emerged DP in the specifier of the  $Asp_Q^{max}$  receives a subject-of-quantity interpretation and the predicate is a quantity predicate.

In her system, Borer borrows from Link's (1983), Bach's (1986), and Krifka's (1989; 1992) models, and extends the conclusions she has drawn from her work on the mass-count distinction in the nominal domain (Borer, 2005a), in which bare mass nouns and bare plurals are not quantities. Based on the conclusions drawn, Borer considers telic events to be quantities. As quantities, telic events contain quantification over event divisions, whereas atelic events are homogeneous. This means that in the nominal domain, the quantity is realized on the  $\#P$ , and in the verbal domain, it is realized on the functional head that dominates an open value in need of a range assignment. Such a proposal maps onto Krifka's (1992) analysis on verbs, where he considers all verbs to be inherently atelic and not able to specify a culmination. Since telic events are considered to be culminated, a quantized theme operator is required to measure the event and yield culmination. Even though it is true that quantity for telicity is discussed in both Krifka (1998) and Borer (2005b), the way they address quantity is different. Borer's definition of quantity in the verbal domain is the selection of "a specific reticule, providing quantification to divisions of that event" (p.122). Quantity interpretation in Borer's system arises from range assignment to the open value,  $[_{AspQ} <e>_{\#}]$ . As a result, there is no regular paradigm in the functional lexicon, whether in a phonologically realizable head feature or an f-morpheme to directly assign range to the open value  $[_{AspQ} <e>_{\#}]$ . Borer claims that the only systematic way for this range assignment is through the existence of a quantity DP that assigns direct range

through specifier-head agreement relation. Taking these different possibilities into account, a language can reflect direct range assignment through overt functional marking on the verb (head feature), or by means of an f-morpheme, and in some cases, an adverb can assign range to  $[_{AspQ} <e>_{\#}]$ . If any of these options are available in a language, the need for a quantity DP that gives rise to telicity will not be necessary, despite Verkuyl's generalization. The conclusion that is driven from Borer's work supports the idea that the appearance of a subject-of-quantity (the DP in the Spec- $Asp_Q$ ) is an optional effect of telicity and not an obligatory part of it. English has only the specifier-head agreement system to mark telicity. In English, there is no direct range assigner (in the form of a head feature or an f-morph) to  $[_{AspQ} <e>_{\#}]$ . If we compare  $[_{AspQ} <e>_{\#}]$  to range assignment for  $[_{DP} <e>_{\#}]$  in English, range assignment to the  $[_{DP} <e>_{\#}]$  is accomplished via an f-morph, e.g. the, a, etc. But in the verbal domain, there is no overt morpheme to assign range to  $[_{AspQ} <e>_{\#}]$  and generate a telic predicate. Here, we are confronted with two scenarios. In the first scenario, the DP is a subject-of-quantity and the  $<e>_{\#}$  is assigned range, either directly or indirectly. With this type of DP, a spec-head agreement occurs and the  $[_{AspQ} <e>_{\#}]$  is assigned range, as in (265), where  $\alpha$  is the specific quantity value of  $[_{DP} <e>_{\#}]$ .

$$(265) \quad [_{AspQ} DP_{\#}^{\alpha} [_{AspQ} <e^{\alpha}>_{\#}]] \quad [\text{Borer, 2005b, p.121}]$$

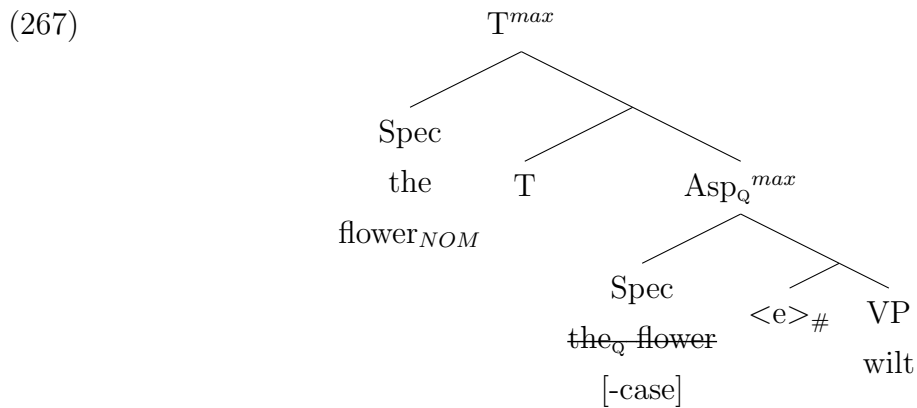
In the second scenario, there is no independent range assigner to  $<e>_{\#}$  within DP. However, if the  $[_{AspQ} <e>_{\#}]$  is assigned range through one of the mechanisms in (264), it can percolate the quantity feature to the DP in its specifier position. The value of  $[_{AspQ} <e>_{\#}]$  gets transmitted to the  $[_{DP} <e>_{\#}]$  via spec-head agreement, as in (266).

$$(266) \quad [_{AspQ} ([_{DP} <e^{\alpha}>_{\#}) [_{AspQ} <\alpha> <e^{\alpha}>_{\#}]]] \quad [\text{Borer, 2005b, p.124}]$$

Therefore, the range assignment to  $[_{AspQ} <e>_{\#}]$  in English must occur through a spec-head agree relation between  $[_{AspQ} <e>_{\#}]$  and the DP that is already a subject-of-quantity and copies its quantity property onto  $[_{AspQ} <e>_{\#}]$ .

The optionality of the functional phrase is the subject of discussion in Borer (2005a) and Borer (2005b). Let us see how the presence of  $Asp_Q$ , contributes to the telic interpretation of the predicate. Borer proposes three possible derivations

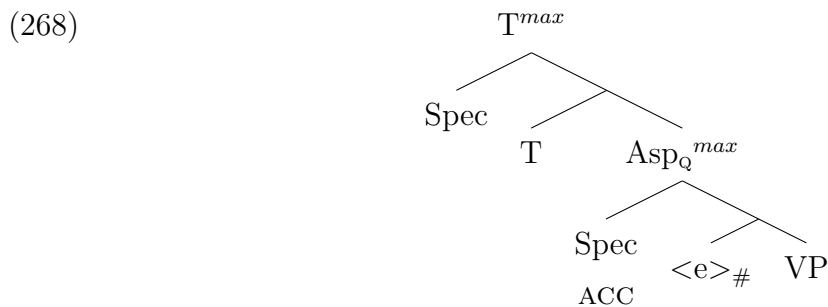
that result from the presence of only one argument in the derivation. The first instance is when  $Asp_Q$  is projected but no accusative case is assigned, as in (267). This structure derives a telic interpretation of the events since  $Asp_Q$  is projected and the range is assigned, meaning that the argument is a quantity. When  $Asp_Q$  merges, “its specifier may or may not be associated with (accusative) case” (Borer, 2005b, p.79). The analogy here derives from the assumption that  $Asp_Q$ , just like any other functional category, may or may not merge in the derivation.



[Adopted from Borer, 2005b, P.79]

The presence of  $Asp_Q$  derives a telic event and a quantity predicate. The specifier of this predicate is interpreted as the subject-of-quantity. However, case is not available and the object has to move to the specifier of TP to receive nominative case.

The second instance is when  $Asp_Q$  is projected and an accusative case is assigned, as in (268). In this situation, the presence of the accusative case in the absence of the nominative case in a tensed structure rules out the derivation. Nevertheless, the failure of case marking does not stop us from understanding how  $Asp_Q$  functions in Borer’s system.



[Adopted from Borer, 2005b, P.80]

However, in a situation where  $Asp_Q$  does not merge in the derivation, the accusative case is not available either. Therefore, the DP in need of case must move to receive case in the Spec-TP. This is illustrated in (269).



[Adopted from Borer, 2005b, P.80]

For Krifka, however, homogeneity comes with being cumulative and divisive at the same time, and it is only being a quantity which declines homogeneity. On the other hand, Borer shows that the failure of divisiveness is sufficient to derive non-homogeneity since culmination is enough but not necessary for deriving a quantity predicate. Borer claims that homogeneity fails without culmination and she refers to an event that specifies a starting point rather than an end point.

Ramchand (2008) has a different interpretation of telicity. Similar to Borer's approach, the semantics of the event is argued to be built off of the syntactic structure of the event. In Ramchand's approach 'No theta-criterion', thematic roles are reduced to three event-participant roles: *init*(iation), *proc*(ess) and *res*(ult). Each of these event-participants has its own phrasal projection. Each projection has its own head and can take the other projection as its complement and an argument in the specifier position. A verb might contain all of these heads or it might be a subset of them. *Init* denotes an initial state of the event and the DP that appears in the specifier of this projection acts as causer or the agent of the event. *Proc* is the dynamic head and its subject is characterizing the event. *Res* is the head that determines the final stage and the DP in the specifier position and its subject is the resultee. Ramchand's model is similar to Borer's in that it believes syntax is the primary locus of combinatorial operations. In contrast, Rachmand's model assumes that some information is already stored in the lexicon, while in Borer's model, listemes do not carry grammatical properties, and all are assigned via the syntactic operation.

## 5.9 Number neutrality and aspect in Azeri

So far in this chapter, I have discussed the interaction of number and inner aspect. Using examples (185)-(238) and in table 5.2, I have shown that relying only on inner aspect does not sufficiently explain the number interpretation on bare nominals. In the following section, I focus on the interpretation of number with respect to viewpoint aspect, and show how the bare noun gets interpreted in these contexts, and discuss some of the possible explanations for the variety of interpretations. After, I show the interaction of viewpoint aspect and specificity with noun phrases that contain case marking and overt number marking.

### 5.9.1 Viewpoint aspect

According to Klein (1994), the viewpoint aspect or grammatical aspect creates a temporal relation between the event and the Topic Time (also Reference time). It is worth noting that when we are discussing the viewpoint aspect, event properties are not included in determining some properties of the arguments. That is to say, the interaction between the viewpoint aspect and the noun phrase is not expected in Klein's view. Further, according to Bhatt and Pancheva (2005), viewpoint aspect as functional heads, actively take the VP as their arguments, as in (270).

(270)  $[_{AspP} \text{ Viewpoint Aspect } [_{vP} \text{ event-predicate } ]]$  [Bhatt and Pancheva, 2005]

Viewpoint aspects existentially quantify over the event variable and situate the event time in relation to the reference time, as in (271).

(271)  $[[\text{PERFECTIVE}]] = \lambda P_{vt} . \lambda t_{(i)} . \exists e_{(v)} [\tau(e) \subseteq t \ \& \ P(e)]$  [Bhatt and Pancheva, 2005]

Considering the viewpoint aspect, I will review the puzzle that focuses on the interaction between aspect and number.



### 5.9.2 Revisiting the problem and a solution

As illustrated in table 5.2, in Azeri, the number ambiguity on the bare noun is not the result of NI, since we receive both singular/specific and general number/non-specific interpretations consistent with Dayal (2011) in Hindi. Under the notion of incorporation, the only expected number interpretation is ambiguity. It should be clear by now that when I speak about number ambiguity in bare nominals, I only refer to atelic instances. The ambiguity is only observable in atelic cases where the number reading changes between one indefinite object or more different objects. Number ambiguity does not appear in telic structures where the bare form can only refer to a singular element.

Nevertheless, the plot thickens once the atelic context allows a specific and singular interpretation. The fact that number interpretation is available in atelic event structures is shown in studies on different languages. All these studies have shown that morpho-syntactic alternations cannot reliably predict the (a)telicity interpretation of the event structure. According to Verkuyl (1993) and Borer (2005b), a DP can be the subject of quantity, i.e. a Q-DP, but yields an atelic interpretation, in as (272).

(272) Mary read a book for 10 minutes. (but she didn't finish it)

Examples such as (272), and cases in which there is no morpho-syntactic representation to render (a)telicity, as in (273), (repeated from (182) above) highlight a mismatch between the interpretation of telicity and morphology. In (273-a) the noun is not referential and the speaker could be looking for any kind of dog, whereas in (273-b) a specific dog is addressed.

- (273) a. *It axtar-ır-am, hər nəjür olur olsun.*  
 dog search-IMP-1SG, what ever be become  
 'I am looking for a dog, any dog.'  
 b. *It axtar-ır-am, balaja və gara dir.*  
 dog search-IMP-1SG, small and black is  
 'I am looking for a dog, it is small and black.'

Further evidence for the mismatch between morpho-syntax and (a)telicity is reported for Slavic by MacDonald (2008) and MacDonald (2012). In Slavic, unlike

Azeri, the morphologically marked nominals do not impact the (a)telicity of the event structure, as in (274).

- (274) a. Mary čitala knigu/poéziju \*za čas/v tečeniji časa.  
 Mary read-IMP book/poetry \*in hour/during hour  
 ‘Mary read a /the book/(the) poetry \*in an hour/for an hour.’  
 b. Mary pročitala knigu/\*poéziju za čas/v tečeniji časa.  
 Mary read-PRF book/poetry in hour/\*during hour  
 ‘Mary read a /the book/the poetry in an hour/\*for an hour.’  
 [Slavic, MacDonald, 2012, Ex.4]

As demonstrated by MacDonald (2012) and Borer (2005b), telicity arises in the presence of perfective aspect, and imperfective aspect derives an atelic interpretation. It is noteworthy that the direct object maintains its form in both cases. However, atelicity in the imperfective does not ban the quantity interpretation of the direct object. As demonstrated in (275) and (276) in Czech and Bulgarian a Q-DP is available even though the event structure is atelic.

- (275) Psal<sup>I</sup> pet dopis.  
 wrote.3SG letter.SG.ACC  
 ‘He wrote a/the letter.’  
 [Slavic, Borer, 2005b, Ex.14, P.164]  
 (276) Ivan pi kafe/enda čaša kafe edin čas/#za edin čas.  
 Ivan drank coffee/a cup of coffee for an hour/#in an hour  
 ‘Ivan drank coffee/a cup of coffee for an hour/in an hour.’  
 [Slavic, MacDonald, 2012, Ex.9]

MacDonald (2012) concludes that, in languages such as Slavic, the atelic VP yields Q-DP interpretation of the direct object, whereas the atelic VP gives rise to both Q-DP and non-Q-DP interpretations.

Similar facts are observable in Azeri with a reverse morphological pattern. In languages like Bulgarian, the nominal is morphologically marked by a determiner in perfective and imperfective aspects, and receives different (a)telic readings, depending on the aspect in which it is interpreted. In Azeri, on the other hand, the bare noun in telic construction is semantically marked for number, and it is only in atelic structures in which the nominal is ambiguous for number. That is to say, the viewpoint aspect does not impact the number interpretation of the nominal in Azeri, unlike in Slavic.



‘Anu got done collecting \*a book/<sup>OK</sup>books in three hours.’

[Hindi, Dayal, 2011, Ex.32c]

In Azeri, the combination of perfective and completive forces a singular reading similar to Hindi, however including a collective verb does not force a plural marker on the nominal and, as a result, number neutrality is realized. In (279) ‘Aida’ could be collecting one or more books in the course of two hours in her room.

- (279) Aida iki saat /\*saat-da otağ-ın-da kitap yığışdır-dı.  
 Aida two hour /hour-in room-POSS-LOC book collect-PAST.PFV.3SG  
 ‘Aida collected books in her room for two hours.’

Unlike Hindi, Azeri does not have bare plurals. As illustrated in (280), the collective verbs cannot force the bare plural on the noun. The reverse behaviour of Azeri bare nouns in similar contexts arises from the denotation of bare nouns in this language. In previous chapters, I argued that Azeri bare nouns have general number reading and the semantic denotation of such nouns is inclusive. Due to the nature of inclusiveness, the collective verb selects the plural reading of the noun in (279), without the need to force a plural morpheme. Through this, an interesting difference between the bare form of the nouns in Hindi and Azeri is realized. In (279) the perfective and completive forces singular reading in telic predicates but the singular reading is not compatible with a collective verb, and adding a collective verb forces a plural reading.

- (280) Aida iki saat-da otağ-ın-da kitap-lar-ı yığışdır-dı.  
 Aida two hour-in room-POSS-LOC book-PL-ACC collect-PAST.PFV.3SG  
 ‘Aida collected the books in her room in two hours.’

However, if we force a telic context, the combination of the telic and perfective requires a specific reading of the nominal. Since the verb is collective and requires a plural argument, the only specific and plural counterpart of the nominal would be the case marked form in (280).

It should have become clear from chapters 2 and 3 that the locus of number is considered to be on # and not D, contrary to Longobardi (1994), who assumes that number is specified in D and that in the absence of a morphological D, the null head derives an argument from the nominal expression. On the other hand, structurally, the appearance of the accusative marker is optional in Azeri,

as shown in (281-a). However, the presence of a determiner forces the existence of the accusative marker, as in (281-b).

- (281) a. Aida kitap/kitab-ı oxu-yacax.  
 Aida book/book-ACC read-FUT.3SG  
 ‘Aida will read books/the book.’  
 b. Aida hər \*kitab/kitab-ı oxu-yacax.  
 Aida every book/book-ACC read-FUT.3SG  
 ‘Aida will read every book.’

The examples above may seem to be easily explained using incorporation, but I will argue below that incorporation cannot explain number ambiguity in bare forms. In the DP in (281-a), the noun is considered to be part of the verbal complex but the case marked nominal in (281-b) is the complement of the verb and is assigned case. These facts are attested for scope. The bare form in the presence of negation keeps its number ambiguity, as in (282-a), and the case marked noun refers to a salient object, as in (282-b).

- (282) a. Aida kitap/kitab-ı oxu-ma-yacax.  
 Aida book/book-ACC read-NEG-FUT.3SG  
 ‘Aida will read books/the book.’  
 b. Aida hər \*kitab/kitab-ı oxu-ma-yacax.  
 Aida every book/book-ACC read-NEG-FUT.3SG  
 ‘Aida will not read every book.’

We need to pause here clarify a few points regarding the behaviour of the plural morpheme. The Azeri plural morpheme does not appear in indefinite contexts. I explain the reason for such behaviour by repeating the first two rows of table 5.2, here as table 5.5, for the plural. As we can see, for the bare forms, the telic context can only have singular interpretation regardless of the specificity effect. The explanation for the perfective aspect is straightforward: the telic bare form can only be specific, and the only specific interpretation of plural in Azeri is in conjunction with case marking. The unavailability of the plural morpheme for other viewpoint aspects that lack a specificity requirement remains as a mystery at this point.

For Hindi, Dayal (2011) shows that incorporated structures are compatible with telic predicates. The expectation here might be that the incorporated forms

| <i>object</i>    | perfective   | progressive  | habitual  | perfect   | future    |
|------------------|--------------|--------------|-----------|-----------|-----------|
| <i>bare noun</i> | SG/SP-GN/NSP | SG/SP-GN/NSP | GN/NSP    | GN/NSP    | GN/NSP    |
| <i>telic</i>     | SG/SP        |              | SG/NSP    | SG/NSP    | SG/NSP    |
| <i>atelic</i>    | GN/NSP       | GN/NSP       | GN/NSP    | GN/NSP    | GN/NSP    |
| N+PL+ACC         | DEF/PL/SP    | DEF/PL/SP    | DEF/PL/SP | DEF/PL/SP | DEF/PL/SP |
| <i>telic</i>     | DEF/PL/SP    |              |           | DEF/PL/SP | DEF/PL/SP |
| <i>atelic</i>    | DEF/PL/SP    |              | DEF/PL/SP | DEF/PL/SP | DEF/PL/SP |

TABLE 5.5: Interaction of singular and plural nouns with telicity

should be incompatible with telic predicates. Dayal demonstrates that Hindi can establish accomplishment readings for incorporated forms, and that incorporated singular nominals yield a strict singular reading in those cases. This leads Dayal to argue that incorporation in Hindi is of NumP-type in all instances. In other words, number morphology in Hindi is never inert and even in incorporated structures, Hindi selects NumPs over NPs. The evidence for this argument is the fact that the neutral interpretation of incorporated singulars is not available in sentences with accomplishment readings (the combination of telicity and a completive marker). The interpretation of the nominal depends on interpreting the predicate as telic or atelic. As we saw in Hindi, when telicity and collectivity are combined, the singular nominal cannot appear, and the nominal would require a plural marker, even though there is an accomplishment reading. This explains that the bare form of the noun is semantically singular although it is not morphologically overt.

Here is the point at which I diverge from Dayal's argument for Hindi in which she considers the singular noun to undergo incorporation and yield a number neutral reading 'only' as the result of its interaction with aspect. That is to say, the singular reading of the bare noun is expected, unless neutrality is forced by an operator (in all the other cases bare singulars carry strict singular implicatures). In Azeri however, the default interpretation is number neutral, with both telic and atelic predicates. One might want to say that incorporated structures are compatible with telic predicates and such telic events derive a singular reading, but with atelic predicates the reading remains neutral. In Hindi, according to Dayal, both singular and plural interpretation of the bare nominal is available in perfective accomplishments, and the argument is that perfective, just like progressive, is compatible with an iterative or non-iterative interpretation. The former yields a singular and the latter a number neutral interpretation. However, the incorporated nominals behave differently in Azeri. Table 5.6 summarizes the occurrence of bare

nominals with perfective and imperfective aspects in Azeri.

|                    |        |          |                                         |
|--------------------|--------|----------|-----------------------------------------|
| Azeri Perfective   | telic  | singular | non-iterative                           |
|                    |        | neutral  | iterative                               |
| Azeri Perfective   | atelic | singular | single event extends over time          |
|                    |        | neutral  | pluractional operator                   |
| Azeri Imperfective | telic  | singular | single atomic event                     |
|                    |        | neutral  | temporal adverbial quantifies over time |
| Azeri Imperfective | atelic | singular | single event extends over time          |
|                    |        | neutral  | habitual                                |

TABLE 5.6: Azeri number interaction with telicity

Bare nouns in perfective aspect are forced to have clear number interpretation when telicity is available. I claim, following [Borer \(2005b\)](#), that in the presence of  $Asp_Q$ , the nominal gets the choice for number, whereas in the absence of  $Asp_Q$  there is no force for a number distinction and the resulting structure yields an atelic interpretation.

The choice between singular versus plural depends on the other operators in the structure in addition to telicity. For example, the combination of perfective aspect with completive marking and collective verbs forces the choice of plurality.

Since in Azeri we can have both telic and atelic interpretation in perfective and imperfective aspects, the force for number interpretation must come from a different source. The addition of a completive to the perfective aspect forces a singular reading if the noun is bare. To get a plural interpretation here, we need to mark the noun with a plural marker. Collective verbs, however, require the plural form of the noun in perfective aspect.

The singular specific (referential) noun in perfective aspect must receive its reference from somewhere in the context. In the absence of ACC marking, this means that the bare form of the noun can be a DP when it is in the specifier of the  $Asp_Q$  and does not undergo incorporation. Interesting supporting evidence for this phenomenon comes from Hindi, where a collective verb in imperfective aspect can choose either the bare form of the noun or the plural, and in both cases receive a plural reading. However, in the case of perfective or completive

aspect, the bare form of the noun is not possible with the collective verb and only the plural marked form is available. This shows that incorporation is available in imperfective, but in PFV+COMPL, the bare form is marked for singular reading. However, in cases where we do not get referentiality, the structure lacks an  $Asp_Q$ . This raises two questions for Azeri. If the bare noun in specifier- $AspP$  is a DP, then what does the ACC marker do in the language? And how does this DP take form (i.e. where is it in the structure) ?

If we consider all instances in table 5.6 for number marking, bare nouns as the argument of a telic event structure are always singular, but with atelic structures, they are always ambiguous for number. This representation is explained under the notion of  $Asp_Q$  whose specifier gives rise to a subject-of-quantity interpretation, according to Borer (2005b). This is observable in all the telic instances for all viewpoint aspects. The atelic versions of all these cases are number ambiguous due to the absence of a quantity predicate  $Asp_Q$ .

Based on these observations, we can conclude that the bare form of the noun in Azeri is absolutely number neutral and does not lead to range assignment to the open value  $\langle e \rangle_{\#}$ . This was the conclusion I reached in chapters 2 and 3. Inserting the viewpoint aspect into the structure there is no tendency to choose singularity over neutrality, and a plural interpretation is never driven. It is only in telic contexts that a singular interpretation is available.

In Borer's specifier-head agree configuration, when  $Asp_Q$  is projected, and has quantity feature  $\langle e \rangle_{\#}$  (either via direct range assignment to  $Asp_Q$  or an adverb of quantification), it can transmit  $\langle e \rangle_{\#}$  value to the noun in the specifier position and create a subject-of-quantity. This is the the case for Azeri bare nominals that receive specific and singular interpretation in perfective aspect in the presence of 'in x time'.

For the rest of the non-bare forms, it is observable from table 5.2 that all nouns marked with the numeral 'bir' or the accusative marker are necessarily singular.

All the accusative marked cases reflect a definite-specific and singular interpretation. I argue that the ACC case is assigning range to  $\langle e \rangle_{div}$ ,  $\langle e \rangle_{\#}$  and  $\langle e \rangle_d$ . The accusative marker makes plural marked structures specific/definite as well. When the ACC marker is present in the DP, the specifier of the  $Asp_Q$  will transmit  $\langle e \rangle_{\#}$  value to the  $Asp$ -head and create a quantity predicate. There is no



movement in accusative marked cases, since the agree configuration is established, and the DP is the subject of quantity on its own.

Numeral ‘bir’, assigns range to  $\langle e \rangle_{div}$ ,  $\langle e \rangle_{\#}$  and  $\langle e \rangle_d$ . Since ‘bir’ is a numeral and has a number feature on it, marked nominals are always singular. This is true for all the viewpoint aspects. In these cases, similar to case marked objects, I propose that the noun is subject of quantity and there is no need for it to move to the specifier of *AspQ*. Therefore the  $\langle e \rangle_{\#}$  feature will be transmitted to *Asp*-head to create a quantity predicate.

The similarity in the behaviour of the accusative marker and the numeral ‘bir’, explains that they are both assigning number to the head noun, even though they differ in certain other features that they assign to the noun. Hence, considering that both ‘bir’ and the accusative marker are able to assign number, the occurrence of both, at the same time, is to assign a feature that either of them cannot assign alone. This brings our attention to the way specificity is marked in all the bare and overtly marked cases for number. It is obvious that the accusative marker contributes to a definite and specific interpretation of the noun. Whether ‘bir’ contributes to a non-specific interpretation is not clear, since we get both specific and non-specific readings.

Moreover, there is an asymmetry in specificity marking between the perfective aspect and the rest of the viewpoint aspects. An important note is that the specificity effect does not interact with inner aspect, but can appear from interaction with the viewpoint aspects. The assumption is that, the bare noun is non-specific by default and needs to be overtly marked by a determiner or a case marker to become specific. Nevertheless, the bare form in a telic and perfective environment becomes automatically specific. This behaviour, I argue, is compositional – the result of the combination of the perfective with telicity. To clarify further, I do not imply that perfectivity is aligned with telicity and perfective forms are telic, but that the compositionality effect I address here only arises when telicity and perfectivity come together.

It is noteworthy that the specific interpretation of non-bare nominals is observed in all combinations of the event structure and the perfective aspect. There is only one exception that yields a non-specific interpretations. Such an asymmetry is expected when atelicity and the indefinite numeral ‘bir’ are combined. The combination of both atelicity and ‘bir’ derives a non-specific interpretation of the

nominal. However, this is not observed when the accusative marker is present in combination with ‘bir’ and atelicity. In this case, there is one more feature that is stacked with the other two, and this feature forces a specific interpretation in the structure (and the resulting interpretation is specific).

The behaviour of the perfective aspect is distinct from all the other aspects and it requires an independent explanation. Habitual, perfect, and future aspects, in contrast, share several features that I will explain altogether. Imperfective has no significant representation in an (a)telic event structure and is therefore not developed in the discussion.

The interpretation of the bare noun in an (a)telic event structure for the habitual, perfect, and future aspects remains non-specific. This behaviour is expected for the bare noun, since bare nominals are unspecified for number and specificity. The addition of the accusative marker turns all nouns in all aspects into definite and specific singulars. Adding the numeral ‘bir’ requires further explanation, since it forces a non-specific interpretation of the noun, even in a telic event structure. Nevertheless, the non-specific interpretation under the influence of ‘bir’ arises from its enforcing indefiniteness.

The most dispersed pattern is observed for the combinations of ‘bir+N+ACC’. For the habitual aspect, both telic and atelic event structures yield a non-specific interpretation. Looking at all forms of the noun that are morphologically marked or unmarked, the habitual aspect derives a non-specific interpretation of the nominal due to being iterative. The iterativity is not observable in perfect and future aspects, and the presence of the accusative marker can enforce a specific interpretation of the nominal in a telic event structure. As a result, it is not surprising to see the availability of the specific interpretation of the nominals in atelic event structures under the influence of accusative case marking.

Furthermore, for plurals, [Borer \(2005a\)](#) argues that the plural marker creates individuals, i.e. assigns individuation, rather than marking number on the noun. For that reason, the plural marked noun in English can ONLY be interpreted in atelic constructions, meaning that the plural noun is unspecified for number and cannot appear in telic contexts. In contrast, in Azeri plural marking, the plural is only used in telic structures, and the plural ONLY marks number. The join semi-lattice interpretation of plurality (inclusiveness) in English is comparable to

the bare noun (general number reading) in Azeri and supports the argument that the exclusive plural is the marker for number and not individuation in Azeri.

## 5.10 Summary

In sum, the facts discussed in this chapter show that in Azeri, the bare form of the noun is absolutely number neutral. That is to say, unlike in English, bare nouns in Azeri do not have range assignment to the open value  $\langle e \rangle_{\#}$  and instead create a *DivP*. This was the conclusion that I reached in chapters 2 and 3. In telic environments, the singular interpretation is available, whereas atelic contexts yield number ambiguity. Bare nouns in Azeri exhibit similar behaviour to bare plurals in English, in which the bare plural is argued to have a cumulative reference and hence appears in atelic environments (de Swart, 2016). The connection between (a)telicity and number is realized in bare nouns only, since the accusative or number marked forms are all quantized in nature and appear equally in both telic and atelic environments.

Following Borer (2005b), I argued that the singular reading of the bare noun corresponds to the projection of  $Asp_Q$ . When  $Asp_Q$  is projected, it gives rise to a telic predicate.  $Asp_Q$  is assigned range indirectly by the adverbial in Azeri and transfers the quantity feature to the noun via a spec-head agree relation. In instances where accusative case marking or a numeral is present, range assignment to the noun is done by an f-morph. Being already a quantity, such a nominal has a specific and singular number on it. Therefore, when the  $Asp_Q$  gets projected, the corresponding structure will receive a telic reading, whereas in the absence of  $Asp_Q$ , an atelic reading arises.

On the other hand, by inserting viewpoint aspects into the structure, there is no tendency to choose singularity over neutrality and the plural interpretation is never driven. The only observable difference is in a specific or non-specific interpretation of the nominal. Specific nouns in perfective aspect are the result of the compositionality effect of telicity and perfective aspect. Iterativity forces a non-specific interpretation of the nominal in both telic and atelic predicates. As there is no consistency in the specific or non-specific interpretation of the argument structure in perfect and future aspects, I explained each case with respect to the morphological structure of the nominal in the argument structure.

## Chapter 6

### Summary and concluding remarks

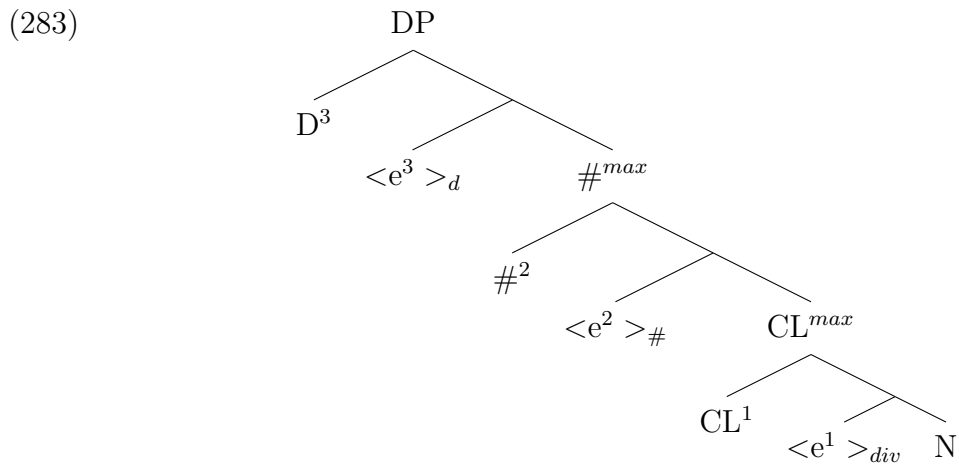
In my dissertation, I explored a number of interesting puzzles which have been frequently discussed in the literature of nominals. I addressed questions such as: How is number licensed in languages, and how is it accounted for in the theory of syntax? How do languages distinguish between count and mass in their grammars? What is the role of classifiers? What is the interaction between aspect and numerability in languages?

After exploring the literature on these questions, and in order to answer my questions, I adopted the Exo-Skeletal model ([Borer, 2005a](#)) as my framework. Exo-Skeletal model roots in Borer's ([2003](#)) work, in which she compares a lexical driven approach with a syntax driven approach. In the lexical driven approach, called the Endo-Skeletal approach the lexicon carry formal properties, fully articulate lexico-semantics ([Borer, 2003](#)). As opposed to the Endo-Skeletal view, [Borer \(2003\)](#) introduces the Exo-Skeletal model that argues for a strong computational position. In the Exo-Skeletal model, formal properties of the lexicon are reduced to a larger extent, and the structure, comparatively, carries a heavier weight.

Borer's ([2005a](#)) structuring sense, considers lexical items to be open class items in need of formal properties, and that they need to be assigned grammatical properties. That is to say, a listeme is only a sound-meaning pair. Borer's Exo-Skeletal model is comparable in approach to the Extended Standard Theory, and considers syntactic structures to provide unambiguous formulas for semantics to interpret. Semantic interpretations are assigned by functional projections that are rich in grammatical properties, and can assign their properties to the lexical

items without an inherent category. The lexicon inherits its properties from the dominating functional structure.

The nominal spine in Borer's framework starts by a lexical item category N, and it receives range by the functional element higher in the structure. The range assignment can be either direct or indirect, and it assigns formal properties to the category N. Depending on the type of the functional category, the semantic interpretation of the structure will vary. The completed form of the structure in the Exo-Skeletal model is illustrated in (283). The  $CL^{max}$  is a category that assigns division to the head noun. In English-type languages functional categories such as plural marker, and in Chinese-type languages a numeral classifier is responsible for this range assignment. The higher category  $\#P$ , projects number and hosts functional categories such as numerals and quantifiers. The highest projection DP, assigns a definiteness interpretation.



[Borer, 2005a, Ex.27, P.109]

The second main account that I consider in the study of bare nominals is Chierchia (1998a). The denotation of a singular noun is considered by Chierchia to correspond to the set of atoms that satisfies the property expressed by the noun. Singular individuals, according to Chierchia, form the atoms of the domain of quantification, in which “they have only themselves as ‘subgroups’” (p.345), whereas plurals consist of a function that applies to the sets of atoms, and as a result, turns them into sets of pluralities. The distinction between mass and count nouns according to Chierchia, arises from their number interpretation. That is to say, nouns are either singular or plural in their content. The mass noun is the “neutralization of the singular/plural distinction” (Chierchia, 1998b, p.347). The

real distinction between the count and mass noun is in their atomicity according to Chierchia. Atomicity is described as being individuated in Borer's account. Borer (2005a) and Chierchia (1998b) view mass nouns very similarly and in both accounts, mass nouns are required to be individuated (although the process of the individuation are different in both) to receive number.

I examined Azeri bare nouns in Chierchia's (1998b) and Borer's (2005a) frameworks. Extending Borer and Chierchia's analysis of count and mass nouns, in chapter 2, I have shown that Azeri distinguishes between count and mass nouns and unmarked nouns are ambiguous for number, and are not number neutral. Additionally, bare count nouns do not project for number, and the lack of number licenses the projection of general number reading in the language. In chapter 2, I showed that Azeri does not have dedicated classifiers or plural markers in the language to mediate individuation, unlike Borer (2005a). Neither the classifier, nor the plural marker is used to show individuation in Azeri. The null individuator, I propose, yields general number interpretation. This proposal considers the plural morpheme to mark plurality instead of individuation.

Showing that individuation is morphologically null in Azeri, in chapter 3, I explain the distinction in the behaviour of the plural marker, compared to previous studies. To achieve my goal I have provided comparison with other studies. I argued that the plural marker in Azeri is inflectional, and as a result, it does not map with the inflectional plural marker in English. I further argue that, the plural morphology belongs to a higher category in the structure of the noun phrase and it is generated on the #P. This position is argued by Mathieu (2014) to host a counting plural interpretation. The plural in this position has an exclusive interpretation.

A further challenge that is discussed in chapter 4, is the co-occurrence of the plural marker and the classifier that is unexpected in the Exo-skeletal model. I have provided evidence that the optional classifier in Azeri is not generated as an individuator, unlike numeral-classifier languages (Borer, 2005a), and its presence is not mandatory, to make the noun countable. Instead, I propose that the classifier in Azeri-type languages generate in a higher projection, above the number head (#P). I labeled this higher head a Cluster Phrase (*CluP*) since it turns the individuated and/or plural noun in bundles, that can be counted. I argue that cluster head selects already individuated units, and not atoms. I explain that the dependency between the cluster and numeral in Azeri is the result of s-selection.

The last puzzle on the interpretation of number in Azeri is discussed in chapter 5, the interaction of the bare noun with aspect. The bare noun in Azeri appears in structures similar to its phrasal counterpart in relation to aspect. I assume (considering [Borer, 2005a](#), and the fact that bare nouns in Azeri are not really bare), that Azeri bare nouns do not undergo noun-incorporation and it is pseudo-noun-incorporation that occurs in the language. Furthermore, I focus on the interaction of number and aspect that includes the structural (inner) aspect and view point aspect in Azeri. I have explored (a)telic interpretation of the event predicate in previous studies and have learned that atelic interpretation of the predicate arises in cases where the argument structure is not marked for case, whereas the case marked forms are always telic. In chapter 5, I show that the bare noun in Azeri exhibits the opposite behaviour, and the argument structure which is not marked for case can appear in telic and atelic event structures. That is to say, the bare form of the noun appears in telic and atelic contexts, and derives singular or number ambiguous interpretations respectively.

Following [Borer \(2005b\)](#), I argue that the singular (and specific) reading of the bare noun in perfective aspect, is connected to the projection of  $Asp_Q$  (i.e. the syntactic projection responsible for telic interpretation according to [Borer 2005a](#)). When  $Asp_Q$  is projected, it gives rise to a telic predicate.  $Asp_Q$  is assigned range indirectly by the adverbial in Azeri and transfers the quantity feature to the noun via spec-head agree relation. In the presence of the accusative case marker, the range assignment to the noun occurs through an f-morph. In cases with the accusative marker, the nominal is already a quantity, and has a specific and singular number on it. If  $Asp_Q$  gets projected, the corresponding structure will get a telic reading and in the absence of it, an atelic reading will arise.

# Appendix A

## Further data

### Progressive

- (284) Aida siçan tut-ur.  
Aida mouse catch.PROG.3SG  
'Aida is catching mice.' [a particular mouse/any one mouse/different mice]
- (285) Aida iki saat-dir siçan tut-ur.  
Aida two hour-long mouse catch.PROG.3SG  
'It has been two hours since Aida is catching mice.' [a particular mouse/any one mouse]
- (286) Aida siçan-ı tutur.  
Aida mouse-ACC catch.PROG.3SG  
'Aida is catching the mouse.' [a unique familiar mouse]
- (287) \*Aida iki saat siçan-ı tutur  
Aida two hour mouse-ACC catch.PROG.3SG  
(intended)'Aida is catching the mouse for two hours.' [a particular mouse]
- (288) Aida hər gün iki saat siçan-ı tut-ur  
Aida every day two hour mouse-ACC catch.PROG.3SG  
'Aida is catching a mouse for two hours everyday.' [a unique familiar mouse]



- (289) Aida hər gün iki saat siçan tut-ur  
 Aida every day two hour mouse catch.PROG.3SG  
 ‘Aida is catching mice every day for two hours.’ [one or more different mice]

- (290) Aida hər gün bir siçan tut-ur  
 Aida every day one mouse catch.PROG.3SG  
 ‘Aida is catching one mouse every day.’ [any one mouse]

#### Habitual

- (291) Aida hər gün iki saat siçan tut-ar  
 Aida every day two hour mouse catch.HAB.3SG  
 ‘Aida catches mice for two hours every day.’ [a mouse or more different mice]

- (292) Aida hər gün iki saat siçan-ı tut-ar  
 Aida every day two hour mouse-ACC catch.HAB.3SG  
 ‘Aida catches the same mouse for two hours every day.’ [the unique familiar mouse]

- (293) Aida hər gün bir siçan tut-ar  
 Aida every day one mouse catch.HAB.3SG  
 ‘Aida catches one mouse every day.’ [any one mouse each day]

#### Perfect:

- (294) Aida bütün gün siçan tut-up  
 Aida all day mouse catch.PF.3SG  
 ‘Aida has caught mice all day.’ [a mouse or any different mice]

- (295) Aida bütün gün bir siçan tut-up  
 Aida all day one mouse catch.PF.3SG  
 ‘Aida has caught one mouse all day.’ [any one mouse]

#### Future:

- (296) Aida sabah siçan tut-acax  
Aida tomorrow mouse catch.FUT.3SG  
'Aida will catch mice tomorrow.' [one or more different mice]
- (297) Aida sabah iki saat siçan tut-acax  
Aida tomorrow one hour mouse catch.FUT.3SG  
'Aida will catch mice for two hours tomorrow.' [one or more different mice]
- (298) Aida sabah siçan-ı tut-acax  
Aida tomorrow mouse-ACC catch.FUT.3SG  
'Aida will catch the mouse tomorrow.' [a unique familiar mouse]
- (299) Aida sabah bir siçan tut-acax  
Aida tomorrow one mouse catch.FUT.3SG  
'Aida will catch a mouse tomorrow.' [one random mouse]

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