The Universality of Concord

by

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Abstract

In this dissertation, we develop and defend a universal theory of concord (i.e. feature sharing between a head noun and the modifying adjectives).

When adjectives in a language show concord with the noun they modify, concord morphology usually involves the full set of features of that noun (e.g. gender, number and case). However, there are also languages in which concord targets only a subset of morphosyntactic features of the head noun. We first observe that feature combinations that enter into concord in such languages are not random. We then show that this observation can be explained with a theory of concord that has the following properties: (i) concord is obligatory whenever phasal domains are inactive (the *obligatoriness* claim) and (ii) languages that lack concord have a phasal Noun Phrase (the *phase* claim). We provide evidence supporting these claims.

The *obligatoriness* claim leads to two predications: (1) idiosyncratic gender languages are gender concord languages and (2) languages with *pluralia tantum* nouns are plural concord languages. We show that these predictions are empirically supported.

The *phase* claim implies that a language lacks overt manifestation of concord only if it has a phasal NP. We show that, due to the phasal status of NP, non-concord languages exhibit the following properties: (1) AP movement out of NP is not possible, (2) the Num head need not be obligatory in the extended projection of a noun (leading to number neutrality) and (3) nominal inflectional elements can be shared between coordinated nouns. We provide evidence supporting these claims.

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List of Abbreviations

1/2/3	First/Second/Third Person
ABL	Ablative case
ABS	Absolutive case
ACC	Accusative case
AGR	Agreement
AN	Animate
AOR	Aorist
ART	Article
AUX	Auxiliary
C	Complementizer
CAUS	Causative
CL	Classifier
COLL	Collective noun
COM	Comitative
COND	Conditional
COP	Copula
COR	Correlative
DAT	Dative case
DEC	Declarative
DEF	Definiteness
DEM	Demonstrative
DIM	Diminutive
DIR	Direct
DU	Dual
ERG	Ergative case
F	Feminine
FOC	Focus
FUT	Future
GEN	Genitive case
H	Human
IMPF	Imperfective
INCH	Inchoative
INA	Inanimate
INESS	Inessive
INF	Infinitive
INST	Instrumental case
L	Linker
LOC	Locative case
M	Masculine
N	Neuter
NA	Nominal Agreement
NEG	Negation
NH	Non-human
NMZ	Nominalizer

NOM	Nominative case
OBL	Oblique case
PAST	Past tense
PERF	Perfective
PL	Plural
PRED	Predicate marker
PRES	Present tense
PROG	Progressive
Q	Question
REFL	Reflexive
REL	Relative clause
SG	Singular
SUBJ	Subjunctive
TOP	Topic marker
VA	Verbal agreement

CHAPTER 1

Introduction

1.1.The Universality of Concord

In many languages of the world, we observe that multiple elements within an expression share morphosyntactic features. Arguments and predicates often show agreement in features such as person, gender and number. In addition, attributive adjectives and nouns sometimes share values for gender, number and case. This second phenomenon will be referred to as *concord*. Russian is a concord language.

(1) a. nov-yj žurnal
new-M magazine
'new maganize'

b. nov-aja kniga
new-F book
'new book'

c. nov-oe pis'mo
new-N letter
'new letter'
(from Corbett, 1991 p. 106)

In Turkish, on the other hand, adjectives cannot show concord for number or case features.

(2) şirin(*-ler-e) küçük(*-ler-e) köpek-ler-e
cute(-PLU-DAT) small(-PLU-DAT) dog-PLU-DAT
'to cute small dogs'

It is usually thought that languages like Turkish simply lack the mechanism for concord. In this dissertation, we argue that this is not the case. We suggest that the mechanism for concord is uniform across grammars of natural languages. In a language like Turkish, the overt realization of concord is suppressed by the intervention of phasal domains, for which we provide independent evidence.

If adjectives in a language show concord with the noun they modify, concord morphology usually involves the full set of features of that noun (e.g. gender, number and case). In Chapter 2, we observe that there are also languages in which only a subset of these features trigger concord (*partial concord languages*). The feature combinations that enter into concord in such languages are not random. Rather, partial concord languages obey the Concord Hierarchy Generalization given in (3):

(3) The Concord Hierarchy Generalization
There is a hierarchy among gender, number and case features
(case >> number >> gender) such that
the presence of concord for some feature in a language L implies
the presence of concord for every feature in L that is lower in the hierarchy

We show that this generalization is explained with a theory of concord that has the following properties:

(4) a. The mechanism for concord is uniform across the grammars of the world's languages
b. The overt manifestation of concord is suppressed by the intervention of phasal domains

This theory has two immediate consequences. It predicts that (i) adjectival concord is obligatory whenever phasal domains are inactive and (ii) languages that lack concord have a phasal Noun Phrase (NP). In this dissertation, we show that these predictions are supported by empirical evidence.

In Chapter 3, we argue for the universality of concord. To do so, we examine the interaction between gender features and concord. In some languages, the majority of nouns are assigned a gender with no semantic criteria (*idiosyncratic gender languages*). We take nouns in such languages to be lexically specified with a gender feature. We show that if a noun comes from the lexicon with a gender feature, then the presence of a phasal domain is incapable of blocking this feature from appearing on adjectives. Given the universality of concord, we make the prediction given in (5):

(5) Idiosyncratic Gender Generalization
If a language has an idiosyncratic gender system,
Then this language has gender concord on adjectives

We provide a survey of languages from *The World Atlas of Language Structures* (WALS) that suggests that this prediction is empirically supported.

In Chapter 4, we provide evidence for the claim that NP in non-concord languages is a phasal domain. We study the interaction between adjective movement and concord. We show that movement of an Adjective Phrase (AP) out of NP is not possible when NP is a phasal domain. Since NP in non-concord languages is a phasal domain, we expect non-concord languages to disallow AP movement out of NP. We provide evidence for this claim from various non-concord languages. We finally show that several constraints on the placement of the polar question particle in Turkish can be explained if NP in Turkish is a phasal domain.

In Chapter 5, we study the interaction between number and concord. In the first part of this chapter, we show that if a language has *pluralia tantum* nouns (i.e. nouns that only have a plural form), then NP in such a language cannot be phasal. Given the universality of concord, such languages are expected to show number concord on adjectives.

(6) *Pluralia tantum* and concord
If a language has *pluralia tantum* nouns
Then this language has number concord on adjectives

The inverse of this prediction is also expected to hold: if a language lacks number concord, then it cannot have *pluralia tantum* nouns. We test these predictions in the context of Uralic languages that minimally differ in having number concord and/or *pluralia tantum* nouns. We show that these languages behave as predicted by the theory we have developed. In the second part of this chapter, we study languages in which nouns can be used in a number neutral way (unspecified for singularity or plurality). We formalize number neutrality as optionality of the Num head in the extended projection of a noun. We claim that plural concord languages cannot have this property. We show that languages that might be considered to be counter-examples to this generalization lack genuine number neutrality.

There are languages in which nominal inflectional morphemes can be shared between two coordinated nouns (*suspension constructions*) as in (7). In Chapter 6, we study the interaction between suspension constructions, and concord.

(7) [kedi ve köpek]-ler-e
cat and dog-PLU-DAT
'to cats and dogs'

We show that, given the theory of concord developed here, suspension of a morpheme is possible only if the feature expressed by this morpheme does not enter into concord. That is, we make the predictions in (8):

(8) Concord-Suspension Complementarity
   a. If a feature [f] enters into concord, suspension of the morpheme that expresses it is not possible.
   b. If a morpheme that expresses a feature [f] can be suspended, then the feature [f] does not enter into concord.

We show that Concord-Suspension Complementarity is empirically valid. This generalization provides further evidence for the theory of concord developed here.

In Chapter 7, we discuss some extensions of the theory of concord developed in this dissertation.

CHAPTER 2

The Concord Hierarchy Generalization

2.1. Introduction

If adjectives in a language show concord with the noun they modify, concord morphology usually involves the full set of features of that noun (e.g. gender, number and case). We have already seen, for example, that in Russian within a nominal expression, adjectives and nouns must agree in gender, number and case values.

(1) a. èt-im posledn-im dvu-m krasiv-ym stol-am
these-DAT.PL last-DAT.PL two-DAT.PL beautiful-DAT.PL table-DAT.PL
'to these last two beautiful tables'
(from Pesetsky, 2013 p.3)

b. nov-yj žurnal
new-M magazine
'new maganize'

c. nov-aja kniga
new-F book
'new book'

d. nov-oe pis'mo
new-N letter
'new letter'
(from Corbett, 1991 p. 106)

There are also languages in which only a subset of these features shows concord. For instance, as we discuss later in detail, in Kubachi, as described by Vamling and Tchantoria (1991), adjectives agree with the head noun only in gender and number but not case. In Bangla (Ishani Guha, personal communication) and Shughni (Edelman and Dodykhudoeva, 2009), some adjectives show concord for gender but no adjective shows concord for number or case. In Udmurt (Winkler, 2001), adjectives exhibit concord for number but not case (and gender is not a grammatical category at all). The main observation is that the feature combinations that enter into concord are not random. The patterns we find are summarized in the following table.

Table 2.1. Concord Patterns

	Gender Concord	Number Concord	Case Concord
Russian	Yes	Yes	Yes
Kubachi	Yes	Yes	No
Udmurt	Not Applicable	Yes	No
Bangla	Yes	No	No
Shughni	Yes	No	No
Turkish	Not Applicable	No	No
Tamil	No	No	No

Table 2.1. suggests the following generalization.

(2) The Concord Hierarchy Generalization
There is a hierarchy among gender, number and case features
(i.e. case >> number >> gender) such that
the presence of concord for some feature in a language L implies
the presence of concord for every feature in L that is lower in the hierarchy

We develop a theory of concord that derives the Concord Hierarchy Generalization. To do so, we adopt the rule of Feature Assignment (to be explicated below) of Pesetsky (2013:8) as the *universal* mechanism resposible for concord. This rule interacts with language-specific phasal domains, which explains the linguistic variation we see in *Table 2.1*. Crucially, none of the patterns that contradict the Concord Hierarchy Generalization can be derived.

2.2. Syntactic Assumptions

We now spell out our assumptions about the syntactic representation of gender, number and case features. The explanation we develop for the Concord Hierarchy Generalization makes use of asymmetries in the representation of these features.

We make a distinction between idiosyncratic and semantic gender systems.[1] In an idiosyncratic gender system, many nouns (especially inanimate nouns) are assigned genders with no clear semantic criteria. For instance, many inanimate nouns in Russian are assigned feminine or masculine gender (table reduced from Corbett, 2013).

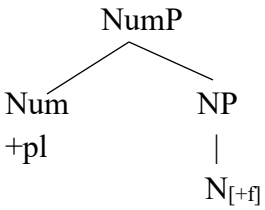
Table 2.2. Idiosyncratic Gender in Russian

Masculine		Feminine		Neuter	
žurnal	'magazine'	gazeta	'newspaper'	pis'mo	'letter'
stul	'chair'	taburetka	'stool'	kreslo	'armchair'
avtomobil	'car'	mašina	'car'	taxi	'taxi'
ogon'	'fire'	peč'	'stove'	plamja	'flame'
glaz	'eye'	ščeka	'cheek'	uxo	'ear'
lokot'	'elbow'	lodyška	'ankle'	koleno	'knee'
čas	'hour'	minuta	'minute'	vremja	'time'

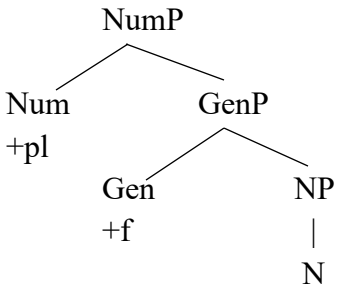
We assume that in an idiosyncratic gender system, gender is lexically specified for nouns (see Norris, 2011 and Baker, 2008 for similar assumptions). We further assume that, in a language with a semantic gender system, gender is introduced by a functional head.[2] Number is introduced by a functional projection in the extended projection of the noun (Ritter, 1991, Carstens, 1991, 2000 and Norris, 2011) and is higher than gender. The syntactic representation of a nominal expression with gender and number is shown in (3).[3]

[1] This distinction between idiosyncratic and semantic gender systems will be explicated further in the next chapter where we discuss the Idiosyncratic Gender Generalization.
[2] In Chapter 3, where we discuss gender and concord, we provide independent evidence for this assumption.
[3] See Chapter 7 section 2 for a discussion of whether the generalizations developed in this dissertation could be explained under different syntactic assumptions.

(3) An Idiosyncratic Gender System

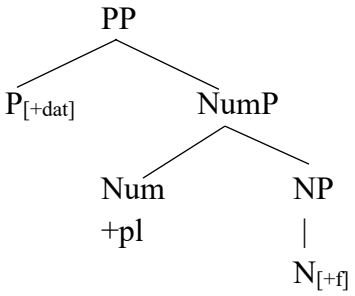


A Semantic Gender System



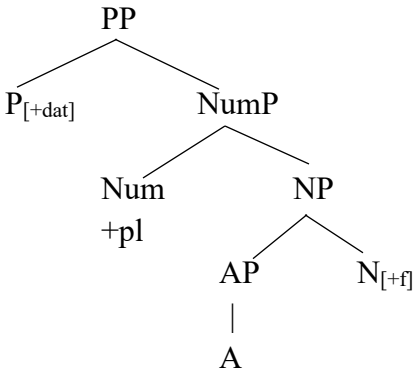
Case is assigned to a phrase from various sources (prepositions or verbs). Crucially, it is introduced higher to the structure than both number and gender.

(4) P (or V) as the case source



Adjectives are merged with nouns. That is, adjectives are introduced lower in the structure than the aforementioned functional projections.

(5) Adjective Phrases (APs)



Under these assumptions, the asymmetry among the morphosyntactic features is *structural*. That is, case is introduced higher in the structure than number and gender, and number is introduced higher in the structure than gender.[4] We now show that the Concord Hierarchy Generalization can be derived from these asymmetries. To do so, we adopt the theory of concord developed in Pesetsky (2013). Pesetsky (2013:8) proposes that the mechanism for concord is the rule of Feature Assignment (FA) that is concomitant with the Merge operation.

(6) Feature Assignment (FA)

a. Copying: when α merges with β, forming [$_{\alpha}$ α β], the grammatical features of α are immediately copied on β

b. Realization: …and are realized as morphology on all lexical head items dominated by β

Notice that 'α' might be a phrase (for instance it might an N' with which an AP is merged). The gender feature belongs to a head – not to the phrase. We will use a convention in which the feature on a head is copied onto any projection of this head. We call this rule *Feature Projection*.

(7) Feature Projection

When φ is a projection of ψ and k is a set of features

INPUT	OUTPUT
φ	φ[k]
|	|
ψ[k]	ψ[k]

[4] Koopman (2003) proposes a hierarchy of functional heads. such that CaseP is higher than NumP and NumP is higher than GenP. That is, there is a syntactic/configurational difference between the heads that host these features. For Koopman, the extended projection of the noun looks as follows:

(1) [CaseP [NumP [GenP [NP]]]]

In Chapter 3, we also provide independent evidence for the presence of GenP.

The copying of a feature from a phrasal category to every lexical head item dominated by this category is handled by successive application of Feature Assignment.

(8) Feature Assignment
When φ dominates ψ, and i and k are sets of features

INPUT	OUTPUT
$\varphi_{[i]}$	$\varphi_{[i]}$
|	|
$\psi_{[k]}$	$\psi_{[i \cup k]}$

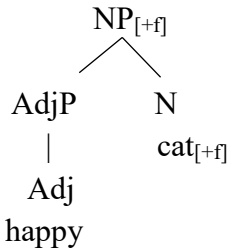
The notation '$\varphi_{[i \cup k]}$' is to be read as follows: the node that is labelled by 'φ' and that has the feature set obtained by taking the union of *i* and *k*, where each of *i* and *k* is a set of morphosyntactic features.[5] To show how these rules work, we provide a sample derivation for a hypothetical language in which there is gender, number and case concord on adjectives (for instance, Russian). We use English words for ease of exposition. This is a language in which gender features are lexically idiosyncratic on nouns. The expression we derive has the following gloss:

(9) to happy-F-PLU-DAT cat-F-PLU-DAT
'to happy cats'

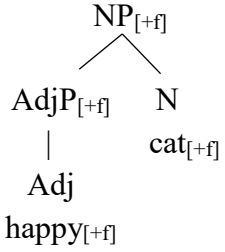
[5] In this dissertation, we assume that each functional head hosts a single feature. More than one feature can be collected on a head only after the application of Feature Assignment.

(10) Sample Derivation

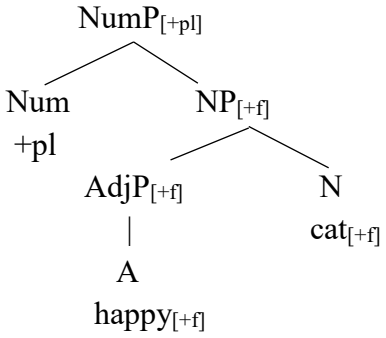
1. Select a noun
2. Merge N and AP
3. Apply Feature Projection



4. Apply Feature Assignment

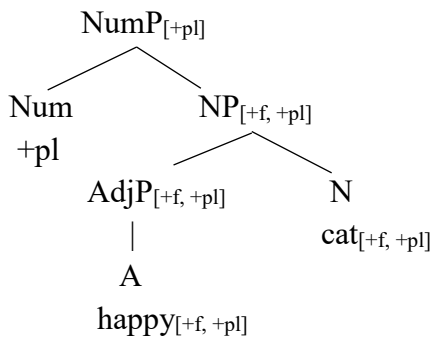


5. Merge Num and NP
6. Apply Feature Projection[6]

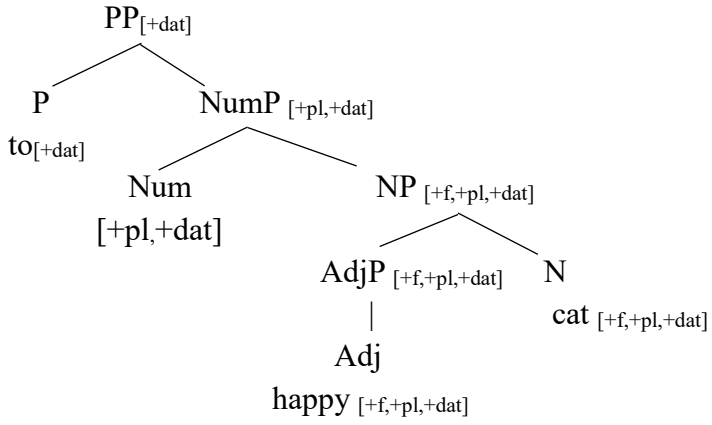


[6] Note that the feminine feature on the NP cannot be copied onto the NumP since Feature Projection is only defined for projecting categories. NumP is a projection of Num and not NP.

7. Apply Feature Assignment (successively)



8. Merge P and NumP
9. Apply Feature Projection
10. Apply Feature Assignment (successively)



The sample derivation above can be thought as the derivation of a Russian nominal expression in which the adjective agrees with the noun in gender, number and case. Notice that the plural feature is copied onto the adjective and the noun. As a result, it will be realized on both the adjective and the noun. However, the plural feature in the Num head position will not be realized.[7] To account for this, we propose the rule of pronunciation in (11)

[7] If the plural feature were also realized in the Num head position, the plural in a concord language would get expressed in three distinct positions: on the noun, on the adjective and on the noun phrase. Yet, what we observe is that the plural feature is expressed only on the noun and on the adjective and not on the noun phrase.

(11) A Rule of Pronunciation

If a feature [f] is copied to lexical elements (noun or adjective), then the feature [f] is realized only on the lexical elements.[8]

Otherwise, [f] is only realized in its original position

If the rules of Feature Projection and Feature Assignment were universals with no constraints on them, we would expect every language to overtly exhibit concord in gender, number and case. However, this is not what we observe. We have already seen that some languages exhibit partial concord (constrained by the Concord Hierarchy Generalization). Moreover, some languages exhibit no concord at all. We need a mechanism to constrain the overt effects of these rules in a way that generates the attested patterns and blocks those that are not attested.

We assume that the rules of Feature Projection and Feature Assignment are indeed uniform across grammars of natural languages.[9] To capture the restricted variability of nominal concord, we make use of phasal domains. What a phasal domain does is that it "establishes and fixes the pronunciation the terminal elements of a phase, and sends this information from the syntax to phonology, where it may not be altered by any subsequent operation of the syntax, including F[eature] A[ssignment]" (Pesetsky, 2013: 88). We assume that languages *differ* in which category they choose as the nominal phasal domain and show that this explains the restricted typology described by the Concord Hierarchy Generalization. The interaction of phasal domains with the rules of Feature Projection and Feature Assignment is regulated as in (12)[10]

(12) Timing of operations relevant to Spell Out of a phasal αP

Step 1. Construct αP

Step 2. Merge (β, αP)

Step 3. Spell Out αP

Step 4. Apply Feature Projection and Feature Assignment

[8] In a concord language, an adverb modifying an adjective does not show concord. How should we explain this observation? One possibility is to assume that certain categories are unable to express morphosyntactic features by their inherent properties. Adverbs do not show concord for gender, number and case because they are not of the right category to express the relevant morphosyntactic features. One might also claim that adverbs are not lexical the same way adjectives and nouns are. Making the relevant distinctions is left as a task for future work.

[9] In later chapters, we defend this claim extensively.

[10] The text of (12) is adopted from Pesetsky (2013: 88) with slight modifications about ordering of operations.

When Spell Out applies to a phasal αP, any constituent that is not at the edge of αP gets spelled out. That is to say, given a phasal αP, the Spell Out domain of αP is not only the sister of α. The Spell Out domain of αP is any constituent that is not at the edge of αP. When Spell Out applies to an NP, all the adjectives dominated by this NP gets spelled out, too. (We show in Chapter 4 that an AP cannot be at the edge of an NP).[11]

2.3. Deriving the Concord Hierarchy Generalization

We now show how the interaction of the Spell Out operation with the rules of Feature Projection and Feature Assignment derives *all and only* the attested patterns. We start with a non-concord language: Turkish. This language lacks grammatical gender completely. Number and case are the only inflectional categories.

(13)

	SING	PLU	
NOM	okul	okul-lar	`school(s)'
ACC	okul-u	okul-lar-ı	`school(s)'
DAT	okul-a	okul-lar-a	`to school(s)'
GEN	okul-un	okul-lar-ın	`of school(s)'
LOC	okul-da	okul-lar-da	`at school(s)'

Within a Turkish nominal expression, there is no morphologically visible feature covaluation between adjectives and the head noun in terms of number or case. That is, Turkish is not a concord language.

(14)

Küçük(*lere)	şirin(*lere)	köpek-ler-e	doğru	yürü-dü-k.
Small(*PLU.DAT)	cute (*PLU.DAT)	dog-PLU-DAT	towards	walk-PAST-1PL

'We walked towards small cute dogs'

We need a mechanism by which adjectives are protected from the rule of Feature Assignment. This result can be achieved with the assumption that in Turkish, NP is a phasal domain:[12]

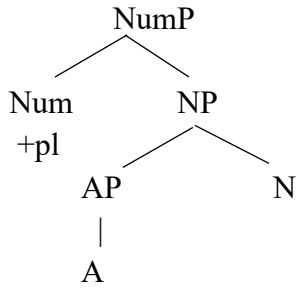
(15) In Turkish, NP is a phasal domain.

[11] At this point, one might ask which phrases can be at the edge of NP. See Chapter 4 for discussion.
[12] In later chapters, we provide independent evidence for this assumption.

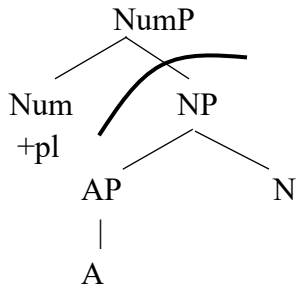
The relevant derivation unfolds as follows.

(16)

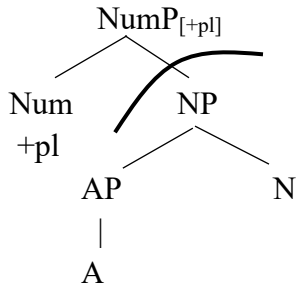
1. Merge N and AP
2. Merge Num and NP



3. Apply Spell Out



4. Apply Feature Projection



NP is spelled out before Feature Assignment can be applied to [+pl]. Therefore, the noun head and adjective heads inside the noun phrase are inaccessible for the application of Feature Assignment. As a result, adjectives in Turkish do not exhibit concord with any features.

Tamil, a Dravidian language, is another non-concord language (Shiffman, 1999:124). Adjectives in Tamil are "indeclinable and invariable" for gender or number.

(17) pudu viidu pudu viittukku
'new house' 'new houses'

Tamil has grammatical gender expressed on predicative adjectives and finite verbs[13] but not on attributive adjectives. Crucially, the gender system of Tamil is a semantic one (Corbett. 1991:9), which, for our purposes, means that gender is introduced by a functional head. The absence of concord in Tamil nominal phrases can be expressed by the following rule.

(18) In Tamil, NP is a phasal domain

The application of this rule in Tamil can be represented with the tree in (19). It will be noted that all adjectives inside the NP are protected from the gender feature.

[13] Here is the gender inflection on the verb *vaa* 'come'

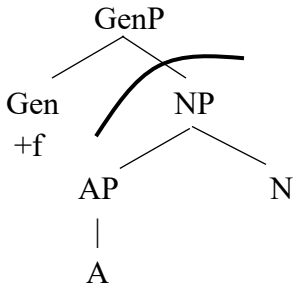
(1)

	PRES
3.F.SG	avan varraan
3.M.SG	ava varraa
3.N.SG	adu varradu
	'he/she/it comes'

One might wonder whether gender marking on verbs in Tamil is genuine agreement or a doubled clitic. If gender marker is a doubled clitic, then it is possible that it does not arise out of an agreement process. Therefore, gender marking on verbs cannot be used as evidence for the presence of a GenP in nominal syntax of Tamil.

Kramer (2010) lists the following differences between genuine agreement and doubled clitics: (1) genuine the realization of agreement might show sensitivity to properties of the verb (for instance, aspect or tense) but doubled clitics do not (2) genuine agreement is obligatory while doubled clitics tend to be optional and (3) doubled cliitics tend to associated with properties like specificity, discourse linking etc. The discussion of gender marking in Shiffman (1999) suggests that gender marking in Tamil is genuine agreement. It is sensitive to the tense of the verb; it is obligatory; and it does not seem to be associated with semantic notions like specificity.

(19)



We have seen the derivation of an expression with full concord and the derivation of nominal expressions with no concord. Indeed, for many languages, concord is an all or none issue. That is, in a language with grammatical gender, number and case, it is often observed that all three features enter into concord or none of them do. In contrast, languages do not exhibit only number concord or only case concord. Below is a typology that makes this point.[14] Note that such languages do not contradict the Concord Hierarchy Generalization.

Table 2.3. A Typology of Concord[15]

	Gender	Number	Case
Old English	Yes	Yes	Yes
German	Yes	Yes	Yes
Spanish	Yes	Yes	No/NA
Portugese	Yes	Yes	No/NA
Italian	Yes	Yes	No
Romanian	Yes	Yes	Yes
Russian	Yes	Yes	Yes
Polish	Yes	Yes	Yes
Czech	Yes	Yes	Yes

[14] It is to be noted that these data were collected on the basis of the overt functional morphemes. We assume that the case concord parameter is not applicable (NA) in languages that lack overt case marking on the DPs. For instance, English has been claimed to have null case on NPs (or DPs) (Vergnaud, 1977, Chomsky, 1981), which explains the distribution of noun phrases in this language. For the purposes of this study, we assume that case concord is not applicable in English since the noun phrases in English do not show overt case marking. Languages with overt functional morphemes make it easier to check the validity of the Concord Hierarchy Generalization.

[15]The data in this table are collected from Comrie (1999) and Steever (1998).

Slovak	Yes	Yes	Yes
Serbo-Croatian	Yes	Yes	Yes
Greek	Yes	Yes	Yes
Sanskrit	Yes	Yes	Yes
Persian	No	No	No
Pashto	Yes	Yes	Yes
Hungarian	NA	No	No
Finnish	NA	Yes	Yes
Turkish	NA	No	No
Arabic	Yes	Yes	Yes
Hebrew[16]	Yes	Yes	No
Hausa	Yes	Yes	No/?
Japanese	NA	No	No
Korean	NA	No	No
Tamil	No	No	No
Kannada	No	No	No
Tulu	No	No	No
Telugu	No	No	No
Koṇḍa	No	No	No
Kolami	Yes	Yes	No
Malto	No	No	No

[16] In Hebrew some of the objects of the verbs are marked with a morpheme. This object marker is obligatory on definite DPs but impossible on indefinites (Givón, 1978). If this marker is case, then Hebrew is a partial concord language with gender and number concord but no case concord. In this scenario, Hebrew does not contradict the typology predicted by the Concord Hierarchy Generalization. The analysis of Hebrew is identical to the analysis of Kubachi, as we will see in the next sections. Since the object marker is impossible on indefinites, we assume that Hebrew is not a case marking language. However, this assumption is not critical to the discussion.

There are languages, however, in which it is clear that adjectives agree only partially with the head noun. Such languages are the focus of our study. In Shughni, a Pamir language of Southeastern Iran, Afganistan and the Republic of Tajikistan, nouns are either masculine or feminine (Edelman and Dodykhudoeva, 2009). This distinction is overtly preserved in a small number of nouns.

(20) a. kud ‘dog’ (masculine)
kid ‘dog’ (feminine)

b. čux ‘cock’
čax ‘hen’

The criteria for the assignment of genders to nouns are not clear (see the footnote).[17] We assume, for concreteness, that nouns in Shughni come from the lexicon specified for gender. As for number, plurals nouns are inflected with the plural morpheme *-(y)ēn*.

(21) a. čōrik čōrik-ēn
‘man’ ‘men’

b. puc pac-ēn
‘son’ ‘sons’

Shughni has no overt case marking on nouns. Adjectives in Shughni show concord for gender but not for number (Edelman and Dodykhudoeva, 2009). We can express this system with a rule similar to Turkish and Tamil.

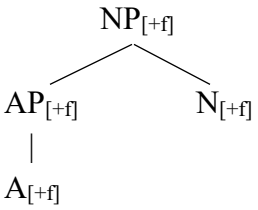
(22) In Shughni, NP is a phasal domain

[17] Edelman and Dodykhudoeva (2009:793) list some properties of certain genders. For instance, “particular parts of body, parts of clothes, and tools, as well as parts of landscape” tend to be feminine while abstract concepts tend to be in masculine. A comprehensive discussion of the assignment of the inanimate nouns into genders is needed to be able to characterize the system as semantic or idiosyncratic.

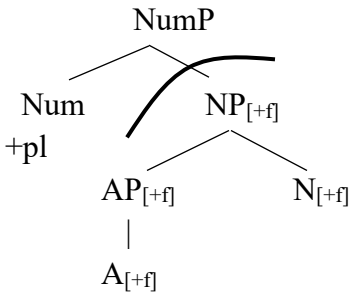
The step-by-step derivation of a nominal phrase in Shughni can be shown as follows:

(23)

1. Merge N and AP
2. Apply Feature Projection and Feature Assignment



3. Merge NP and Num
4. Apply Spell Out



Note that adjectives in Shughni cannot receive the [+pl] feature. Thus, the language exhibits concord only for gender but not for number.

In Bangla, an Indo-Aryan language of Southeast Asia, the nominal inflectional categories are number and case. Animate nouns are pluralized with *–ra* (with *–era* and *–ŷera* as phonological variants) and inanimates are pluralized by *–guro*.

(24) a. lok ‘person’
lok-era ‘people’

b. ceŷar ‘chair’
ceŷar-gulo ‘chairs’

Nominative is the unmarked case. However, other cases are morphologically overt.

(25) a. baba ‘father’ baba-r ‘father-GEN’

b. bon ‘sister’ bon-ke ‘sister-ACC’

c. ɔndhôkar ‘darkness’ ɔndhôkar-e ‘darkness-LOC’

A restricted set of Bangla adjectives show gender concord (Ishani Guha, personal communication). No adjectives ever show number or case concord.[18]

(26) a. shundor-(*i) ‘beautiful chele boy’

b. shundor-(i) ‘beautiful-F meye girl’

c. buRo ‘old lok man’

d. buRi ‘old-F mohila woman’

Moreover, the Bangla gender system is a semantic one. That is, for our purposes, gender is introduced by a functional projection. The rule that derives the concord patterns in Bangla is given below:

(27) In Bangla, GenP is a phasal domain

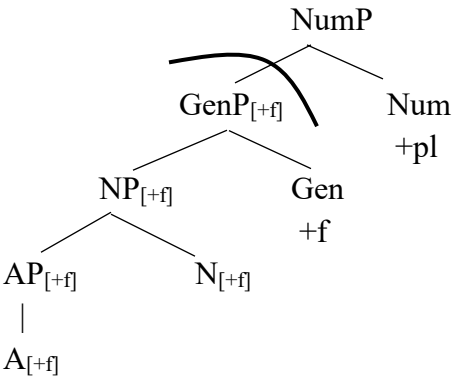
[18] One worry that might be raised about Bangla is whether we are really dealing with adjectives. It could be that the gender-marked adjectives are really just nouns and these are actually nominal compounds of some type. That these modificational elements are adjectives is suggested by the fact that they can be modified by degree expressions.

(1) khub shundor-(i) meye
‘very beautiful-F girl’

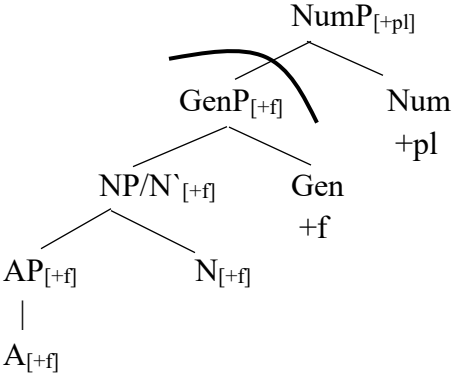
Below we show the crucial parts of the derivation of a Bangla nominal expression.

(28)

1. Merge NP and Gen
2. Apply Feature Projection
3. Apply Feature Assignment
4. Merge GenP and Num
5. Apply Spell Out



6. Apply Feature Projection



Note that, given the syntactic representation above, a variant of Bangla with number concord but no gender concord is *not derivable*. The only way for Bangla to lack gender concord is for NP to be a phasal domain, in which case the plural feature on the Num head could not be copied onto the adjectives and the noun inside the NP. That is, the variant of Bangla that lacks gender concord also lacks number concord.

How can we express number concord in the absence of case concord? We answer this question in the context of Udmurt (a Uralic language spoken in the Russian Federation, data from Winkler, 2001), which is similar to Turkish in lacking the category gender. As for number, Udmurt makes a two way distinction: singular and plural.

(29) a. korka ‘house’ korka-os ‘houses’

b. gurt ‘village’ gurt-jos ‘villages’

Udmurt has a rich case system, with up to fifteen cases overtly expressed in the noun. Below are some of the case markers on the noun *busi* `field`.

(30)

NOM	busi
ACC	busi-jez
GEN	busi-len
ABL	busi-leš
DAT	busi-li

Adjectives in Udmurt show only number concord, which is optional.

(31)

badʒim(-eš)	gurt-jos-in
large-PL	village-PL-LOC

‘in large villages’

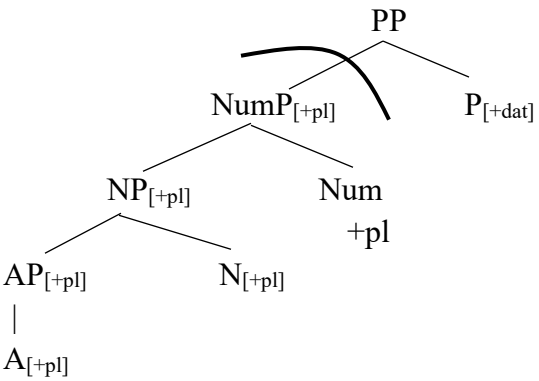
That is, Udmurt is a language with number concord and no case concord. This observation can be expressed with the the following assumption.

(32) In Udmurt, NumP is a phasal domain

The crucial parts of this derivation are demonstrated below.

(33)

1. Construct NumP
2. Merge P and NumP
3. Apply Spell Out



Note, again, that given the representation above, it is not possible to derive a variant of Udmurt with case but not number concord. That is because the only way for such a language to lack number concord is for NP to be a phasal domain. Once NP is spelled out, it becomes inaccessible for both number and case features. This unattested pattern is not derivable by the mechanism for concord defended here.

So far, we have seen various languages that exhibit partial concord for a single feature. We now take a look at a language where more than one feature takes part in partial concord. Kubachi – a language spoken in the Dagestan Republic – has a three gender/class system (Vamling and Tchantoria, 1991). Class I is used for males, class II for females and class III is the elsewhere gender.[19] Adjectives in Kubachi show concord with nouns in gender and number (Vamling and Tchantoria, 1991).

(34)

	Singular	Plural	
I.Male	arazi-w adame	aražu-b adamte	'healthy man/men'
II.Female	arazi-j x:unul	aražu-b x:unne	'healthy woman/women'
III.Other	arazi-b h:a:wan	aražu-d h:a:wante	'healthy animal/animals'

Note that Kubachi is a language with overt case morphology.

(35)

Absolutive	bits'	'wolf'
Ergative	bits'-le	
Dative	bits'-li-j	
Genitive	bits'-şa	

Vamling and Tchantoria (1991:35 table 4) report that adjectives in Kubachi do not show concord for case. We can express the concord system in Kubachi with the following rule.

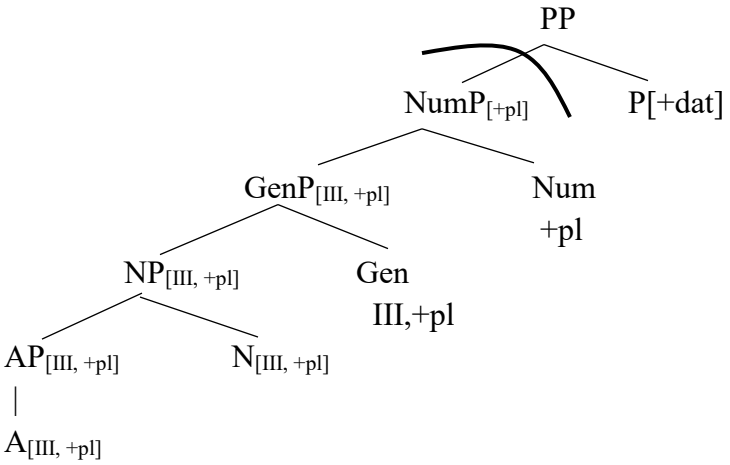
(36) In Kubachi, NumP is a phasal domain

[19] Following the literature on the Caucasian languages, we indicate gender with roman numerals (i.e. I, II, III).

Several parts of the derivation of a Kubachi nominal expression are demonstrated below. We skip several steps that have already been demonstrated.

(37)

1. Construct the NumP
2. Merge P and NumP
3. Apply Spell Out



4. Apply Feature Projection

Note that there is no derivation for a variant of Kubachi that has gender and case concord (without number concord), or number and case concord (without gender concord).

In this section, we have shown how the theory of concord we have adopted explains the Concord Hierarchy Generalization. In this the rest of this dissertation, we will provide independent support for this theory of concord.

2.4. Conclusion

In this chapter, we have developed an analysis for the Concord Hierarchy Generalization. This analysis has two major aspects:

a. The mechanism for concord is uniform across languages.
b. The overt manifestation of concord is suppressed by the intervention of phasal domains.

This theory of concord implies that we should observe concord whenever Spell Out is inactive. In the next chapter, we show that this prediction is borne out in the context of gender concord.

CHAPTER 3

On Concord and Gender

3.1.Introduction

The theory of concord we have developed relies on the assumption that the mechanism that underlies concord (i.e. the rules of Feature Projection and Feature Assignment) is uniform across the grammars of the world's languages. That is, every language in principle is a concord language. The rules for concord are repeated below.

(1) Feature Projection

When φ is a projection of ψ and k is a set of features

INPUT	OUTPUT
φ	φ[k]
|	|
ψ[k]	ψ[k]

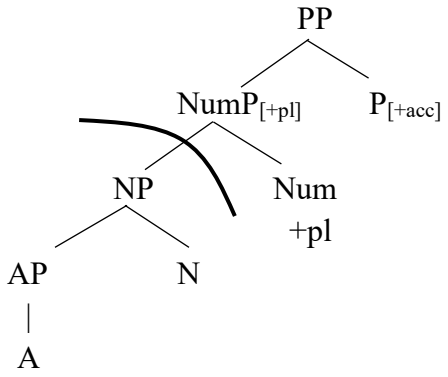
(2) Feature Assignment

When φ dominates ψ, and i and k are sets of features

INPUT	OUTPUT
φ[i]	φ[i]
|	|
ψ[k]	ψ [i ∪ k]

These rules hold even for languages that do not exhibit concord (for example, Turkish). How can the universality of these rules be reconciled with the absence of adjectival concord in such languages? We propose that, in a non-concord language, NP is a phasal domain and is, therefore, protected from the application of Feature Assignment. The representation of a Turkish nominal expression looks as in (3):

(3)



Given that the mechanism for concord is universal and Spell Out is the only way to block the overt manifestation of this mechanism,[20] we expect concord to be obligatory whenever Spell Out is inactive. In this section, we provide evidence for the universality of concord rules. We argue that the Gender Concord Generalization supports the universalist theory of concord we have developed. (We will define the notions of idiosyncratic and semantic gender shortly.)

(4) The Gender Concord Generalizations

1. If a language has an idiosycratic gender system, then it has gender concord on adjectives.[21]
2. If a language has grammatical gender[22] but no gender concord on adjectives, then it has a semantic gender system

[20] We qualify this statement at the end of this chapter.
[21] To repeat, the term *concord* denotes feature covariance between a head noun and modifying adjectives and only that.
[22] We call a gender system *grammatical* if various processes (verb agreement, participial agreement, etc) make reference to the gender/class of nouns. Grammatically-active gender does not mean *idiosyncratic* gender. We will see many examples of gender systems that are based on semantic criteria and that are grammatically active. We will highlight this usage of the terminology again later.

In what follows, we clarify what an idiosyncratic gender system is and how gender is syntactically represented. We then show that the Gender Concord Generalizations follows from the theory of concord adopted in this work. We finally provide cross-linguistic evidence for the validity of this generalization.

3.2.Two notes on gender

Before we express the generalization about gender concord and talk about its (possible) crosslinguistic validity, we clarify two issues. Firstly, we give a characterization of what an idiosyncratic gender system is. We then state our assumptions about the representation of gender in nominal structures.

3.2.1.The characterization of gender systems

In some languages, the gender of *almost* all nouns can be predicted by their meaning (i.e. the *semantic* systems of gender assignment as discussed by Corbett, 1991). Kannada, a Southern Dravidian language, provides a good example of such a system. In this language, "nouns referring to biologically female beings are feminine in gender, beings that are biologically male are masculine in gender and nouns that are not thought to be 'rational' ... neuter." (Shiffman, 1999: 21). Gods and spirits are also categorized as nouns in rational genders. *Suurya* 'the sun', *chandra* 'the moon', the planets and some deified birds and animals are in masculine (Spencer, 1950). Finally, *deevate* 'goddess' is feminine and *kuusu* 'infant' and *magu* 'child' are generally neuter, but sometimes they can be masculine or feminine. One can hypothesize that infants and children can be in neuter because their gender is not yet considered to be a property that needs to be highlighted. Menggwa Dla, a Papuan language described by de Sousa (2006), makes a distinction between masculine and non-masculine gender. "The criteria used in determining the gender of a noun are purely semantic" (de Sousa, 2006). However, some inanimate nouns like *kapali* 'aeroplane' are masculine. Moreover, flying birds and animals like *ambuha* 'cockatoo',

bahu ‘flying fox’ and *manyafra* ‘fruit bat’ are masculine while birds that do not fly or that are poor at flying are non-masculine. de Sousa argues that flying objects are treated as masculine in Menggwa Dla. For our purposes, both Kannada and Menggwla Dla have semantic gender systems. Such systems are characterized by the statement in (5):

(5) Semantic Gender Systems

In a semantic gender system, the majority of nouns are assigned to a gender based on a meaning-driven classification schema. [23]

We distinguish between these languages and the Russian-type languages in which there appear to be no clear semantic basis for gender assignment for many inanimate nouns. This is exemplified in the table below adapted from Corbett (2013)

Table 3.1. Idiosyncratic Gender in Russian

Masculine		Feminine		Neuter	
žurnal	‘magazine’	gazeta	‘newspaper’	pis’mo	‘letter’
stul	‘chair’	taburetka	‘stool’	kreslo	‘armchair’
avtomobil	‘car’	mašina	‘car’	taxi	‘taxi’
ogon’	‘fire’	peč’	‘stove’	plamja	‘flame’
glaz	‘eye’	ščeka	‘cheek’	uxo	‘ear’
lokot’	‘elbow’	lodyška	‘ankle’	koleno	‘knee’
čas	‘hour’	minuta	‘minute’	vremja	‘time’

[23] Later, we will make some remarks on a more precise characterization of a semantic gender system.

As Corbett (1991:35) notes, “it does not seem possible to establish semantic factors to account for the gender of these nouns”. We characterize Russian as an idiosyncratic gender language, where idiosyncratic gender systems are understood to be the complement set of semantic gender systems.

(6) Idiosyncratic Gender Systems
A language has an idiosyncratic gender system
if it does not have a semantic gender system.

Note that even in idiosyncratic systems, nouns that denote human individuals of a certain gender are privileged so that such nouns are specified with the gender of their referent. The situation with non-human nouns is different. The gender of non-human nouns, and especially that of inanimate nouns, tends to be unpredictable from their meaning. Moreover, in such languages, nouns that have individuals of both masculine gender and feminine gender in their denotation (for instance, *doctor*, *baby*, *teacher*) are assigned a gender. These two properties of idiosyncratic systems are repeated in (7)

(7) Properties of Idiosyncratic Gender Systems
1. Many inanimate nouns are assigned a gender idiosyncratically.
2. Nouns that denote both males and females are assigned a gender.

With these notes on the distinction between idiosyncratic and semantic gender systems, we are ready to discuss the syntactic representation of gender features.

3.2.2. On the syntax of gender

The need to distinguish between idiosyncratic and semantic gender systems arises from the need to distinguish between the syntactic representation of gender in these two types of languages. For a language with an idiosyncratic gender system, we make the following assumption (Baker, 2008, Norris, 2011 and Pesetsky, 2013)

(8) Idiosyncratic Gender Systems
In a language with idiosyncratic gender, every noun is specified with a gender feature in the lexicon

That is, when a noun is selected from the lexicon for syntactic manipulation, it is already specified for some gender. The intuition behind this claim is this: since the lexicon is a storage of idiosyncrasies, gender in an idiosyncratic system must be stored in the lexicon. Conversely, in semantic gender systems, gender is a predictable property over nouns. In such systems, we assume that gender is not stored in the lexicon and that it must be introduced through a functional projection – GenP (see Koopman, 2003 among others. We will shortly see an argument for this distinction based on the discussion of gender in Russian in Pesetsky, 2013).

(9) Semantic Gender Systems
In a language with semantic gender, gender is introduced by a functional head – GenP

We have now stated the properties of idiosyncratic and semantic gender systems. One might wonder if there is evidence for the partitioning of idiosyncratic and semantic gender in the way proposed here. The discussion of various Russian nouns in Pesetsky (2013) provides evidence for the claim that semantic gender can be introduced higher in the structure.

In Russian, certain nouns, for instance those that denote professions, are specified as being masculine: *vrač* 'doctor', *profesor* 'professor', *avtor* 'author'. When such a noun is used to refer to a female individual, we observe two types of behavior among adjectives. Some of them, the argumental ones, must reflect the lexical gender of the modified noun. These adjectives are taken to be the lowest adjectives in the nominal spine (For expository purposes, we denote them as Adj_{low}).

(10) glavn-yj /*glavn-aja vrač poliklinik-i
head-M/*head-F doctor.M clinic-GEN
'The female head doctor of the clinic'

As noted by Crockett (1976), some adjectives (those that are introduced higher to the structure) can show concord with the gender of the referent (see Pesetsky, 2013 for discussion). It is important to note that this is not obligatory and these adjectives can also show the lexical gender of the noun instead.

(11) xoroš-aja glavn-yj vrač
good-F head-M doctor.M
'A good (female) head doctor'

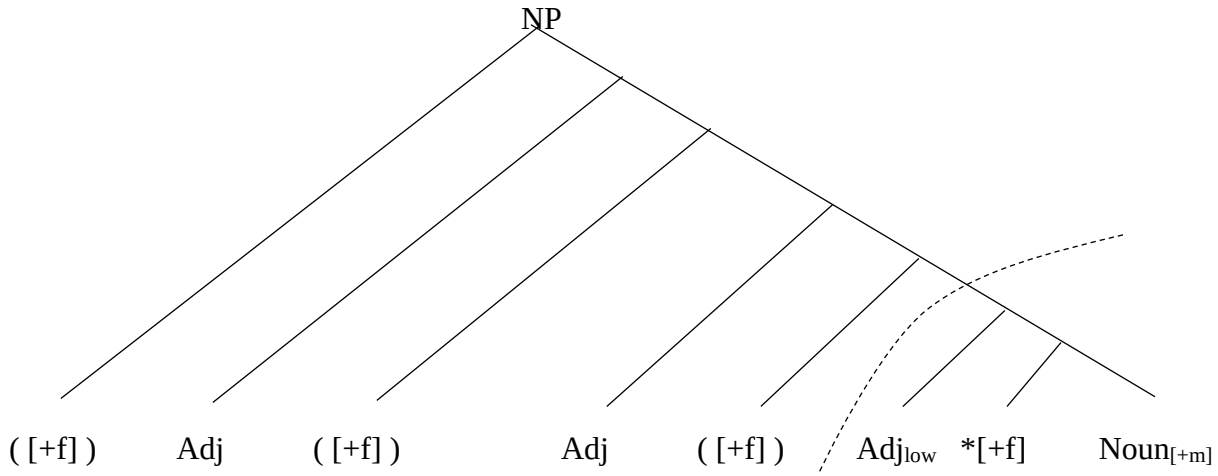
When high adjectives are used together within a nominal expression in which they exhibit concord with different genders, adjectives that show the lexical gender of the noun must be closer to the noun than any adjective that shows the gender of the referent.

(12) ?interesn-aja nov-yj vrač *interesn-yj nov-aja vrač
interesting-F new-M doctor.M interesting-M new-F doctor.M
'interesting new (female) doctor'

Finally we note that, for high adjectives, it is possible that they all show concord for lexical gender or that they all show concord for the gender of the referent. To explain these data, Pesetsky (2013) introduces a feminizing head that can be added to the nominal structure at any point, provided that it is above a certain threshold – the threshold that distinguishes low, argumental adjectives from higher ones. An adjective that is adjoined to the nominal expression higher than the feminine feature shows concord for feminine. Lower adjectives that are already

inflected with the lexical gender are not affected. The tree below (taken from Pesetsky with minor modifications for consistency) presents the mechanics of this explanation.

(13)



The dotted threshhold marks the point after which the feminine feature *can be* introduced. An adjective introduced higher than a feminine head will show concord for the feminine feature. An adjective that is introduced lower than a feminine feature will reflect the lexical gender of the noun (masculine). The feminine feature can also be introduced at the highest level in the tree, in which case all the adjectives would be in masculine while the verb would have feminine inflection.

We take this discussion to provide an argument for the idea that natural gender can be introduced to the tree at a level distinct from the lexical gender of a noun.[24] We take this position

[24] To be clear, Russian has an idiosyncratic gender system and we assume, for consistency, that all nouns come from lexicon specified for gender – even semantically motivated nouns like masculine *otec* 'father' and *djadja* 'uncle' and feminine *mat'* 'mother' and *tetja* 'aunt'. The discussion above provides evidence for the claim that even in an idiosyncratic gender language, natural gender is *sometimes* introduced at a position that is different from the position in which the inherent gender is introduced.

This assumption can be given an empirical content with the following considerations. Suppose that when gender is semantically motivated in Russian it is introduced by the GenP while idiosyncratic gender is lexically specified for nouns. We will see in the following sections that the gender that is introduced at GenP need not trigger gender concord. We then open up the possibility that there will be a language, Russian', which is just like Russian except that the nouns that have semantically motivated gender do not trigger concord. Such a system is unknown to us.

to be GenP. This is an assumption that will be crucial in the explanation of the interaction between concord and gender.[25]

We have explicated our understanding of the distinction between idiosyncratic and semantic gender systems. We have spelled out our assumptions about the representation of gender in syntax In the following section, we state the generalization about the interaction of gender and concord and test its cross-linguistic validity.

3.3.On gender concord and its absence

Let us make a couple of remarks about the terminology used in this paper so that we avoid possible confusion. We use the term "grammatical gender" in a way that distinguishes it from idiosyncratic gender. If a language has grammatical gender, then it has morphosyntactic processes that are sensitive to the gender of nouns. Some examples of such processes are feature covariance between a predicate and a subject, a participle and a subject, or a demonstrative and a head noun. A grammatical gender system can be semantic and non-idiosyncratic. Here is the terminology we use.

---

[25] In Swahili, modifying elements show concord with the natural class of nouns (J. Pesetsky, 2016)

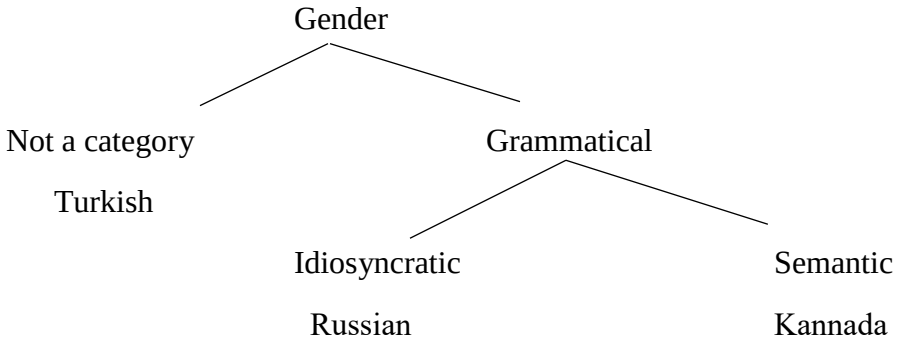
(1)	ki-ongozi	w-etu	m-refu	*ki-ongozi	ch-etu	ki-refu
	7-hero	1-our	1-tall	7-hero	7-our	7-tall
			'our tall hero'			

This does not mean that there are no hierarchy effects in Swahili. The possessors in kinship terms always agree with the inherent class.

(2)	n-dugu	y-angu	m-refu	*n-dugu	w-angu	m-refu
	9-sibling	9-my	1-tall	9-sibling	1-my	1-tall
			'my tall sibling'			

J. Pesetsky (2016) argues that possessors of relational nouns (like kinship terms) are syntactically closer to the head noun than adjectives and other possessors and that this explains their exceptional behavior (see J. Pesetsky, 2016 for the details of this analysis).

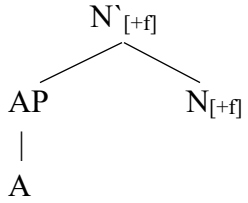
(14)



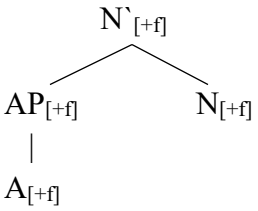
Suppose now that we have a language with an idiosyncratic gender system. By our earlier assumptions, in such a language each noun is specified for a gender feature in the lexicon. Since the rules of Feature Projection and Feature Assignment are universal, the feature on the noun is copied up and down the structure. Consider the derivation of an NP in such a language.

(15)

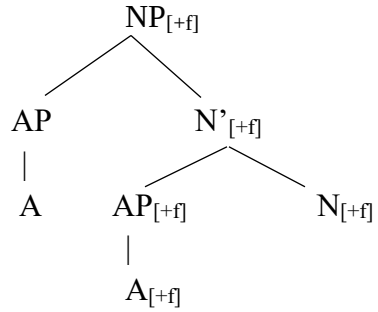
1. Select a noun
2. Merge N and AP
3. Apply Feature Projection



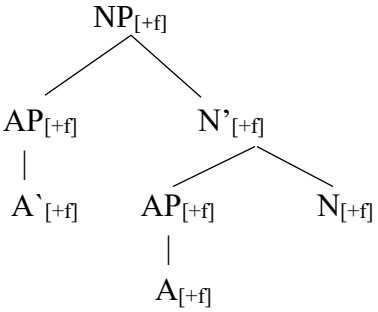
4. Apply Feature Assignment



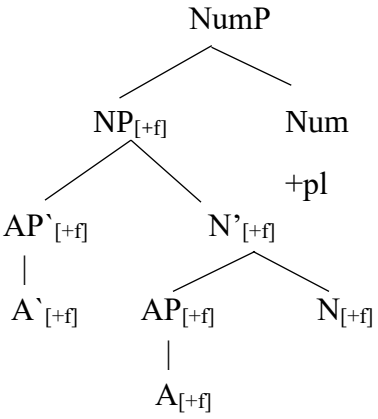
5. Merge AP and N’
6. Apply Feature Projection



7. Apply Feature Assignment



8. Merge Num and NP



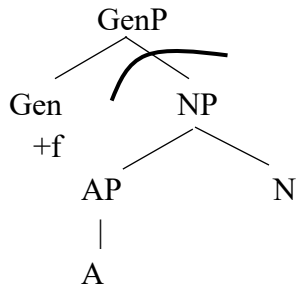
At this point in the derivation, there are two possibilities. Either the language has a phasal NP or not. Either way, the adjectives are already inflected with gender. More generally, if the gender feature starts out on the noun head, it is copied to adjectives before any application of Spell Out. **Since concord is universal and obligatory, there is no way to block adjectives from obtaining the gender feature**. Given that languages in which gender starts out on the head noun are idiosyncratic gender languages, we make the prediction in (16):

(16) Idiosyncratic Gender implies Concord ($IG \rightarrow C$)
If a language has an idiosycratic gender system, then it has gender concord on adjectives.

We now spell out another prediction of this theory of concord in the context of gender. Suppose now that we have a language in which gender is grammatical, yet we observe that attributive adjectives in this language do not exhibit concord. How can this be possible? It cannot be that gender has started on the head noun. If it did, we would obtain adjective concord as we have just seen in (15). Then, it must be the case that gender in such a language – a non-concord grammatical gender language – is introduced by the functional head GenP above NP. Moreover, NP, in such a language, is a phasal domain.[26] The derivation goes as follows.

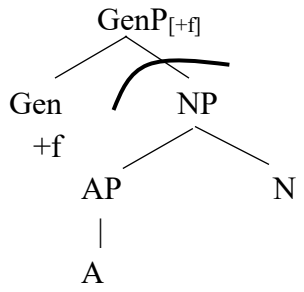
(17)

1. Project NP
2. Merge Gen and NP
3. Apply Spell Out



[26] Note that NP need not be phasal. Therefore, a semantic gender language can have gender concord. Bangla is one example of such a language.

4. Apply Feature Projection



That is, if a language has grammatical gender but no gender concord, then gender in this language is introduced by a functional projection. Given that languages in which gender is introduced by a functional projection have semantic gender systems, we make the prediction in (18).

(18) No Concord implies Semantic Gender (nC → SG)[27]
If a language has grammatical gender but no gender concord, then it has a semantic gender system.

In what follows, we present evidence for the cross-linguistic validity of these two generalizations. We start with the *nC → SG* generalization.

[27] It is important to note that the implication is not bidirectional. We do not claim that a language with a semantic gender system is a language with no gender concord. Bangla would contradict such a statement.

3.3.1.Semantic gender systems

In this section, we discuss the properties of non-concord languages that have grammatical gender. We show that they behave in conformity with *nC → SG*. We study languages from distinct language families to show the cross-linguistic validity of this generalization.

We start our discussion with Tamil, a Southern Dravidian language. Tamil distinguishes between feminine, masculine and neuter gender. The presence of grammatical gender in Tamil can be established on the basis of verb agreement. Various inflections of the verb *vaa* 'come' in the context of third person singular pronouns are given below (from Shiffman, 1999: 115).

Table 3.2. Gender inflection on the verb *vaa* 'come' in Tamil

	Present	Past	Future
3.F.SG	avan varraan	avan vandaan	avan varuvaan
3.M.SG	ava varraa	ava vandaa	ava varunaa
3.N.SG	adu varradu	adu vandadu	adu varum

Adjectives in Tamil are "indeclineable and invariable" for gender or number (Shiffman, 1999: 124).

(19) Pudu viidu pudu viittukku
'new house' 'new houses'

That is, Tamil has grammatical gender but no gender concord. As a result, we expect Tamil to have a semantic gender system. First, nouns that denote both males and femailes are *not* assigned masculine or feminine in Tamil. Indeed, the gender of a common noun is predictable on the basis of the morphology that a noun has.

(20) maanav-an maanav-i
'male student' 'female student'
putav-an putav-i
'male wine-seller' 'female wine-seller'

In Tamil, "given the meaning of a noun, its gender can be predicted without reference to its form'' (Corbett, 1991:9) There are only a couple of nouns that appear in an unexpected gender. The noun *cuuriyan* 'sun' and *cantiran* 'moon' and other heavenly bodies are treated as masculine. We conclude from this discussion that Tamil behaves in line with the expectations of the *nC → SG* generalization.[28] Below is a table that contains a list of other non-concord languages with grammatical gender.

Table 3.3.Non-concord languages with grammatical gender

Language	Language Family	Gender Features	Evidence for Grammatical Gender	Gender Concord
Sinhala	Indo-Aryan	animate, inanimate	numerals, copular verb 'be'[29]	No (Chandralal, 2010)
Telugu	Dravidian	masculine non-masculine	verb agreement[30]	No[31] (Krishnamurti and Gwynn, 1985)
Tabasaran	Nakh-Daghestanian	human, non-human	verb agreement[32]	No[33] (Corbett: 1991: 135)

[28] This section justifies our insistence on the distinction between grammatical gender and idiosyncratic gender. Gender in Tamil is grammatical but it is not idiosyncratic. We also note that Kannada, another Dravidian language, behaves exactly like Tamil in all respects discussed in this section (Shiffman, 1999).

[29] Examples from (Chandralal, 2010)

(1) a. puʈuwə tienəw
chair be.INA
'the chair is (here) '

b. waɖuwa innəwa
carpenter be.AN
'the carpenter is (at home) '

[30] "Finite verbs carry gender-number-person suffixes, which are known as personal suffixes, in agreement with the noun or pronoun used as a subject" (Krishnamurti and Gwynn, 1985: 137)

[31] "Adjectives in Telugu are indeclinable" (Krishnamurti and Gwynn, 1985: 116)

[32] Examples from Bogolomova (2011)

(1) a. Rasuli ʁulr b-is-ura
Rasul.ERG hare NH-catch-PRES
'Rasul is catching a hare'

b. Rasuli magomed d-is-ura
Rasul.ERG Magomed H-catch-PRES
'Rasul is catching Magomed'

[33] In Tabasaran adjectives ''agree only when in predicative position''. There are only two adjectives that agree with the noun in attributive position: *užur* ''good'' and *učur* ''beautiful''. Corbett proposes to treat these two adjectives as lexical exceptions, with which we agree. That is, Tabasaran, we assume, is not a concord language.

Menggwa Dla	Senagi (Papua New Guinea)	masculine, non-masculine[34]	verb agreement[35]	No (de Sousa: 2006)
Savosavo	Central Solomons	masculine, feminine	determiners, verb agreement[36]	No (Wegener: 2008)
Dyirbal	Pama-Nyungan	four classes	deixis markers[37]	No (Dixon, 1972: 61-63)

The languages described in *Table 3.3* are non-concord languages with grammatical gender. Given the *nC → SG* generalization, we expect them to be languages with a semantic gender system. This prediction is borne out. In Sinhala, the animacy distinction is based on "the semantic feature of [+ or - animate]'' (Chandralal, 2010: 44). In Telugu (Krishnamurti and Gwynn, 1985: 56), nouns denoting male individuals are masculine and other nouns are non-masculine. Tabasaran (Corbett, 1991:24) and Savosavo[38] (Wegener: 2008) have strict semantic

[34] The non-masculine form is used when the gender of the referent is not highlighted (de Sousa, 2006)

(1) Yowala wali pi-efye-hwa
My pig go-nM.DU-PAST
'My (male or female) pigs have gone'

[35]Example from de Sousa (2006)

(1) Kapali hof-u-mbi
Aeroplane come-3.M.SG-PRES
'The aeroplane is coming/ has just arrived'

[36] Example from Wegener (2008: 62)

(1) ota lo ngai mapa l-omata ka bua
there DET.M big person 3.M-at already go
'they already went to the big man there'

[37] Examples from Dixon (1972)

(1) Dyirbal Proximal Deixis "here"

	NOM	ERG/INST	DAT
Class I	giyi	yaŋgul	yagul
Class II	giɲana	yaŋgun	yagun
Class III	giɲam	yaŋgum	yagum
Class IV	giɲa	yaŋgu	yagu

[38] Wegener (2008) describes the gender system of Savosavo as follows:

systems. In Menggwa Dla, ‘‘the criteria used in determining the gender of a noun are purely semantic’’ (de Sousa, 2006). It is to be noted that some inanimate nouns in Menggwa Dla are masculine even though they might be expected to be non-masculine. The noun *kapali* ‘plane’, for instance, is treated as masculine.

(21) Kapali hof-u-mbi
Aeroplane come-3.M.SG-PRS
‘The aeroplane is coming/ has just arrived’

De Sousa (2006: 192) notes that such nouns are masculine since flying objects are assigned masculine.

> There are actually some animals and some inanimate things which are specifically masculine; certain things which are considered *blaha* ‘light’ are masculine. ‘Light’ things are things which are perceived as light enough to defy the earth’s gravity, and most light things are masculine, eg. *amamo* ‘moon’, *hufu*, ‘sun’, *yaflei* ‘cloud’, *kapali* ‘aeroplane’, and other flying birds and animals like *ambuha* ‘cockatoo’, *bahu* ‘flying fox’ and *manyafra* ‘fruit bat’

Birds that do not fly or poor fliers are feminine (ex: *ayamu* ‘chicken’). Flying insects are feminine probably because their gender is considered to be insignificant. A meaning-driven classification schema determines the gender assignment in Dyirbal, too (Dixon, 1972).[39] All in all, the languages listed in *Table 3.3*. behave in conformity with *nC → SG.*

> “For all referents that a readily discernable sex, class assignment is semantically motivated and is very stable… All others referents are by default masculine, but the feminine class is used for marking diminutivization and discourse prominence.”

[39] The nature of class assignment in Dyirbal is somewhat complicated (the discussion here is based on Dixon, 1972 and Plaster and Polinsky, 2007 see also Corbett, 1991). Each noun belongs to one of the four classes. A small number of nouns occur in both class I and class II and their class depends on whether they refer to a masculine or feminine individual (for instance, *ḍaḍa* “baby”). For non-human animate nouns and inanimate nouns, it is not easy to see the semantic motivation for class assignment.

(1) Class I: men, kangaroos, possums, bats, most snakes, most fishes, some birds, most insects, the moon, storms, rainbows…
Class II: women, bandicoots, dogs, platypus, some snakes, some fishes, most birds, fireflies, scorpions, crickets, anything to do with fire, the sun and stars, shields, some spears, some trees
Class III: trees with edible food
Class IV: parts of body, meat, bees, honey, wind, some spears, most trees, mud, noises, languages

Plaster and Polinsky (2007), building on Dixon (1972), have argued that the Dyirbal class system has developed from an earlier classifier system and that the semantics of synchronic class assignment in Dyirbal can be characterized as in (2). Note that the application of these rules still leaves some exceptions.

(2) Class I: [+male], [+edible animate]
Class II: [+female], [+bird]. [+fire], [+(fresh) water],[+stinging]
Class III: [+edible non-animate]
Class IV: residue class

Corbett (1991) notes that for younger Dyirbal speakers, the gender assignment system has become much simpler. Class III (for plants with edible food) has been eliminated. Class II now has only feminine individuals. The nouns that were assigned class II has been reassigned to class I if they are animate and to class IV otherwise. The resulting system is described in Corbett (1991) as follows:

(3) class II: feminine
class I: non-feminine animates
class IV: residue

There are approaches to Dyirbal gender system based on abstract semantic and cultural properties (Dixon, 1972, Lakoff, 1987) For an extensive criticism of such approaches, see Plaster and Polinsky (2007),

Given the increasing number of semantic factors that must be taken into consideration in (2), one might wonder whether there is a precise way of deciding whether a gender system is idiosyncratic. We suggest that Tolerance Principle (Yang, 2016), might provide the relevant criterion.

(4) The Tolerance Principle
Let R be a rule that is applicable to N items, of which e are exceptions. R is productive iff $e < N/\ln(N)$

For instance, given a rule that applies to 25 items, this rule is productive if there are less than $25/\ln(25) = 7.76\ldots$ exceptions.

In applying this idea to gender systems, we must be careful about the number of semantic features involved. In general, many-to-one mappings from semantic features to genders should reduce the number of exceptions that are licensed by gender rules. To do so, we first divide the number of genders to the number of semantic features that characterize these genders. For instance, given m genders, and n semantic features that characterize these genders, we obtain the ratio m/n (For Dyirbal, this ratio would be 4/9 since there are four classes and nine features that characterize these classes). We then multiply this number with the cardinality of nouns that are captured by gender rules to obtain a number as shown in (5)

(5) Given m genders, and n semantic features, and N number of nouns captured by the gender rules
$A = N(m/n)$

We then find the tolerance of this number

(6) $B = A/\ln(A)$

A gender system is semantic iff the number of exceptions in the language, e, is less than the tolerance number.

(7) $e < B$

Sharoff et al. (2013) provide a list of 5.000 most frequent Russian words, of which 2588 are nouns. 616 of these nouns are in a semantic gender (M = masculine individual, F= feminine individuals, N = elsewhere. We have

3.3.2.Idiosyncratic gender and gender concord

In the previous section, we provided evidence indicating that the absence of gender concord in a language implies that the gender system of this language is a semantic one. We now provide evidence for the opposite generalization: *Idiosyncratic Gender implies Concord* (*IG→C*). That is, we show that if a language has an idiosyncratic gender system, then this language has gender concord. We provide cross-linguistic evidence for this generalization. We first look closely at three languages from distinct language families to clarify various aspects of the generalization. We then report the results of a typological survey based on the database *World Atlas of Language Structures* (Dryer and Haspelmath, 2013). We come across various cases in which the predictions of *IG→C* do not seem to be confirmed. We take a closer look at those examples and show that they do not constitute real counterexamples to the generalization.

assumed that all neuter nouns are in semantic gender unless they refer to males or females. We have assumed that all animate nouns are in semantic gender). Assuming that each gender in Russian is characterized by a single feature, the ratio of genders to semantic features is 1. That is, we can apply the tolerance directly to the cardinality of nouns captured by the gender rules. Thus we obtain 616/ln(616)= 95.9… as the number of exceptions that Russian gender system can tolerate. However, there are 1972 (2588-616) exceptions. This is an idiosyncratic system.

We do not have a list of Dyirbal nouns to calculate the relevant numbers. All we note here is that given N nouns captured by the Dyirbal rules in (2), the cardinality of exceptions, e, must be lower than the following number.

(8) $e < N(4/9) / \ln(N(4/9))$

3.3.2.1.Idiosyncratic gender languages

In Iraqw, an Afro-Asiatic language described by Mous (2007), nouns are divided into feminine and masculine gender.[40] [41] In this language ‘‘the gender of the noun is not predictable; not by the shape of the noun, not by its meaning’’ (Mous, 2007:6) . Below are some nouns that exemplify the idiosyncratic nature of gender assignment in Iraqw.[42]

(22)	MAS		FEM	
	tsamas	‘giraffe’	hhayse	‘tail’
	isaangw	‘nipple’	hayda	‘bull’
	hiima	‘rope’	naani	‘penis’
	tlakway	‘bag’	hhasam	‘dilemma’
	duguno	‘thumb’	kopo	‘cup’
	tsaxwel	‘trap’	waahla	‘phyton’

In Marathi, an Indo-Aryan language, nouns are divided into three genders: masculine, feminine and neuter.[43] Dhongde and Wali (2009) note that ‘‘animateness or natural gender are irrelevant for the grammatical gender of nouns. For example, the animate noun *undir* ‘mouse’ is masculine,

[40] Mous takes *plural* to be a gender in Iraqw.

[41] Gender in Iraqw is grammatical. Verbs show agreement in gender, number and person (the examples and glosses are from Mous, 2007: 5)

(1)	i giilín	i harweeriiríin
	he fight.3.M.S	she make.circles.3.F.S
	‘he fights’	‘she makes circles’

[42] Idiosyncrasy of assignment is also exemplified in the context of pluralization. The effect of pluralization in Iraqw is to switch the gender of the noun. The following list is from Mous (2007).

(1)	barise (f)	‘elders, older men’
	atlaráy (m)	‘old cows’
	awee (f)	‘bulls’
	dasu (m)	‘girls’
	tlaway (m)	‘wives’

[43] The presence of grammatical gender in Marathi can be established on the basis of verbal agreement with intransitive subjects.

(1)	jane `to go` ja-	past stem	
		PRES	PAST
	3.M.SG	jato	gela
	3.F.SG	jate	geli
	3.N.SG	jatə	gelə

ghus ‘rat’ is feminine and *muŋgus* ‘mongoose’ is neuter. On the other hand, the inanimate noun *čeha* ‘tea’ is masculine, *kəphi* ‘coffee’ is feminine and *dudh* ‘milk’ is neuter.’’ Moreover, there is dialectical variation in the assignment of genders to different nouns. Nouns like *veḷ* ‘time` *məǰa* ‘fun` and *bag* ‘garden’ show variations among speakers. That is, the gender system of Marathi is an idiosyncratic one.

In Yimas[44], a Lower Sepik language of the New Guinea, described by Foley (1991), there are ten noun classes and the criteria for assignment of nouns into classes is semantic in some cases and non-semantic in others.[45] The details of this system are spelled out below.

Class I and class II are for males and females respectively. Class I also includes the nouns whose gender is not highlighted.

(23)	class I		class II	
	namarawt	‘person’	narmaŋ	‘woman’
	apwi	‘father’	ŋay(u)k	‘mother’

Class III and class IV are for the higher animates and plants respectively. Class IV also contains trees.

(24)	class III		class IV	
	numpran	‘pig’	irpm	‘coconut tree’
	yura	‘god’	tnum	‘sago palm’ (canonical)

Class for other nouns is not determined by semantic features. Foley notes that class V is ‘‘by far the largest class in the language and contains close to 50% of all nouns. There is no semantic basis for this class; it is the first for which assignment is determined phonologically, by the final

[44] Various aspects of Yimas grammar have been given formal analyse; see Phillips (1993) on argument marking in Yimas, see Yuan (2016) on case computation in Yimas.

[45] Gender in Yimas is a grammatical category.

(1)	mŋkl	tuŋkurŋkl	mum	payum
	here.VI.DU	eye.VI.DU	here.I.PLU	man.I.PL
	‘those eyes’		‘those men’	

segments(s)''. For this class, the relevant segments appear to be the following list: /p, k, m, n, ŋ, nt, r, l/.

(25) class V

yawkawp	'rope'	awak	'star'
mpum	'crayfish'	muntuk	'neck'
nawran	'armband'	klmpaŋ	'worm'
makun(t)	'anus'	yaku(r)	'net bag'
tmal	'sun'	tk(r)	'chair'

Class VI and class VII contains the nouns that end in /ŋk/ (only ŋ in the final position) and /mp/ (only m in word-final position).

(26)

class VI		class VII	
pamuŋ	'leg'	tanm	'bone'
wuntŋ	'fish'	tampaym	'food hanger'
walamuŋ	'basket'	piam	'arrow'
muraŋ	'paddle'	ŋarm	'branch'

The assignment criteria for other classes (VIII, IX and X) are also based on similar non-semantic criteria. Note that one might argue that this assignment is not idiosyncratic. If we take both the semantic and the phonological criteria into consideration, then gender is predictable. However, we have defined an idiosyncratic gender system as one in which the gender assignment is not a semantic one. By the definition that we have adopted, Yimas is an idiosyncratic gender language.

We have looked at three languages (Iraqw, Marathi, Yimas) with idiosyncratic gender systems. Given *IG→C,* we expect these languages to show gender concord on adjectives. This prediction is borne out (Note that, in Iraqw, gender concord is tonal).

(27) a. garmóo niiná dasír níina [Iraqw]
boy.M small.M girl.F small.F
'a small boy' 'a small girl'

b. kaḷa mulga kaḷi mulgi kaḷə mūl [Marathi]
'black boy' 'black girl' 'black child'

c. tnkntk-ntrm tktnttm amana-ntrm [Yimas]
heavy-V.DU chair.V.DU my-V.DL
'my two heavy chairs'

We have previously seen that Sinhala, an Indo-Aryan language, obeys *nC→ SG*. Marathi is an Indo-Aryan language that obeys *IG→ C*. That is, the generalizations put forth in this chapter not only tell us the ways in which unrelated languages must be similar, they also tell us the ways in which related languages must be different.

We now provide a typological survey of languages with idiosyncratic gender systems and show that these languages behave in the way predicted by the *IG → C* generalization. We make use of the online database *The World Atlas of Language Structures* (WALS, Dryer and Haspelmath, 2013) and focus on *Feature 32A: Systems of Gender Assignment* (Corbett, 2013). Of the 257 languages mentioned under this feature, 145 have no grammatical gender whatsoever and 53 are systems with semantic gender. We are interested in the remaining 59 languages that are described as being ''semantic and formal''. For the languages in the list, we have the following expectations: if such a language is an idiosyncratic gender language, we expect it to show gender concord. If one of these languages does not exhibit adjectival concord, then we must be able to show either that this is not an idiosyncratic gender language or that there is an independent factor preventing gender concord.

In what follows, we report the results of this investigation. *Table 3.4.* contains information about these languages, their gender system, and their concord properties. The problematic cases are bolded and potential explanations for the absence of adjective concord in

these languages are given in the *Notes* column, to be elaborated further in the next section (see Appendix A for notes about the gender systems in the table).

Table 3.4. Idiosyncratic gender languages in WALS

Language	Idiosyncratic? Semantic?	Gender Concord?	Reference[46]	Notes
Alagwa	**Idiosyncratic**	**No**	**Mous (2016)**	**Concord on linker**
Amharic	Semantic	No	*Teferra and Hudson (2007)*	NA
Apurinã	Probably semantic	NA	Facundes (2000)	No adjective category
Arabic (Egyptian)	Probably Idiosyncratic	Yes	*Khalafallah (1969)*	NA
Arabic (Gulf)	Idiosyncratic	Yes	*Qafisheh (1977)*	NA
Arabic (Syrian)	Idiosyncratic	Yes	Cowell (1964)	NA
Arapesh	Idiosyncratic	Yes	Fortune (1942)	NA
Arbore	Probably Idiosyncratic	Yes	Hayward (1984)	NA
Babungo	Idiosyncratic	Yes	Schaub (1985)	NA
Bayso	**Idiosyncratic**	**No**	***Hayward (1979)***	**Concord on linker**
Beja	Idiosyncratic	Yes	*Vanhove (2014)*	NA
Berber	Idiosyncratic	Yes	*van Putten (2013)*	NA
Chichewa	Idiosyncratic	Yes	*Watkins (1937) And Mchombo(2004)*	NA
Diola-Fogny	Probably Idiosyncratic	Yes	Sapir (1965)	NA
French	Idiosyncratic	Yes	*Batchelor and Chebli-Saadi (2001)*	NA
Fula	Idiosyncratic	Yes	*Arnott (1970)*	NA
Gaelic	Idiosyncratic	Yes	*Gillies (2009)*	NA
German	Idiosyncratic	Yes		NA
Godié	Probably Semantic	Yes	*Marchese Zogbo (2012)*	NA
Greek	Idiosyncratic	Yes	*Holton, Mackridge and*	NA

[46] the non-italicized references are taken from WALS

			Philippaki-Warburton (2004)	
Hausa	Idiosyncratic	Yes	*Caron (2012)*	NA
Hebrew	Idiosyncratic	Yes	Glinert (2005)	NA
Hindi	Idiosyncratic	Yes	*Koul (2008)*	NA
Icelandic	Idiosyncratic	Yes	*Neijmann (2001)*	NA
Ingush	Idiosyncratic	Yes	Nichols (2011)	NA
Iraqw	Idiosyncratic	Yes	*Mous (2007)*	NA
Ju|'hoan	**Idiosyncratic**	**No**	**Dickens (2005)**	**Adjectives are incorporated**
Kashmiri	Idiosyncratic	Yes	Koul and Wali (2006)	NA
Khoekhoe	Probably Idiosyncratic	NA	Hagman (1977)	Adjectives are relative clauses
Kisi	Idiosyncratic	Yes	Childs (1995)	NA
Kongo	Idiosyncratic	Yes	Carter and Makoondekwa, (1987)	NA
Latvian	Idiosyncratic	Yes	*Mathiassen (1997)*	NA
Lavukaleve	Idiosyncratic	Yes	Terill (1999)	NA
Lele	Idiosyncratic	Yes	Frajzyngier (2001)	NA
Lingala	Probably Idiosyncratic	Yes	*Meeuwis (1998)*	NA
Luvale	Idiosyncratic	Yes	Horton (1949)	NA
Maltese	Idiosyncratic	Yes	Borg and Azzopardi-Alexander (1997)	NA
Marathi	Idiosyncratic	Yes	*Dhongde and Wali (2009)*	NA
Miya	Probably Idiosyncratic	Yes	Schuh (1998)	NA
Mosetén	**Idiosyncratic**	**No**	**Sakel (2004)**	**Concord on linker**
Nkore-Kiga	Idiosyncratic	Yes	Taylor (1985)	NA
Nunggubuyu	Probably Idiosyncratic	Yes	Heath (1984)	Corbett (1991) comments that the idiosyncratic nature of gender assignment in

				Nunggubuyu is not clear.
Nyamwezi	Idiosyncratic	Yes	Maganga and Schadeberg (1992)	NA
Nyiha	Idiosyncratic	Yes	*Karels (2014)*	NA
Oromo	Probably Idiosyncratic	Yes	Owens (1985)	NA
Panjabi	Idiosyncratic	Yes	*Tolstaya (1981)*	NA
Pashto	Idiosyncratic	Yes	*Tegey and Robson (1996)*	NA
Qafar	Idiosyncratic	NA	*Bliese (1981)*	Mous (2012) notes that all Qafar adjectives are stative verbs
Rendille	**Idiosyncratic**	**No**	**Oomen (1981)**	**Concord on linker**
Russian	Idiosyncratic	Yes	*Wade (2011)*	NA
Shona	Idiosyncratic	Yes	*Stevick Mataranyika, Mataranyika (1965)*	NA
Spanish	Idiosyncratic	Yes	*Butt and Benjamin (1994)*	NA
Supyire	**Idiosyncratic**	**No**	**Carlson (1994)**	**Adjectives are incorporated**
Swahili	Idiosyncratic	Yes	*Polome (1967) and Mpiranya (2015)*	NA
Tigré	Idiosyncratic	Yes	Raz (1997)	NA
Tsez	Not Clear	Yes	*Plaster, Polinsky and Harizanov (2013)*	NA
Ukranian	Idiosyncratic	Yes	*Danyenko and Vakulenko (1995)*	NA
Yimas	Idiosyncratic	Yes	Foley (1991)	NA
Zulu	Idiosyncratic	Yes	Poulos and Bosch (1997)	NA

3.3.2.2.Remarks on problematic cases

In this section, we discuss languages that pose a problem for *IG → C.* There are six languages that require closer attention: Supyire (Gur), Ju|'hoan (Kx'a), Alagwa (Cushitic), Bayso (Cushitic), Mosetén (Mosetenan), Rendille (Cushitic). We argue that in *Supyire* and *Ju|'hoan*, adjectives are incorporated into nouns, which is why they fail to show gender morphology and in *Alagwa*, *Bayso*, *Mosetén* and *Rendille*, adjectives modify a head noun with an obligatory linker particle. Crucially, it is the linker particle that shows concord with the head noun instead of adjectives (for a complete description of these languages, see Appendix A). In what follows, we show that the incorporation of adjectives and the obligatory presence of linkers prevent adjectives from showing concord. This means that the absence of concord in these six languages does not constitute real counterevidence for *IG → C* .

3.3.2.2.1.Incorporated adjectives and concord

In this section, we study the relation between adjective incorporation and concord. We first list the properties of incorporated adjectives and then explain why they fail to show concord. We focus on the Gur languages, a family that includes Supyire as discussed above. One of the Gur languages that is problematic for *IG → C* is Buli as described by Akalin-Pare (2005) and Sulemana (2012). Buli has five classes of nouns, four of which come in singular and plural pairs. The fifth class is a singular-only class. Some examples are given below from Sulemana (2012)

(28)

class I	núr	'man'
class II	yérí	'house'
class III	bàŋ	'lizard'
class IV	síuk	'path'

Class in Buli is a grammatical category as it triggers feature covariance between a noun and a numeral (Sulemana, 2012: 89)

(29) núrbá bà-yɛ̀ kpēsā sì-yɛ̀
'people two' 'fowls two'
tì:sà tì-yɛ̀ pí:sá sì-yɛ̀
'trees two' 'sheep two'

The numeral 'one' also agrees in class with the head noun.[47]

(30) gbáŋ kà-ɲī
'book one'

The prefixes that are associated with each class are listed below:

(31)

	SING	PLU
Class I	wà	bà
Class II	dì	ŋà
Class III	kà	sì
Class IV	kù	tì
Class V	bù	-

Class I is the class for human nouns. Other classes have no semantic basis (Abdul-Razak Sulemana, personal communication). While we expect Buli adjectives[48] to show concord with the head noun, this prediction is not borne out.

(32) a. ṇ nyà ná:b mɔ̀nùŋ.
I saw cow.V red
'I saw a red cow.'

b. ṇ nyǎ báŋ mɔ̀nùŋ.
I saw lizard.III red
'I saw a red lizard.'

[47] There are two numerals expressions for the number *one*. One of the forms do not show class concord. Also, the numeral expressions for *eight, nine* and *ten* do not exhibit class concord. There are further systematic differences between the numerals that show and do not show concord. They will not be investigated in this dissertation.
[48] It has been suggested that Buli adjectives are actually nouns (Matushansky, 2003 and Akaling-Pare, 2005). See Appendix B for arguments against this claim.

What we show now is that the syntax of adjectives in Buli is special in a way that makes them exempt from *IG* → *C*. First of all, Matushansky (2003: 127) notes that it is not possible to modify Buli attributive adjectives

(33) *núpò ŋmàsì nālā
woman very pretty

It is not possible to coordinate the adjectives, either (Sulemana, personal communication)

(34) ná: sɔ́blík wɔ́ŋ kŭ
cow black tall DEF
'the tall black cow'

*ná: sɔ́blík ali wɔ́ŋ kŭ
cow black and tall DEF
'the tall black cow'

Nor is it possible to displace them into any position other than their immediately postnominal position

(35) *mí ɲyă nàlɛ̀ŋ yéri
I saw pretty house.II
'I saw a pretty house'

One possible analysis of this range of observations about Buli proposes that there is a type of Merge that takes two lexical objects as input and generates a syntactic object whose components are inaccessible for further syntactic operations. Let us call this operation Glue Merge (g-Merge). We assume that adjectives in Buli are dependent categories.

(36) Glue Merge (g-Merge)[49]
Given two lexical objects, α and β, where α is dependent on β
g-Merge(α, β) = α^β
where α^β has the category β *and*
α^β behaves as a single unit for the rest of the derivation

[49] One might wonder whether Morphological Merger, in the sense of Embick and Noyer (2001), can be used to explain the absence of adjective concord in Buli (instead of g-Merge). The answer seems to be negative. Morphological Merger is considered to be an post-syntactic operation. Assuming that Feature Assignment is a syntactic rule, Morphological Merger would have to apply after the relevant features are already copied onto adjectives. g-Merge, on the other hand, is a syntactic operation that protects adjectives from the application of Feature Assignment.

Buli *noun-adjective* combinations are derived with g-Merge and, therefore, adjectives are inaccessible for syntactic manipulation as independent units.

(37) Adjectives in Buli
Attributive adjectives in Buli must be g-Merged with nouns

Given this condition on Buli adjectives, we can understand why adjectives cannot be modified by adverbs and why they cannot be coordinated. Adverbs and coordinators are not the right categories for adjectivces to g-Merge with. Moreover, adjective movement is impossible because syntactic objects that are g-Merged cannot be accessed and moved by probes. Finally, adjectives in Buli do not show concord because they are not accesible for the application of Feature Assignment. When adjectives are g-Merged with nouns, they are protected from the rule of Feature Assignment. All in all, that Buli adjectives do not show concord is a direct consequence of their mode of composition.[50] Given these assumptions, we conclude that Buli and, by assumption, other Gur languages (see Appendix A) do not form counterevidence for *IG → C.*

[50] Another Gur language, Dagaare as described by Bodomo (1997), seems to have similar properties to Buli. This language has some ten noun classes, where eight of these classes have a singular and a plural form. Class IX only has singular form while class X is only plural. The class of a noun can be predicted, in many cases, by the plural form of the noun stem. Some examples of nouns from these classes are listed below

(1)		SING	PLU	
	Class I	pɔ̀ɣɔ́	pɔ́ɣíbɔ́	‘woman/women’
	Class II	bíé	bíírí	‘child/children’
	Class III	tìrí	tìé	‘spoon/spoons’
	Class IV	píróó	píírì	‘sheep’

The grammatical nature of the class system of Dagaare can be established on the basis of the inflection on numerals. Numerals show the class of the noun that they modify. Class I noun *noba* ‘people’ and Class VII noun *gama* ‘books’ trigger different inflections on the numerals.

(2)	gama	ayi	‘two books’
	noba	bayi	‘two people’
	gama	ata	‘three books’
	noba	bata	‘three people’

Bodomo (1997: 68) notes that every noun in class I is a human noun, and that class IX and X can be characterized on the basis of some “conceptual semantic” and “syntactic” criteria. However, syntactic and semantic criteria will not be sufficient. “It must be realized … that in the vast majority of the classes in this system we needed morphophonological rules and criteria to account for the word formation processes. Clearly, certain classes of nouns such as 7 and 8 form natural classes because of the unique phonological and morphological processes involving them” (p. 69) We conclude from this discussion that the Dagaare gender system is not a semantic one, which makes it a test case for *IG → C.* We expect Dagaare adjectives to show concord for gender. However, this prediction is not borne out. The class VII noun *gani* ‘book’ and class VI noun *yiri* ‘house’can be used with identical adjectives

3.3.2.2.2.Obligatory linkers and concord

Alagwa, a Cushitic language described by Mous (2016), has three genders: feminine, masculine and neuter (sometimes also called "plural")[51]. Mous notes that "gender is not predictable from the meaning of the noun" as exemplified in (38)

(38) seree/a (f) 'buffalo'
karama (f) 'castrated bull'
slaama (f) 'person who is made ill'
qeentu (m) 'person with one leg'
isa'amu (m) 'breast'

In Alagwa, a linker particle is used to introduce adjectives. Moreover, this linker shows gender concord with the head noun.

(39) haare ta hhoo'^{o} hiru ku hhoo'^{o}
woman L.F nice man L.M nice
'a nice woman' 'a nice man'

Mous (personal communication) notes that there are as many linker particles as there are modifying adjectives. We take these particles to be concord prefixes on adjectives. Therefore, we assume, such languages do not constitute genuine counterevidence for *IG → C.*

---

(3) A gan bil zi wog baal son-ne na
Def book small red long slender good-PL those
'those small, red, long, slender, good books'

Yi zi kpon ni
House red big PL
'red big houses'

Bodomo (1997) notes that "the noun and adjective(s) can be seen as forming a single word." We assume that Dagaare is similar to Buli in having adjectives incorporated to nouns.

[51] The grammatical nature of gender system can be established on the basis of verbal agreement.

(1) i kitahhan i kitahhant
'he drinks 'she drink'
i kitahhán i kitahháant
'he drank 'she drank'

3.4.Conclusion

In Chapter 2, we have introduced a theory of concord with the following properties.

a. The mechanism for concord is uniform across grammars of the world`s languages.
b. The overt manifestation of concord is suppressed by the intervention of phasal domains.

A consequence of this theory is that concord is obligatory whenever phasal domains are inactive. In this chapter we have argued that when gender is specified for nouns, Spell Out cannot prevent gender from appearing on adjectives. Therefore, languages with idiosyncratic gender systems are expected to be gender concord languages. We have provided evidence indicating that this is a valid generalization. In the next chapter, we will defend the claim that non-concord languages have phasal NP, as predicted by the theory of concord we have developed.

CHAPTER 4

On Concord and Movement

4.1.Introduction

The theory of concord we have developed makes the assumption that the mechanism that underlies concord (i.e.the rules of Feature Projection and Feature Assignment) is uniform across the grammars of natural languages. Left unqualified, this assumption leads to the conclusion that every language is an overt concord language. This is not true. We have accounted for the absence of the overt manifestation of concord in some languages by postulating Spell Out domains into which Feature Assignment cannot penetrate. The natural question that arises is whether there is any independent evidence for such domains.

In this section, we provide evidence for the presence of a phasal NP in some non-concord languages. We first show that if NP in a language is a phasal domain, then movement of an Adjective Phrase (AP or AdjP) out of NP is not grammatical. That is, in non-concord languages, APs are trapped inside NP. In concord languages, on the other hand, movement of APs out of an NP is possible. We present evidence supporting these claims.

Recall the theory of concord with which we are working. We assume that concord is a universal phenomenon that is regulated by the rule of Feature Projection and Feature Assignment. The rules are repeated in (1)

(1) Feature Projection

When φ is a projection of ψ and k is a set of features

INPUT	OUTPUT
φ	$\varphi_{[k]}$
|	|
$\psi_{[k]}$	$\psi_{[k]}$

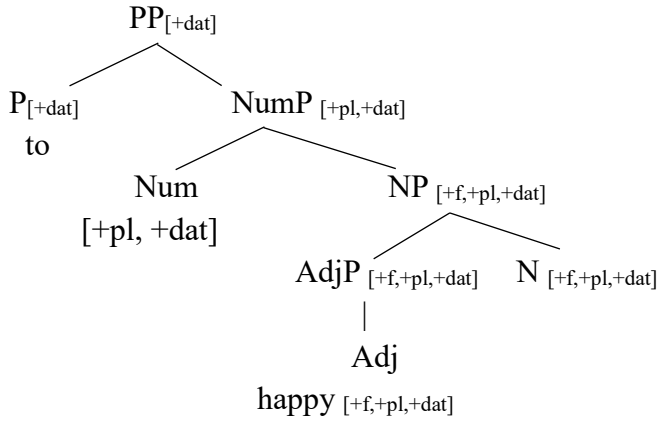
Feature Assignment

When φ dominates ψ, and i and k are sets of features

INPUT	OUTPUT
$\varphi_{[i]}$	$\varphi_{[i]}$
|	|
$\psi_{[k]}$	$\psi_{[i \cup k]}$

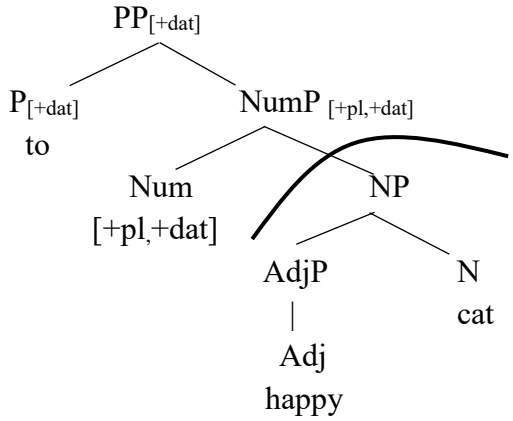
The universality of these rules implies that every language is a concord language *in principle*. The representation of a nominal expression in a concord language is given in (2)

(2)



There are, of course, languages that do not exhibit concord. In an attempt to understand how this is so, we have postulated that NP in such languages is a phasal domain. We have argued that the absence of concord in Turkish, for instance, is a consequence of Spell Out of NP. In this way, the number value of the Num head is blocked from percolating down to lexical heads (adjectives and the noun). Such a representation looks as in (3)

(3)



In what follows, we clarify the assumptions that lead to the prediction that adjective phrases (APs) in non-concord languages cannot be moved out of NPs. We next present evidence supporting this prediction. We finally look at the constraints on the placement of the polar question particle in Turkish and argue that the presence of a phasal NP in Turkish explains some of these constraints.

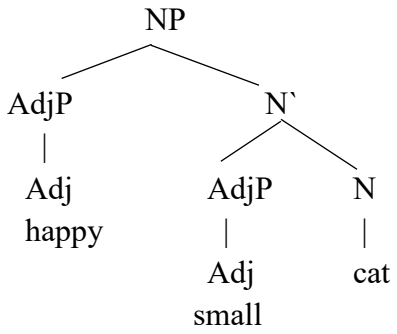
4.2.Concord and movement out of NP

In this section, we focus on the interaction between Spell-Out domains and movement options in a nominal expression. We explain why movement of an Adjective Phrase (AP) out of an NP is not possible for those languages in which NP is a phasal domain.

4.2.1.Conditions on movement

In this section, we show that AP movement from an NP is not grammatical in non-concord languages. Suppose that we have a non-concord language, in which NP is a phasal domain.

(4)



For an AdjP to exit a phasal NP, it must be at the edge of the NP (see Chomsky, 2000: 108, among others, for discussion). In this way, an AdjP can avoid being spelled out with NP. We suggest that when an NP gets spelled out, all the AdjPs inside this NP must be spelled out, too. To see why, consider first the phasal v head. There are two types of phrases that are at the edge of a little v head: external arguments (by *base-generation* at the edge) and constituents that are probed and moved by the v head. We assume that the same range of possibilities are available to an N head.

(5) The active edge of a phasal NP

A phrase α is at the active edge of a phasal NP iff

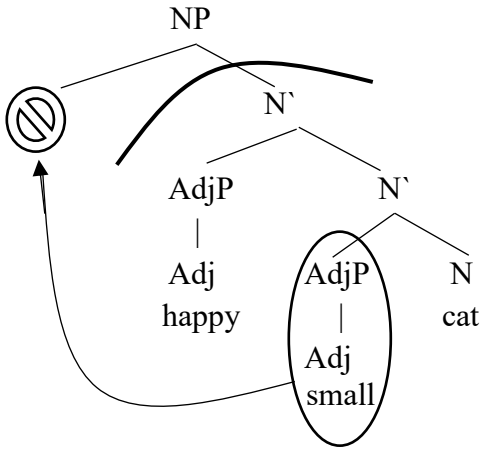
either α is an external argument of N

or α is probed and moved by N

For a phrase to be the active edge of the phasal NP, the phrase must be licensed by the noun head in one of the ways described in (5). That is, being at the active edge of NP is dissociated from being in a certain configuration with respect to NP. [52]

We now show that an AP cannot be an active edge of a phasal NP. First, note that since an AP is not an argument of an N head, it cannot be *base-generated* as an active edge. This means that an AP counts as the active edge of a phasal NP only if it is targeted and moved by the N head. Such a movement would be as in (6)

(6)



[52] Metaphorically speaking, we are advocating a "ticket theory" of active edges. For a phrase to have "a ticket" to "continue its journey" as the active edge of a phase, either it must be an argument of the phase head or it must be probed and moved by the phase head. Phrases that lack a "ticket" undergo Spell Out. If a phase has "the ticket", then it is an active edge.

We suggest that such a movement is too short to be licit (see Boškovic, 1994, 1997, Grohmann, 2003, Erlewine, 2016, Brillman and Hirsh, to appear, Brillman, 2017) on anti-locality conditions on movement). A-bar movement of a phrase should obey the *Anti-Locality Constraint*[53] given in (7)

(7) Anti-Locality on A-bar movement
A-bar movement of an adjunct αP of βP must cross a maximal projection other than βP.

We adopt the definition of *crossing* given in Erlewine (2016:445)

(8) Crossing
Movement from position α to position β crosses γ iff γ dominates α but not β

We now see that the movement in (6) is not grammatical since the AdjP in (6) does not even cross the NP[54] (let alone a maximal projection other than NP). We conclude that the movement operation described in (6) is not licit. A more general conclusion is that in non-concord languages, movement of an AP out of an NP is impossible.[55] The ban on AP extraction will not

[53] The constraint in (7) is a modification of the anti-locality constraint adopted in Erlewine (2016). Erlewine's constraint blocks movement from a specifier position to another specifier position that does not obey the ban on too short movements. The constraint in (7) implies that adjuncts are constrained in the same way that specifiers are.

[54] Given that the AdjP in (6) does not even cross NP, we could explain the ungrammaticality of AP movement with a simpler constraint:

(1) Anti-Locality on A-bar movement
A-bar movement of an adjunct αP of a βP must cross βP

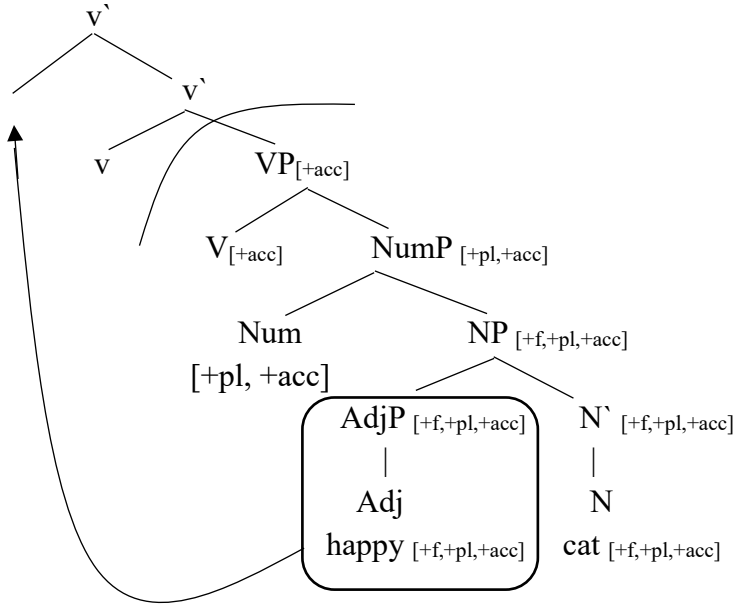
We have adopted the constraint given in (7) because we will need it later in this chapter to block movement of a Q particle that is adjoined to an AP. The simpler constraint is not enough to block this movement (see section 3.3)

[55] This contrasts with the movement of arguments of an NP. They can be moved out of NP. Given the base clause in (1a), moving both external (1b) and internal (1c) argument is licit. External arguments can be moved because they are at the active edge of NP. Internal arguments can be moved because they do not violate Anti-Locality on A-bar Movement.

(1) a. İsrail'in Filistin'e saldırısı kimseyi şaşırtmadı
Israel-GEN Palestine-DAT attack.3SG no.one.ACC surprised.
'Israel's attack on Palestine didn't surprise anyone'

be relevant in a concord language. Movement of AP in a concord language crosses a maximal projection other than NP.

(9)



In what follows, we show that nominal splits are not available in non-concord languages.

b. [~~İsrail'in~~ Filistin'e saldırısı kimseyi şaşırtmadı] İsrail'in
Israel-GEN Palestine-DAT attack.3SG no.one.ACC surprised Israel'GEN
'Israel's attack on Palestine didn't surprise anyone'

c. İsrail'in ~~Filistin'e~~ saldırısı kimseyi şaşırtmadı Filistin'e
Israel-GEN Palestine-DAT attack.3SG no.one.ACC surprised Palestine-DAT
'Israel's attack on Palestine didn't surprise anyone'

4.2.2.Movement out of NP

In this section, we provide evidence indicating that the absence of concord in a nominal expression implies the absence of nominal splits. We first present evidence for AP-movement in a concord language.

Russian allows nominal splits (example from Gouskova, 2001). Adjectives in the left periphery introduce new information whereas the rest of the clause is treated as old information.

(10) Utterance 1: I thought the boy bought a **small** encyclopedia yesterday

Utterance 2: Bol`šuju mal`čik kupil enciklopediju včera
Big boy bought encyclopedia yesterday
'The boy bought a **big** encyclopedia yesterday'

One might wonder whether this is a case of AP-movement or base-generation at the left periphery. We suggest that it is indeed AP-movement. We now show that the displacement of adjectives in Russian obeys the same constraints that wh-movement and XP-scrambling do.

Russian allows wh-movement and XP-scrambling out of embedded subjunctive clauses (examples from Sekerina, 1997).

(11) a. ? Čto tebe xotelos` by, [čto-by Ivan kupil t_{DP}]
What.ACC you.DAT want SUBJ, [that-SUBJ Ivan.NOM bought]
'What would you want Ivan to buy? '

b. Po novoj doroge [Maša poprosila, čto-by my poexali t_{PP}]
On new-PREP road-PREP Masha asked that-SUBJ we went
'Masha asked that we went on the new road'

Adjective phrases can also be moved out of embedded subjunctive clauses.[56]

(12) Bol`š-uju [ona xot`ela čto -by ty nadel t_{ADJ} rubašk-u]
Big-ACC she.NOM want that-SUBJ you.NOM put.on shirt-ACC
'she wanted you to put on a BIG shirt'

[56] All examples are from Dmitry Privoznov, (personal communication) unless specified otherwise

We now look at movement out of subjunctive infinitive clauses. Taking (13)a as the base expression, we observe that XP-scrambling (13)b and wh-movement (13)c out of subjunctive infinitive clauses are acceptable.

(13) a. Vy priexali [čto -by dogovor-it'-sja s Voldej]
you.NOM came that-SUBJ make.a.deal-INF-REFL with Volodya.INST
'you(pl) came in order to make a deal with Volodya'

b. S Volod-ej [vy priexali [čto -by dogovor-it`-sja t_{PP}]]
with Volodya-INST you.NOM came that-SUBJ make.a.deal-INF-REF
'you came in order to make a deal WITH VOLODYA'

c. S k-em [vy priexali [čto -by dogovor-it`-sja t_{PP}]]
with who-INST you.NOM came that-SUBJ make.a.deal-INF-REF
'with whom did you come to make a deal? '

Similarly, movement of an AP out of subjunctive infinitives is acceptable.

(14) Malen`k-uju [vy priexali [čto -by uvid`-et` t_{ADJ} ptic-u]]
Small.ACC you.NOM came that-SUBJ see-INF bird.ACC
'you came to see a SMALL bird'

The behavior of the adjunct *because*-clause (15)a is different from that of subjunctive infinitive clauses. Russian does not allow wh-movement (15)b or XP-scrambling (15)c out of such clauses.

(15) a. Kolja ušël potomu čto ja čital tolst-uju knig-u
Kolya left because I was.reading thick-ACC book-ACC
'Kolya left because I was reading a thick book'

b. *Čto [Kolja ušël potomu čto ja čital t_{DP}]
what Kolya left because I was.reading
'What is the thing such that Kolya left because I was reading it? '

c. * Knig-u [Kolja ušël potomu čto ja čital t_{DP}]
book-ACC Kolya left because I was.reading
'Kolya left because I was reading a BOOK'

Adjectives inside such an adjunct clause cannot be moved, either.

(16) *Tolst-uju [Kolja ušël potomu čto ja čital t_{ADJ} knig-u]
thick-ACC Kolya left because I was.reading book-ACC
'Kolya left because I was reading a THICK book'

We finally take a look at another island in Russian: relative clauses (17)a. In Russian, no constituent can move out of relative clauses (17)b-c.

(17) a. Ja videl [čelovek-a kotor-yj ubil Kolju]
I saw man-ACC who killed Kolya-ACC
'I saw the man who killed Kolya'

b. *K-ogo [ja videl [čelovek-a kotor-yj ubil t_{DP}]]
who.ACC I.NOM saw man-ACC who-NOM killed
'who is such that I saw the man who killed him? '

c. *Kolju [ja videl [čelovek-a kotor-yj ubil t_{DP}]]
Kolya-ACC I saw man-ACC who-NOM killed
'I saw the man who killed KOLYA'

AP-movement from inside a relative clause is restricted in just the same way as wh-movement or XP-scrambling.

(18) *Bol`š-uju [Feliks videl [čelovek-a kotor-yj ubil t_{ADJ} svinj-u]]
big-ACC Felix.NOM saw [man-ACC who-NOM killed pig-ACC]]
'Felix saw the man who killed the BIG pig'

We summarize our observations in the following table

Table 4.1. Constraints on Phrasal Movement in Russian

Clause-Type / Movement-Type	Embedded Subjunctive	Infinitive Adjunct	*Because*-Adjunct	Relative
Wh-movement	Yes	Yes	No	No
XP-extraction	Yes	Yes	No	No
AP-extraction	Yes	Yes	No	No

We see that AP fronting in Russian obeys the same constraints that wh-movement and XP-scrambling do. Therefore, it seems natural to conclude that peripheral adjectives in Russian are derived by a movement operation.

We have already noted that for any type of clausal split to be possible, an adjective must be able to get out of NP. The theory of concord developed here predicts that such a split is not a possibility for a non-concord language. That is, non-concord languages do not allow AP movement out of NP. In the rest of this section, we provide evidence from various non-concord languages to establish that this is, indeed, a valid prediction.

In Turkish, a non-concord language, adjectives precede the head noun.

(19) Ali kısa adam-lar-la konuştu
Ali short man-PL-with talk-PAST
'Ali talked with (the) short men'

Fronted adjectives are judged to be unacceptable[57]

(20) *Kısa Ali adamlarla konuştu
short Ali man-PL-with talk-PAST
'Ali talked with (the) short men'

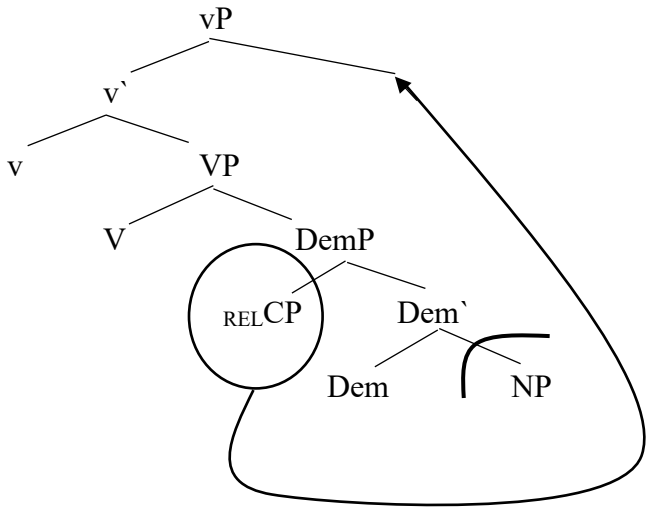
However, when an adjective is in the post-verbal domain, the sentence is judged to be acceptable.

(21) ?Ali adamlarla konuştu kısa
Ali man-PL-with talk-PAST short
'Ali talked with the men and they were short'

However, post-verbal adjectives lack *the restrictive readings* that are available in the default form as in (19). The only reading that is available is the appositive one. We now show that post-verbal adjectives in Turkish are (i) reduced (non-restrictive) relative clauses and that (ii) they are introduced high in the structure (higher than the demonstrative head). If these claims are true, we can understand why post-verbal adjectives are not trapped inside NP, as illustrated in (22)

[57] There are two other possible interpretations of this sentence but they are irrelevant to the discussion. One is a reading in which the adjective *kısa* `short` modifies the subject. The second interpretation is one in which *kısa* behaves like an adverb (`for a short period of time`) modifying the verb (in which the talking happens for a short period of time).

(22)



We first show that postverbal adjectives are (reduced) relative clauses. Evidence for this claim comes from adjectives that cannot be used predicatively (*tek* 'only', *temel* 'main', *önceki* 'former').

(23) a. Ali ana problemden bahsetti
Ali main problem-ABL mentioned
'Ali mentioned a main problem'

b. Ayse önceki öğretmeniyle konuştu
Ayse former teacher-COM talked
'Ayse talked with a former teacher'

c. Ali tek çocuklarla iyi anlaşır
Ali only kids.with well get.along
'Ali gets along well with only children (i.e. children without siblings)'

If post-verbal adjectives are relative clauses, they are used predicatively. We expect non-predicative adjectives to be unacceptable in the post-verbal domain. This prediction is borne out as shown in (24).

(24) a. *[Ali ~~temel~~ problemden bahsetti] ana
Ali main problem-ABL mentioned main
'Ali mentioned a main problem'

b. *[Ayse ~~önceki~~ öğretmeniyle konuştu] önceki
Ayse former teacher-COM talked former
'Ayse talked with a former teacher'

c. *[Ali ~~tek~~ çocuklarla iyi anlaşır] tek
Ali only kids.with well get.along only
'Ali gets along well with only children'

Note finally that the relative clause marker is optionally overt for postverbal adjectives.

(25) Ali ~~kısa olan~~ bu adamla konuştu kısa olan
Ali ~~short be.REL~~ this man-COM talked short be.REL
'Ali talked with this man, who is short'

We have provided evidence indicating that post-verbal adjectives are reduced (non-restrictive) relative clauses. How does this help them appear post-verbally? It has been argued that relative clauses can be introduced at various positions within a DP (Sproat and Shih, 1991[58] and Cinque,

[58] Chinese has two strategies of noun modification. The first strategy is to use bare adjectives to modify a noun. Such adjectives always come between the noun and the demonstrative (Sproat and Shih, 1991: 571)

(1) *hóng zhèige pingguǒ
red this apple

It is also possible to add the relative clause marker on adjectives. In this case, they can both precede and follow the determiner (Sproat and Shih, 1991: 575)

(2) hóng-DE zhèiběn shū
red this book

Non-predicative adjectives cannot be used with the relative clause marker DE (p. 574)

(3) *qián-DE zǒngtǒng
former-DE president

2008). Özçelik (2015) notes that non-restrictive relative clauses in Turkish precede the demonstrative while restrictive relative clauses come between the demonstrative and the noun.

(26) a. Noam'ın yazdığı o şiir
Noam-GEN write.REL that poem
'that poem, which Noam wrote' (non-restrictive)

b. O Noam'ın yazdığı şiir
that Noam-GEN write.REL poem
'that poem that Noam wrote' (restrictive)

That is, non-restrictive relative clauses are introduced high in the structure (higher than the demonstrative head) and they are not trapped inside the phasal NP. Therefore, they can move to the post-verbal domain as shown in (22).

Japanese is another non-concord language in which adjectives precede the head noun in the canonical order.

(27) John-ni aoi kuruma ga aru
John-DAT blue car NOM be.PRES
"John has a blue car"

Both fronting and extraposing to the right periphery are unacceptable[59]

[59] Bangla is another language with similar behavior. Adjectives precede the head noun in the canonical order (Ishani Guha, personal communication)

(1) Ali beTe lok-der songe kotha boleche
Ali short man-PL with speech said.3sg
'Ali talked with short guys'

Both fronting and postposting adjectives are unacceptable

(2) a. *BeTe Ali lok-der songe kotha boleche
short Ali man-PL with speech said.3sg

b. *Ali lok-der Songe kotha boleche beTe
Ali man-PL with speech said.3sg short

'Ali talked with short guys'

(28) a. * [John-ni ~~aoi~~ kuruma ga aru] aoi
John-DAT blue car NOM be.PRES blue
"John has a blue car"

b. *aoi [John-ni ~~aoi~~ kuruma ga aru]
blue John-DAT blue car NOM be.PRES
"John has a blue car"

In Hungarian, too, adjectives precede the head noun (data from Fanselow and Féry, 2006)

(29) Láttam nagy bicikliket
Saw.I big bike-PL-ACC
'I saw big bikes'

Any kind of displacement, either fronting or postposing, is judged to be unacceptable (Anikó Lipták, personal communication).

(30) a. *Láttam bicikliket nagy
Saw.I bike-PL-ACC big

b. *Nagy láttam bicikliket
Big saw.I bikes

'I saw big bikes'

In Warlpiri, an Australian language, adjectives preferably follow the noun that they modify. Number and case markers may appear at the right edge of the whole nominal expression (examples from Hale, 1981 see also Nash, 1980, Simpson, 1983)

(31) Kurdu wita-jarra-rlu ka-pala maliki wajili-pi-nyi
Child small-DU-ERG PRES-2DU dog.ABS chase.nPAST
'The two small children are chasing the dog'

When there are more than two adjectival elements, inflection may appear at the right edge of whole complex (David Nash, personal communication).

(32) Kurdu wita yalumpu-rlu ka maliki wajilipi-nyi
Child small that-ERG PRED dog.ABS chase.nPAST
'That small child is chasing the dog'

Examples (31) and (32) might suggest that Warlpiri is not a concord language. We then expect Warlpiri to disallow AP movement. AP-movement in Warlpiri is actually possible provided that adjectives show concord.

(33) Kurdu-jarra-rlu ka-pala maliki wajili-pi-nyi wita-jarra-rlu
Child–DU-ERG PRES-2DU dog.ABS chase.NPST small-DU-ERG
'The two small children are chasing the dog'

Adjectives in Warlpiri *must* show overt concord if they are to be moved at all. Otherwise, AP-movement is ungrammatical (Jane Simpson, personal communication)[60].

(34) *Kurdu-jarra-rlu ka-pala maliki wajili-pi-nyi wita
Child–DU-ERG PRES-2DU dog.ABS chase.NPST small
'The two small children are chasing the dog'

Note also that concord between the head noun and adjacent adjectives is also possible.

(35) Kurdu-jarra-rlu wita-jarra-rlu ka-pala maliki wajili-pi-nyi
Child–DU-ERG small-DU-ERG PRES-2DU dog.ABS chase.NPST
'The two small children are chasing the dog'

[60] The unacceptability is implied in Hale (1981:6)

> when the parts of a semantic expression are seperated, it is nonetheless possible to tell that the parts `go together` by virtue of what I will call the categorial signature [underlined in the original text, IKB] they have in common. The categorial signature of a word can be determined from its part of speech (N, V, AUX ...) and its inflection, or lack of inflection, as the case may be. Thus, the word /kurdu-jarrla-rlu/ is a nominal (N) inflected for dual (DUAL) number and ergative (ERG) case. It categorial signature can be expressed as in (6) below for our present purposes:
> (6) [N, DUAL, ERG]
> .....
> The word /wita-jarra-rlu/ is also a nominal inflected for dual number and ergative case. Both words, therefore, share the same categorial signature – namely, (6). By virtue of this they can enter into a single semantic expression (` (the) two small children`) even if they are syntactically non-contiguous

We need to understand absence of concord on adjectives under adjacency with nouns? Following Legate (2002: 100 – 102), we assume that the absence of case morphology within NP is a morphological requirement. That is, nominal inflection in Warlpiri goes unpronounced inside an NP.[61] That is to say, Warlpiri does not provide counterevidence for the claim that non-concord languages do not allow AP movement out of NP. [62]

In this section, we have provided evidence indicating that non-concord languages disallow AP-movement out of NP. This supports the claim that such languages have phasal NPs, thus blocking concord.

4.3.Concord and Q

In this section, we argue that the assumption that NP in Turkish is phasal makes correct predictions about constraints on the polar question particle. We first observe that the polar question particle in Turkish behaves similarly to a Q particle (in the sense of Kishimoto, 2005 and Cable, 2007). We then provide evidence that Turkish is a Q adjunction language with covert Q movement (Cable, 2007). We argue that covert Q movement obeys the same constraints that overt phrasal movement does, with which we derive *Özyıldız's Generalization,* which claims that if Q can be attached to an XP then this XP is a movable phrase. This correctly predicts that **Adj-Q N* order is ungrammatical in Turkish. Finally, we take a look at some constructions that seem problematic for this proposal and show that they do not form a genuine counterargument for our claims.

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[61] We assume that overt concord under adjacency as in (35) is a consequence of string vacuous movement of AP, which disrupts NP-internal adjacency.

[62] Similar observations can be made about Diyari, an Australian language. Austin (2013) notes that in Diyari, "only the last non-pronominal constituent of an NP is marked for the case of the phrase as a whole" as in:

(1)	Nhawu	muntya-ri-rna	wara-yi	nganthi	thungka-li
	3SG.NOM	sick-INCH-PRTP	AUX-PRES	meat	rooten-ERG
	'He became sick from rotten meat'				(Austin, p.127)

There are two environments under which all the constituents inside the NP are case marked. One is the context of special emphasis on the NP. The second environment is ``when the constituent are separated by other sentential material.`` In these contexts, ``all [elements of the NP] must be case marked`` as in

(2)	Mankarra-li	nganha	nhayi-rna	wara-yi	parlpa-li
	girl-ERG	1SG.ACC	see-PRTP	AUX-PRES	some-ERG
	'Some girls saw me`				

4.3.1.The polar question particle in Turkish shows Q-like behavior

Turkish has a question particle that is licensed in various positions inside a sentence (see Besler, 1999, Kahnemuyipour and Kornfilt, 2011, Kamali, 2011, Özyıldız, 2015 among others for discussion). Below, we list various positions where the Q particle can be found and the various meanings that are associated with each position. Note that the question particle is necessary for polar questions and that each clause can have only one particle.[63]

(36) Ayşe (mi[a]) Ali-ye (mi[b]) dün (mü[c]) kitabı (mı[d]) verdi (mi[e])
Ayşe (Q) Ali-DAT (Q) yesterday (Q) book-ACC (Q) gave (Q)

a. Was it Ayşe who gave the book to Ali yesterday?
b. Was it Ali who Ayşe gave the book to yesterday?
c. Was it yesterday that Ayşe gave the book to Ali?
d. 1. Was it the book that Ayşe gave to Ali?
2. Was it book-giving that Ayşe did to Ali?
e. 1. Did Ayşe give the book to Ali?
2. Was it give that Ayşe did the book to Ali?

In this section, we discuss some properties of the polar question particle in Turkish. We observe that this particle behaves in a way similar to Q particles that license wh-elements in other languages. This observation will form the foundation of the analysis of Turkish as a Q adjunction language (in the sense of Cable, 2007 to be explicated below) with respect to the polar question particle.

Japanese is a wh-in situ language. Question words in Japanese must be licensed by a Q particle at CP level.

(37) [John-ga [nani-o kaimasita]] ka?
John-NOM what-ACC bought Q
'What did John buy? '

[63] Changes in the shape of the polar question particle is due to vowel harmony.

When certain elements (the indefinites, *only*, *even* …) are sandwiched between a wh-phrase and the Q particle, they give rise to unacceptability (examples from Hagstrom, 1998: 52 who cites Hoji, 1985). The unacceptability that arises out of the intervention of focus elements between a wh-phrase and a Q particle is sometimes called an *intervention effect*.

(38) ??Dareka-ga nani-o nomimasita ka
Someone-NOM what-ACC drank Q
'What did someone drink?'

When the wh-element is moved out of the scope of the indefinite subject, the sentence becomes acceptable.

(39) nani-o_k dareka-ga t_k nomimasita ka
what-ACC someone-NOM drank Q
'What did someone drink?'

The question particle in Turkish shows some behavior parallel to wh-questions in Japanese. For instance, when the polar question particle is outscoped by a subject with a focus sensitive operator ('sadece' *only,* 'bile' *even* or 'çok az' *very few*), the result is unacceptable:[64]

[64] When the subject is marked with the question particle and object has a focus sensitive operator, the sentence is acceptable:

(1) a. Ali mi sadece Ayşe'yi öptü
Ali Q only Ayşe-ACC kissed
'Is it Ali who kissed only Ayşe? '

b.Ayşe mi Ali'yi bile öptü
Ayşe Q Ali-ACC even kissed
'Is it Ayşe who kissed even Ali? '

Overt movement of the object to the front makes the sentence unacceptable:

(2) a.*Sadece Ayşe'yi Ali mi öptü
Only Ayşe-ACC Ali Q kissed
'Is it Ali who kissed only Ayşe? '

b.*Ali'yi bile Ayşe mi öptü
Ali-ACC evem Ayşe Q kissed
'Is it Ayşe who kissed even Ali? '

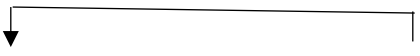
(40) a. *Sadece Ali Ayşe-yi mi öptü
Only Ali Ayşe-ACC Q kissed
'Is it Ayşe who only Ali kissed ? '

b. *Ayşe bile Ali-yi mi öptü
Ayşe even Ali-ACC Q kissed
'Was it Ali that even Ali kissed? '

c. *Çok az öğrenci Ayşe'yle mi konuştu
Very few student Ayşe-with Q talked
'It is Ayşe that very few students talked with? '

As in Japanese, fronting an argument with the Q particle eliminates the violation.

(41)



a. [[Ayşeyi mi] [sadece Ali ~~Ayşeyi mi~~ öptü]]
Ayşe-ACC Q only Ali ~~Ayşe-ACC Q~~ kissed
'Is it Ayşe that only Ali kissed? '

b. [[Ali-yi mi] [Ayşe bile ~~Ali-yi mi~~ öptü]]
Ali-ACC Q Ayşe even ~~Ali-ACC Q~~ kissed
'Was it Ali that even Ayşe kissed? '

c. [[Ayşe'yle mi] [çok az öğrenci ~~Ayşe'yle mi~~ konuştu]]
Ayşe-with Q very few student ~~Ayşe-with Q~~ talked
'It is Ayşe that very few students talked with? '

More than one polar question particle in the same clause is never acceptable.

(3) *Ali mi Ayşe'yi mi öptü
Ali Q Ayşe-ACC Q öptü
'Is Ali x, and is Ayşe y such that x kissed y? '

Doubled *sadece* "only" is acceptable.

(4) Sadece Ali Sadece Ayşe'yi öptü
Only Ali only Ayşe kissed
'Ali is the only person who kissed only Ayşe'

We take these data to provide evidence for the claim that the question particle in Turkish is similar to Q particles that license wh-elements. Indeed, in Japanese, the Q particle that licenses wh-questions is also used in polar questions.

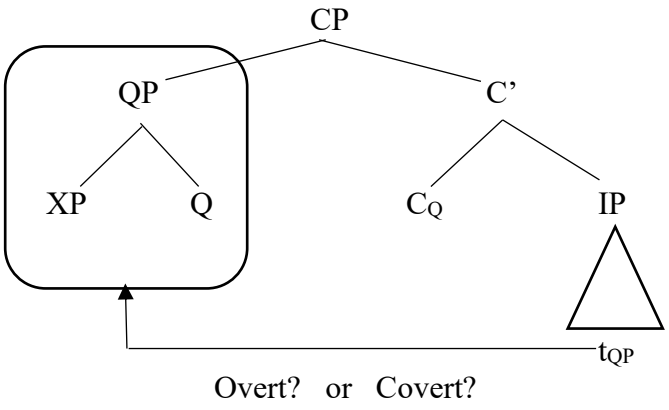
(42) Taroo-ga hon-o kaimasita ka?
Taroo-NOM book-ACC bought Q
'Did Taro buy a book?' (Hagstrom 1999: 5)

We show now that these phenomena can be explained with the assumption that the polar question particle in Turkish is a Q particle.

4.3.2.Turkish as a Q-Adjunction language.

Cable (2007) develops a typology of languages with respect to the behavior of Q particles. In QP-projection languages, Q merges with a complement and assigns the category QP to the whole phrase. In such languages, movement to the specifier of a CP targets the whole QP expression.

(43) QP-projection Languages



If this movement is overt, we get a Tlingit-type language (example from Cable, 2007)

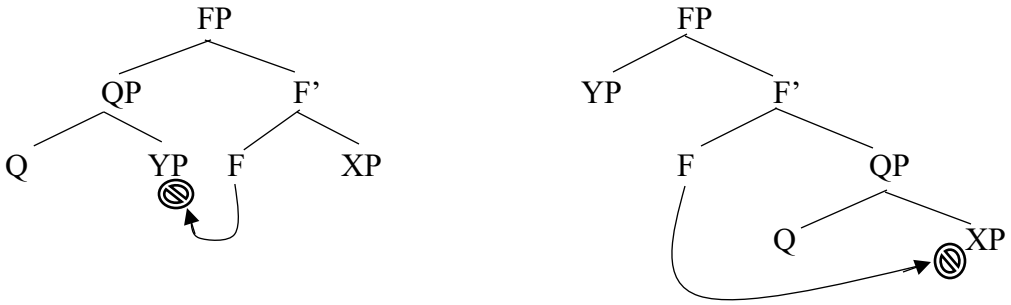
(44) [[Goodéi sá]$_1$ [has uwajée [t_1 woogootx] i shagóonich]]?
where.to Q they.think he.went your parents.ERG
'Where do your parents think he went?'

If this movement is covert, we get a Sinhala-type language where the wh-phrase appears in situ (but see Hagstom, 1998 and Kishimoto, 2005 for an opposing view about Sinhala)

(45) Chitra monawa da gatte?
Chitra what Q buy
'What did Chitra buy?'

Cable (2007:122) argues that QP-projection languages obey *The QP-intervention Condition* given in (46). Note that, for Cable, a possessor is selected by a D head that also takes a possessum as its complement. Therefore, a Q particle on a possessor intervenes between a D head and what is selected by this D head.

(46) The QP-intervention Condition
A QP cannot intervene between a functional head and a phrase selected by this functional head F.



The empirical effect of this condition is that QP-projection languages do not allow Q to come between a determiner and an NP, a postposition and a DP (Cable, 2007: 96 and 94), and a possessor and a possessum (Kishimoto, 2005: 13)

(47) a. Aadóo teen sá yigoot? [Tlingit]
who with Q you.went
b. *Aadóo sá teen yigoot?
who Q with you.went

'Who did you go with? '

c. Daa<u>k</u>w keitl sá ashaa
Which dog Q it.barks
d. *Daa<u>k</u>w sá keitl ashaa
Which Q dog it.barks

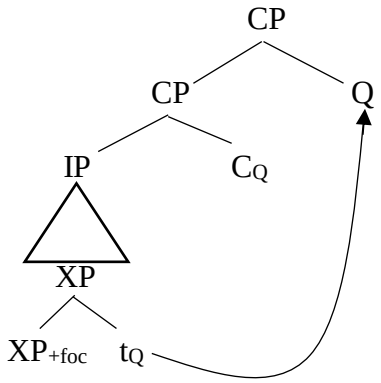
'Which dog is barking? '

(48) a. Chitra [kaa-ge amma] da daekke? [Sinhala]
Chitra who-GEN mother Q saw
b. *Chitra [kaa-ge da amma] dekke
Chitra who-GEN Q mother saw

'Whose mother did Chitra see? '

We have listed properties of the languages with QP projection.[65] We now discuss Q-adjunction languages. In a Q-adjunction language, Q does not determine the category of the phrase to which it is attached. Q is an adjunct on the phrase with which it is merged. In the context of movement, only the Q particle is targeted and the focused constituent is left behind.

(49)



In a Q adjunction language, movement of the Q particle can be overt or it can be covert. If the movement of Q is overt, we get Japanese-type languages.

(50)

[John-ga	[nani-o	t_{ka}]	kaimasita]	ka?
John-NOM	what-ACC	t_Q	bought	Q

'What did John buy?'

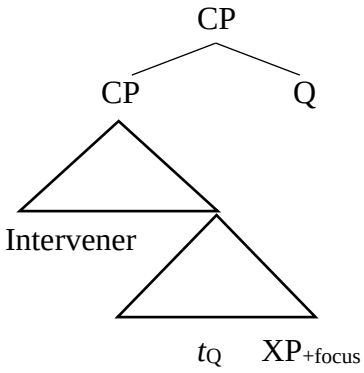
[65] It is important to note that if a language is a QP-Projection language, then it obeys all the constraints shown in (47) and (48). That is, a language is a QP-projection language only if

(i) Q cannot intervene between NP and D, *and*
(ii) Q cannot intervene between DP and P and *and*
(iii) Q cannot intervene between a possessor and D.

If a language lacks any of the constraints in (i), (ii) or (iii), then it is not a QP-projection language.

When a non-Q operator intervenes between the final position Q and a focalized constituent, we observe intervention effects. Below, we show the configuration that gives rise to intervention effects.

(51)



The unacceptability of (52) is an intervention effect since there is an intervener (a focus operator) between a focused element and Q.

(52) *[Minsu-man nuku-lul po-ss]-ni?
Minsu-only who-ACC see-PAST-Q
'Who did only Minsu see? '

We list the types of languages that we have observed up to this point.

4.2.Languages with Q-adjunction and QP-projection

	QP-projection	Q-adjunction
Overt	Tlingit	Japanese
Covert	Sinhala	?

There is a gap in the typology. We have no example of a Q-adjunction language with covert Q movement. Cable notes that ‘‘At present, I do not currently know of any language for which the analysis … [with covert Q movement, İKB] is necessitated’’ Such a language would have expressions in which ‘‘ (i) the Q-particle is *not* at the edge of the matrix clause (like Sinhala), but (ii) where the Q-particle *can* occur between functional heads and their complements (like Japanese/Korean). Again, it is currently unknown to me whether such a language exists’’
We now see that this language may very well be Turkish in the context of polar questions. The polar question particle in Turkish does not occupy the edge of the clause.

(53) Ali Ahmeti mi gördü
Ali Ahmet.ACC Q saw
‘Did Ali see AHMET? ’

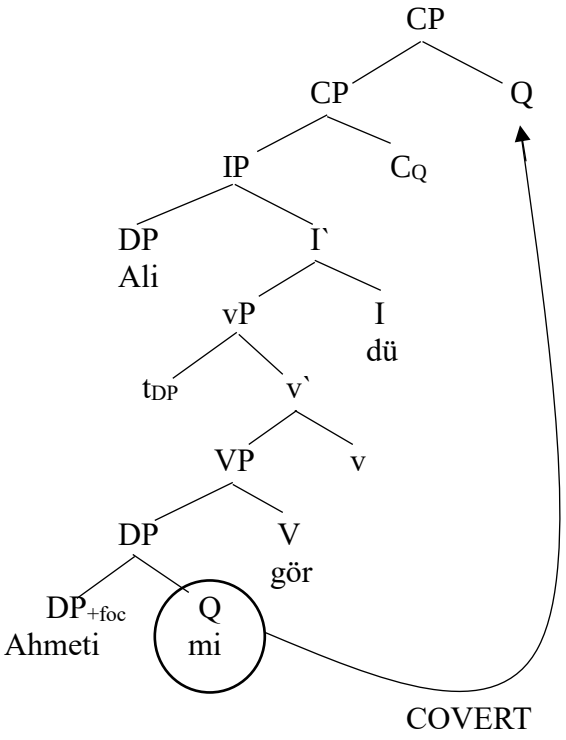
This particle can be adjoined to possesors

(54) Ali-nin mi kardeşi bizimle gelecek
Ali-GEN Q brother.3sg with.us come.FUT
‘Is it Ali whose brother will come with us? ’

Based on this discussion, we conclude that Turkish is a Q-adjunction language with covert Q movement with the analysis in (56) for the sentence in (55).

(55) Ali Ahmeti mi gör-dü
Ali Ahmet.ACC Q see-PAST
'Did Ali see AHMET? '

(56)



The polar question particle in Turkish thus fills the gap in the Cable`s typology.

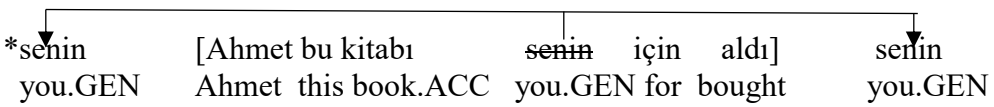
4.3.3.Explaining **Adj Q Noun*

We have argued that Turkish is a Q adjunction language and that Q movement in Turkish is covert. What are the constraints on covert movement of the Q particle? For Sinhala, Kishimoto (2005:2) claims that ‘‘even if Q-movement is induced in LF, it observes Island constraints in the same way as overt phrasal movement; Q particles behave like phrasal elements in this respect’’. We argue, in a similar fashion, that covert Q movement in Turkish obeys the same constraints as overt phrasal movement. This assumption explains the generalization developed in Özyıldız (2015) given below.

(57) Özyıldız’s Generalization
If Q can attach to an XP, then XP is movable.

As noted in Özyıldız (2015), in Turkish, complements of postpositions are not targets of any type of movement, whether it is fronting to the left periphery or extraposition to the right periphery.

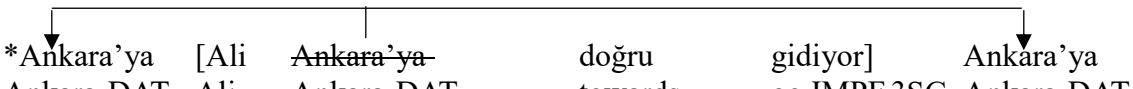
(58) *için* ‘for’



*senin	[Ahmet bu kitabı	~~senin~~	için	aldı]	senin
you.GEN	Ahmet this book.ACC	you.GEN	for	bought	you.GEN

‘Ahmet bought this book for you’

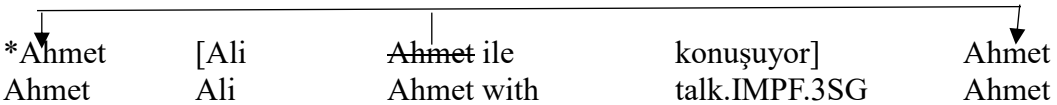
doğru ‘towards’



*Ankara’ya	[Ali	~~Ankara’ya~~	doğru	gidiyor]	Ankara’ya
Ankara-DAT	Ali	Ankara-DAT	towards	go.IMPF.3SG	Ankara-DAT

‘Ali is going towards Ankara’

ile ‘with’



*Ahmet	[Ali	~~Ahmet~~ ile	konuşuyor]	Ahmet
Ahmet	Ali	Ahmet with	talk.IMPF.3SG	Ahmet

‘Ali is talking with Ahmet’

We have already seen that the polar question particle in Turkish can attach to many types of constituents (arguments, adjuncts, verbal complexes). However, the Q particle cannot be adjoined to complements of postpositions.

(59) a. Ahmet bu kitabı senin (*mi) için mi aldı
Ahmet this book.ACC you.GEN Q for Q bought
'Did Ahmet buy this book for YOU? '

b. Ali Ankara'ya (*mı) doğru mu gidiyor
Ali Ankara-DAT Q towards Q go.IMPF.3SG
'Is Ali going towards ANKARA? '

c. Ali Ahmet (*mi) ile mi konuşuyor
Ali Ahmet Q with Q talk.IMPF.3SG
'Is Ali talking with AHMET? '

We assume here that whatever blocks movement of complements of postpositions is also responsible for blocking movement of the Q particle.[66] We have seen that it is possible to add the polar question particle to possessors in Turkish.

(60) Ali-nin mi kardeşi bizimle gelecek
Ali-GEN Q brother.3sg with.us come.FUT
'Is it Ali whose brother will come with us? '

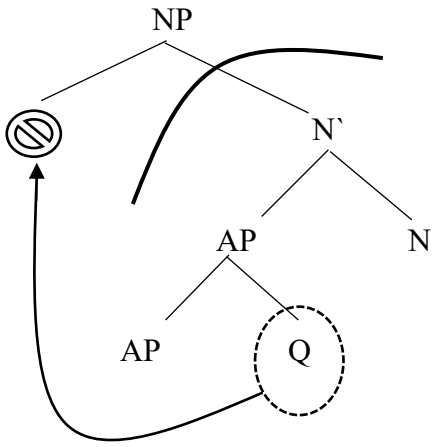
As predicted by Özyıldız's Generalization, possessor movement is acceptable in Turkish.

(61) [~~Ali-nin~~ kardeşi bizimle gelecek] Ali-nin
~~Ali-GEN~~ brother.3sg with.us come.FUT Ali-GEN
'Ali's brother will come with us'

[66] The fact that Turkish does not allow Q to come between P and DP does not mean that Turkish is a QP-Projection language. Japanese, another Q-adjunction language, does not allow Q to come between D and NP (Cable, 2007: 173). Note that Turkish does allow Q to come between possessors and D. Given remarks in the previous footnote, this shows that Turkish is not a QP-projection language.

We may now discuss our prediction about the adjunction of the Q particle to adjectives. In this construction, Q must move to the edge of NP.

(62)



However, this movement does not the obey Anti-Locality Constraint on A-bar movement given in (7) (repeated here as (63))

(63) Anti-Locality on A-bar movement
A-bar movement of an adjunct αP of βP must cross a maximal projection other than βP

In (62), Q does not cross any maximal projections other than AP (for instance, it does not cross NP). This predicts that *Adj-Q Noun* order in Turkish is unacceptable. As noted in Özyıldız, this is indeed an unacceptable sequence.

(64) *Ali kısa mı adamlarla konuşuyor
Ali short Q man.PL.COM talk.IMPF
'Is it short that Ali is talking with such men? '

It is not the case that *Adj-Q* sequence is in principle unacceptable. Predicative adjectives can be questioned with the polar question particle.

(65) Ali üzgün mü-y-dü
Ali sad Q –COP-PAST
'Was Ali sad?`` or 'Was Ali SAD? '

4.3.4.Strenghtening Özyıldız's Generalization

The account we have developed for the unacceptability of AdjP-Q NP relies crucially on the idea that covert Q movement in Turkish obeys the same constraints that overt phrasal movement does. In this section, we strenghten the plausibility of this assumption and thus our proposal. We observe that constraints on Q adjunction in Turkish closely mimics constraints on overt phrasal movement. We start with coordination structures in Turkish.

(66) Ayşe Ali'yi ve Ahmet'i gördü
Ayşe Ali-ACC and Ahmet-ACC saw
'Ayşe saw Ali and Ahmet'

Coordination in Turkish obeys the Coordinate Structure Constraint (Ross, 1967). Movement from inside a conjunct is not acceptable.

(67) *(Ali'yi) [Ayşe ~~Ali'yi~~ ve Ahmet'i gördü] *(Ali'yi)
Ali-ACC Ayşe ~~Ali-ACC~~ and Ahmet-ACC saw Ali-ACC
'Ayşe saw Ali and Ahmet'

We have seen that possessors can move out of DPs in Turkish. However, if a possessor is inside a conjunct, then its movement is blocked.

(68) (*Ali-nin) [Ayşe ~~Ali'nin~~ babasını ve Ahmet'in annesini gördü] (*Ali-nin)
Ali-GEN Ayşe ~~Ali-GEN~~ father-ACC and Ahmet-GEN mother-ACC saw Ali-Gen
'Ayşe saw Ali's father and Ahmet's mother'

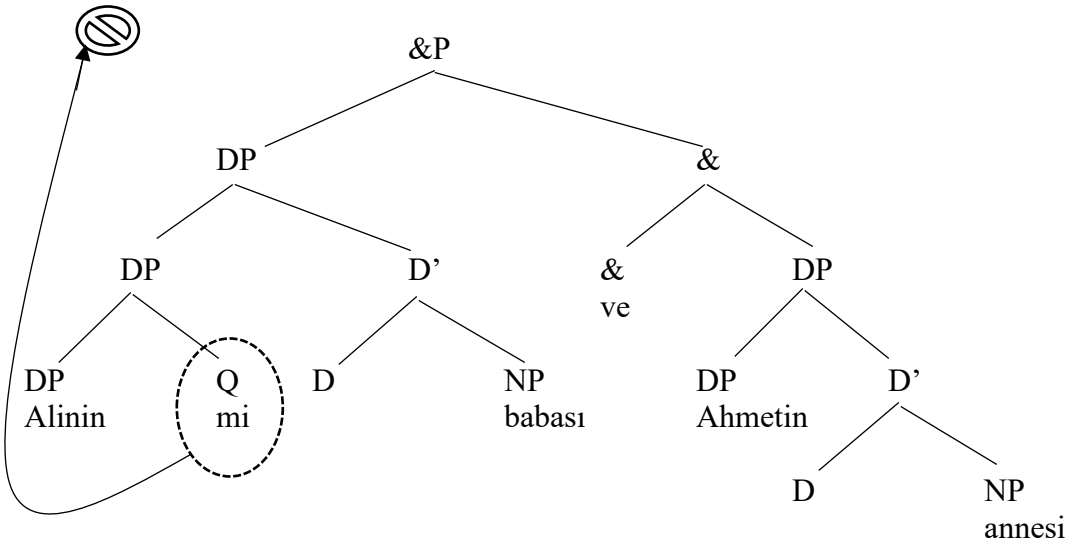
The polar question particle cannot be adjoined to a phrase inside a conjunct.

(69) a. *Ayşe Ali'yi mi ve Ahmet'i gördü
Ayşe Ali-ACC Q and Ahmet-ACC saw
'Is Ali that Ayşe saw Ahmet and him? '

b. * Ayşe [Ali'nin babasını mı ve Ahmet'in annesini gördü]
Ayşe Ali-GEN father-ACC Q and Ahmet-GEN mother-ACC saw
'Is Ali that Ayşe saw his father and Ahmet's mother? '

The impossibility of such constructions can be taken to be a consequence of covert Q movement in Turkish obeying the same constraints as overt Q movement (we take possessors to be licensed at the specifier of D head)

(70)



There is a type of coordination in which the second conjunct is causally or temporally related to the first conjunct (Ross, 1967, Lakoff, 1986 and Postal, 1998). In such asymmetric coordination structures, the first conjunct temporally precedes (and sometimes causally implies) the second conjunct.

(71) a. Ali Almanya`ya git-ti ve iş buldu
Ali Germany.DAT go-PAST and job find-PAST
'Ali went to Germany and found a job'

b. Ahmet geldi ve askerleri karşıladı
Ahmet come-PAST and soldiers.ACC welcome.PAST
'Ahmet came and welcomed the soldiers'

As noted in Ross (1967) for English (but see also Postal, 1998), one interesting property of the asymmetric conjunction structures is that, unlike the symmetric conjunction in (67) and (68), they allow movement of constituents from inside them.

(72)

a. [Ali ~~Almanya`ya~~ git-ti ve iş buldu] Almanya`ya
Ali ~~Germany.DAT~~ go-PAST and job find-PAST Germany.DAT
'Ali went to Germany and found a job'

b. Askerleri [Ahmet geldi ve ~~askerleri~~ karşıladı]
Soldiers [Ahmet come-PAST and soldiers.ACC welcome.PAST
'Ahmet came and welcomed the SOLDIERS'

Since overt phrasal movement out of such conjuncts is possible, we expect covert Q movement to be possible, as well. That is, we expect such coordination structures to allow Q adjunction inside them. This is indeed the case.

(73) a. Ali Almanya`ya mı git-ti ve iş buldu?
Ali Germany.DAT Q go-PAST and job find-PAST
'Did Ali go to GERMANY and find a job? '

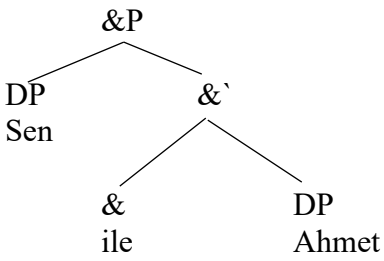
b. Ahmet gel-di ve askerleri mi karşıladı
Ahmet come-PAST and soldiers.ACC Q welcome.PAST
'Did Ali come and welcome the SOLDIERS? '

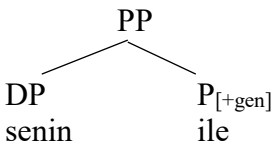
The comitative marker in Turkish has postpositional and coordinative uses. These two distinct uses can be distinguished by looking at the presence or absence of a case marker that appears on a pronoun preceding the comitative. If the pronoun does not show any case marker, then this is a coordinative use. When the comitative is a postposition, the pronoun is assigned the genitive case.

(74) Sen ile Ahmet sen-in ile Ahmet
You and Ahmet you-GEN with Ahmet
'you and Ahmet' 'you with Ahmet'

We analyze coordinative uses of the comitative as conjunction. Postpositional comitatives, on the other hand, assign genitive to its complement.

(75)





In the coordinative uses we observe cumulative agreement. The same is not the case with the postpositional uses of *ile*.

(76) Sen(*in) ile Ahmet evlendi-niz
You.NOM and Ahmet get.married-2PL
'You and Ahmet got married'

Sen*(in) ile Ahmet evlendi
You.GEN with Ahmet get.married.3SG
'Ahmet got married with you'

One distinction between these two uses of the comitative marker concerns extraction possibilities. With coordinative uses, no kind of movement from inside the conjunct is possible.

(77) a. [*~~sen~~ ile Ahmet evlendi-niz] sen
[~~You.NOM~~ and Ahmet get.married-2PL] you.NOM
b. [*~~Sen ile~~ Ahmet evlendi-niz] sen ile
[~~Sen and~~ Ahmet get.married-2PL] you and
'you and Ahmet got married'

With comitative uses, movement of the genitive pronoun is not acceptable. However, movement of postpositional phrase is judged to be acceptable.

(78) a. *[~~senin~~ ile Ahmet evlendi] senin
~~you.GEN~~ with Ahmet get.married.3SG you.GEN

b. [[~~senin ile~~ Ahmet evlendi] [senin ile]]
~~You.GEN with~~ Ahmet get.married.3SG you.GEN with

'Ahmet got married with you'

The restrictions on the placement of the polar question particle mimics the restrictions on movement. With coordinative uses, the polar question particle cannot be adjoined either to the pronoun or to the comitative marker.

(79) Sen (*mi) ile (*mi) Ahmet evlendi-niz
You.NOM Q and Q Ahmet get.married-2PL

In the comitative uses, it is possible to adjoin the Q particle to the whole comitative phrase but not to the genitive pronoun.

(80) Senin (*mi) ile mi Ahmet evlendi
You.GEN Q with Q Ahmet get.married.3SG
'Did Ahmet get married with you? '

We finally examine (non-nominalized) relative and adjunct clauses in Turkish that show island-like behavior. (We discuss properties of nominalized relative and adjunct clauses in the next section)

(81) ki relativization

Ben bu adamı ki Ahmetle dün tartıştı tanıyorum
I this guy.ACC REL Ahmet.with yesterday debated is.acquainted.with
'I am acquainted with this guy who debated with Ahmet yesterday'

adjunct reason clauses

Ahmet Ayşe-ye kızdı çünkü o Mehmet'i dövdü
Ahmet Ayşe-DAT got.angry.PAST because 3SG Mehmet-ACC beat.PAST
'Ahmet got angry with Ayşe because she beat Mehmet'

Such clauses behave as islands for any type of extraposıtıon.

(82) a. *Ahmetle [ben bu adamı ki ~~Ahmetle~~ dün tartıştı tanıyorum]
Ahmet.with I.NOM this guy.ACC REL ~~Ahmet.with~~ yesterday debated know
'I am acquainted with this guy who debated with Ahmet yesterday'

b. *Mehmet'i [Ahmet Ayşe-ye kızdı çünkü o ~~Mehmet'i~~ dövdü]
Mehmet-ACC Ahmet Ayşe-DAT got.angry because she Mehmet-ACC beat.PAST
'Ahmet got angry with Ayşe because she beat Mehmet'

As predicted by Özyıldız's Generalization, the polar question particle gives rise to ungrammaticality inside these two islands.

(83) a. *Ahmet Ayşe'ye kızdı çünkü o Mehmet'i mi dövdü
Ahmet Ayşe-DAT got.angry.PAST because she Mehmet-ACC Q beat.PAST
'Is it Mehmet$_j$ that Ahmet got angry with Ayşe because she beat him$_j$? '

b. *Sen bu adamı ki Ahmetle mi dün tartıştı tanıyorsun
you this guy.ACC REL Ahmet.with Q yesterday debated know
'Is it Ahmet$_j$ that you are acquainted with this guy who debated with him$_j$ yesterday? '

Here is a summary of our observations that showing that covert Q movement obeys the same constraints as phrasal movement.

Table 4.3. Interaction of movement and Q in Turkish

	Q-adjunction	Phrasal Movement
Possessors	Yes	Yes
Asymmetric Coordination	Yes	Yes
Postpositional Comitative	Yes	Yes
Complements of Postpositions	No	No
Attributive Adjectives	No	No
Symmetric Coordination	No	No
Coordinative Comitative	No	No
ki Relativization	No	No
Adjunct Reason Clause	No	No

4.3.5.Q inside Islands?

We have argued that Turkish is a Q adjunction language with covert Q movement. We developed an explanation for Özyıldız's Generalization by observing that covert Q movement in Turkish is subject to the same constraints as overt phrasal movement. Against this background, it is somewhat surprising to observe that the Q particle in Turkish can be adjoined to phrases inside what would be islands in other languages. The observation is that the polar question particle in Turkish can be adjoined to constituents inside adjunct clauses (84)a, relative clauses (84)b and clausal subjects (84)c

(84) a. Hoca Ahmeti Ali-ye mi vurduğu için takımdan atacak?
Coach Ahmet-ACC Ali-ACC Q hit.NMZ because from.team throw.out.FUT
'Is it Ali that the coach will throw Ahmet out of the team because Ahmet beat him? '

b. Ali çetelerin Ahmeti mi öldürdüğü binayı satın.aldı?
Ali gangsters Ahmet Q kill.REL building bought
'Is it Ahmet$_i$ that Ali bought the building where the gangsters killed him$_i$? '

c. Alinin Ahmetle mi konuşması işimizi kolaylaştırdı?
Ali-GEN with.Ahmet Q talk.NMZ our.work.ACC ease.CAUS.PAST
'Is it with Ahmet$_j$ that Ali talked with him$_j$ made our job easier'

All the examples above have the Q particle adjoined to an argument. It is also possible to add the Q particle to an adjunct in similar examples.

(85) a. Hoca Ahmeti Ali-ye dün mü (Ali'ye) bağırdığı için takımdan atacak
Coach Ahmet-ACC Ali-DAT yesterday Q (Ali-DAT) shout.NMZ for from.team throw.out
'Is it yesterday that the coach will throw Ahmet out of the team because he shouted at Ali then? '

b. Ali Ayşe'nin Ahmeti geçen yaz mı gördüğü kafeyi satın.alacak
Ali Ayşe'GEN Ahmet.ACC last summer Q see.REL coffee.shop will.buy
'Is it last summer that Ali will buy the coffee shop in which Ayşe saw Ahmet then? '

c. Alinin sessizce mi Ahmetle konuşması işimizi kolaylaştırdı
Ali-GEN silently Q with.Ahmet talk.NMZ our.work.ACC ease.CAUS.PAST
'Is it silently that Ali talked with Ahmet that way made our job easier? '

This observation is surprising for the covert Q movement approach we have developed. We now show that the licensing of Q inside relative, adjunct and subject clauses in Turkish is correlated with the fact that overt phrasal movement out of such clauses is possible in Turkish.

4.3.6.Movement out of ‘‘islands’’

We have noted that the licensing of the Q particle in Turkish inside relative and adjunct clauses, as well as clausal subjects, is surprising for the covert Q movement approach. We note that this behavior of the Q particle is correlated with the fact that movement out of such clauses is possible in Turkish. Namely, it is possible for arguments to move out of such clauses in Turkish.

(86) a. [Hoca Ahmeti [~~Ali'ye~~ bağırdığı için] takımdan atacak] Ali-ye
Coach Ahmet-ACC ~~Ali-DAT~~ shout.NMZ for from.team throw.out Ali-DAT
‘The coach will throw Ahmet out of the team because he shouted at Ali’

b. Ahmeti [Ali [çetelerin ~~Ahmeti~~ öldürdüğü binayı] satın.aldı]
Ahmet.ACC Ali gangsters ~~Ahmet.ACC~~ kill.REL building bought
‘Ali bought the building in which the gangsters killed Ahmet’

c. [[Alinin ~~Ahmetle~~ konuşması] işimizi kolaylaştırdı] Ahmet.le
Ali-GEN ~~with.Ahmet~~ talk.NMZ our.work.ACC ease.CAUS.PAST with.Ahmet
‘that Ali talked with Ahmet made our task easier’

In the examples above, the target of movement is an argument. The situation with adjuncts is not different. It is possible to move adjuncts out of similar clauses. [67]

(87) a. [Hoca Ahmeti Ali-ye ~~dün~~ bağırdığı için takımdan atacak] dün
Coach Ahmet-ACC Ali-DAT ~~yesterday~~ shout.NMZ for team throw.out yesterday
'The coach will throw Ahmet out of the team because he shouted at Ali yesterday'

b. Geçen.yaz [Ali Ayşe'nin Ahmet ~~geçen.yaz~~ gördüğü kafeyi satın.alacak]
last.summer Ali Ayşe.GEN Ahmet ~~last.summer~~ see.RELcoffee.shop will.buy]
'Ali will buy the coffee shop in which Ayşe saw Ahmet last summer'

c. [Alinin ~~sessizce~~ Ahmetle konuşması işimizi kolaylaştırdı] sessizce
Ali-GEN ~~silently~~ with.Ahmet talk.NMZ our.work.ACC ease.CAUS.PAST silently
'That Ali talked with Ahmet silently made our task easier'

We conclude that the licensing of the Q particle inside subject, relative and adjunct clauses is a consequence of the fact that movement from inside such clauses is possible in Turkish. We will ask what licenses such movement operations in Appendix C. In the next section, we establish that these cases of displacement out of "islands" is indeed a movement operation and not base-generation at the left or right periphery.

[67] Some speakers of Turkish find the judgments with the moved adjuncts hard to accept. To facilitate the judgments, they are advised to force a single phonological unit that contains the embedded clause and the rightwards dislocated adjunct as in:

(1) Hoca Ahmeti (Ali-ye bağırdığı için takımdan atacak dün)
Coach Ahmet-ACC Ali-DAT shout.NOM for from.team will.throw yesterday
'The coach will throw Ahmet out of the team because he shouted at Ali yesterday'

Once this is granted, we believe that acceptability of the sentences becomes clearer.

4.3.7.It is movement and not base generation[68]

One might consider two possibilities for the peripheral placement of constituents in (86) and (87). They might be base-generated at the right or left edge of the clause or they might be, as we have assumed, movement constructions. If these are indeed movement constructions, we need evidence indicating that the initial position indicated in the examples interacts with the syntax in some manner that argues for movement.

4.3.7.1.Argument from negation sensitive items (NSIs)

As noted in Kural (1997) among others, negation sensitive item (NSIs) in Turkish are licensed in the scope of negation[69] (examples modelled from Kural, 1997). The embedded negation cannot license a matrix NSI.

(88) *Hiçkimse [Ahmet'in uyanmadığını] düşünüyor
Anybody Ahmet woke.up.NEG.NMZ.ACC thinks
'Nobody thinks that Ahmet didn't wake up'

[68] Syntactic nature of post-verbal movement is discussed in Kornfilt (2005) and Şener (2010). See Göksel (2013) for a prosodically-informed alternative analysis of post-verbal phenomena.

[69] The mechanism responsible for the licensing of NSIs is not clear. This is why we use the term 'negation sensitive item` (from Miyagawa, Nishioka and Zeijlstra, 2016) instead of 'negative polarity item` (NPI) or 'negative concord item` (NCI). NSIs in Turkish differ from NPIs in that they can be answers to fragment questions (as noted in Kelepir, 2001: 158)

(1) Kim gelmiş? Hiçkimse
Who came ? Noone

One might then be tempted to call these items negative concord items (NCIs, licensed under syntactic feature valuation). Note that typical NCIs can only be licensed by clause-mate negation (Miyagawa, Nishioka and Zeijlstra, 2016). Turkish NSIs differ from typical NCIs in that they can be licensed across clause boundaries (for discussion of interaction of NSIs with factivity, see Kelepir, 2001: 146 – 155)

(2) Ali hiçkimsenin geldiğini söylemedi
Ali anyone came say.NEG.PAST
'Ali didnt say that anyone came'

There is need for further investigation of the syntactic and semantic properties of NSIs. Their licensing profiles differ from better understood NPIs or NCIs.

Embedded negation can license an embedded NSI.

(89) Ahmet hiçkimsenin uyanmadığını düşünüyor
Ahmet anybody not.woke.up.NMZ.ACC thinks
'Ahmet thinks that nobody woke'

Moreover, matrix negation can license an embedded NSI.

(90) Ahmet hiçkimsenin uyandığını düşünmüyor
Ahmet anybody woke.up.NOM.ACC thinks.not
'Ahmet does not think thay anybody woke up'

We note that an NSI can be licensed inside a complex NP.

(91) Ali çetelerin hiçkimseyi öldürmediği binayı satın.aldı
Ali gangsters anyone kill.NEG.REL building bought
'Ali bought the building in which the gangsters killed noone.'

The two theories of peripheral constituents under consideration (base-generation and movement) differ in what they predict about the acceptability of NSIs at the right or left periphery. If these are cases of base-generation, then we expect the sentences with peripheral NSIs to be unacceptable given that the NSI is not in the scope of negation. If peripheral NSIs arise via movement, they should be able to reconstruct to their base position and give rise to acceptability and this is what we find.

(92) [Ali çetelerin ~~hiçkimseyi~~ öldürmediği binayı satın.aldı] hiçkimseyi
Ali gangsters ~~anyone~~ kill.not.REL building bought anyone
'Ali bought the building in which the gangsters killed noone. '

Similar remarks can be made about clausal subjects. NSIs are licensed inside negated subject clauses.

(93) Alinin hiçkimseyle konuşmaması işimizi kolaştırdı
Ali-GEN anyone-with talk.NEG our.job ease-PAST
'That Ali didn't talk with anyone made our job easier'

The acceptability of the sentence is preserved under movement of the NSI to the edge of the clause.

(94) [Alinin ~~hiçkimseyle~~ konuşmaması işimizi kolaştırdı] hiçkimseyle
[Ali-GEN ~~anyone-with~~ talk.NEG our.job ease-PAST] anyone.with
'That Ali didn't talk with anyone made our job easier'

We regard these observations as an argument in favor of a movement approach and against a base-generation approach.

4.3.7.2. Argument from the interaction of negation with universal quantifiers

It has been noted for Turkish that in a typical sentence with a universal subject and negated verb, the preferred reading is that of a negated universal (for most speakers) although the alternative reading is not impossible (Öztürk, 2005, Kural, 1997).

(95) Her öğretmen kampa gelmedi (not> all preferred over all>not)
Every teacher to-camp came.not
'Not every teacher came to the camp'

This observation extends to the interaction between a universal non-subject and negated verb. The *all>not* reading becomes increasingly unavailable.

(96) Ali telefonda herkesle konuşmadı (not>all, all>not extremely marked)
Ali on.phone with.everyone talked.not
'Ali didn't talk with everyone on the phone'

With a matrix universal argument and embedded negation, the only reading that is available is the wide scope of universal quantifier over negation.

(97) Her öğretmen Ali'nin gelmediğine inanıyor (all>not, *not>all)
Every teacher Ali-GEN come.NEG.NMZ.DAT believe
'Every teacher believes that Ali didn't come'

In a clausal subject with a negated verb and a universal argument, we obtain the preferred *not>all* reading.

(98) Alinin herkesle konuşmaması işimizi kolaylaştırdı
Ali-GEN with.everyone talk.not.NMZ our.work.ACC ease.CAUS.PAST
'That Ali didn't talk with everyone made our task easier'
(i.e. that there were people with whom Ali didn`t talk made our task easier)

We are now interested in the question of what readings are available when the universal argument is in the right (or left) periphery. In a base-generation approach, we expect to get *all>not* reading in analogy to (97). In a movement approach, we expect that both readings will be available. Both readings are indeed available with a preference for *not>all* readings (a preference weaker than what we have in (98))

(99) [Alinin ~~herkesle~~ konuşmaması işimizi kolaylaştırdı] herkesle
Ali-GEN with.everyone talk.not.NOM our.work.ACC ease.CAUS.PAST with.everyone
'That there were people with whom Ali didn`t talk made our task easier' is preferred over
'That Ali didn`t talk to anyone made our task easier'

Sentences with universals inside a negated complex NP also have a preferred *not>all* reading.

(100) Ali'nin herkesle buluşmadığı kafeyi gördüm not>all
Ali-GEN with.everyone meet.not.NMZ.REL coffee.shop saw
'I saw the coffee shop in which Ali didn't meet with everyone'

Movement of the universal argument to the left or right periphery preserves the not>all readings. It also makes the all>not reading more available.

(101) herkesle [Ali'nin ~~herkesle~~ buluşmadığı kafeyi gördüm] herkesle
with.everyone Ali-GEN with.everyone meet.not.NMZ.REL coffee.shop saw with.everyone
'I saw the coffee shop in which Ali didn' meat with every one'

This set of observations also indicates that the movement approach is to be preferred over the base-generation approach.

4.3.7.3.Argument from reciprocals

As discussed elsewhere (Öztürk, 2005 among others but see also Meral, 2010), reciprocals in Turkish obey Condition A of Binding Theory. That is, reciprocals must be co-indexed with a c-commanding clausemate DP. This explains why reciprocals cannot be bound by DPs embedded in a subject DP.

(102) Çocuklar-ın anneleri biribirlerine yardım.etti
Kids-GEN mothers to-each-other helped
'The mothers$_i$ of the kids$_j$ helped each other (i/*j) '

A non-local DP cannot bind the reciprocal even if they match in number[70]

(103) Kadınlar çetelerin birbirlerine ateş ettiklerini anlattılar
The.women the.gangsters-GEN to-each-other fire open.NOM.ACC explained
'The women$_i$ told/explained that the gangsters$_j$ opened fire on each other(j/*i) '

If the local binder exhibits number mismatch with the reciprocal, the result is unacceptable.

(104) *Kadınlar adamın birbirlerine ateş ettiğini anlattılar
The.women the.guy-GEN to-each-other fire open.NOM.ACC explained
'The women$_i$ told/explained that the guy$_j$ opened fire on each other(j/i) '

We now make use of reciprocals in order to distinguish between a movement approach and a base-generation approach to peripheral DPs. It will be noted that if the reciprocal is base-generated at the edge of a clause, there can be no local co-indexed DP c-commanding it. That is, Condition A is not satisfied in such constructions. We then expect sentences with the reciprocal at the left or right periphery to be unacceptable. If the movement approach is on the right track, it will be possible to reconstruct the moved reciprocal to its initial position, as a result of which

[70] Within a sentence, both the indirect object and the subject can bind the reciprocal within a direct object.

(1) Çeteler çocuklara birbirilerinin fotoğraflarını verdi
Gangsters kids.DAT each other's photographs gave
'Gangsters$_i$ gave each other's$_{\{i,j\}}$ photographs to the kids$_j$'

Condition A will be satisfied. It seems that movement approach makes the correct predictions. Below is the base sentence.

(105) Ali çocuklar birbirilerine vurduğunda çok üzüldü
Ali kids each.other hit.NMZ-when very sad.become.PAST
'Ali became very sad when the kids hit at each other. '

The acceptability of this sentence is preserved under movement of the reciprocal to the left or right periphery.

(106) birbirilerine [Ali çocuklar ~~birbirilerine~~ vurduğunda çok üzüldü] birbirilerine
each.other Ali kids each.other hit.NMZ.when very sad.become.PAST each other
'Ali became very sad when the kids hit at each other. '

Similar observations can be extended to the reciprocals licensed inside the complex NP as in (107). Movement of the reciprocal from inside such clauses preserve acceptability of such sentences.

(107) Ali çetelerin birbirlerini öldürdüğü binayı satın.aldı
Ali gangsters each.other kill.REL building bought
'Ali bought the building in which the gangsters killed each other'

(108)

birbirlerini Ali çetelerin ~~birbirlerini~~ öldürdüğü binayı satın.aldı birbirlerini
each.other.ACC Ali gangsters each.other kill.REL building bought each.other.ACC
'Ali bought the building in which the gangsters killed each other'

The argument from reciprocals together with the arguments from NSIs and relative scope of negation and universal quantifiers provide evidence for the claim that Turkish does have movement out of what would be ''islands'' in many other languages. This is how Q particles inside relative and adjunct clauses as well as clausal subjects are licensed. What licenses these movement operations? It turns out that we can make sense of some cases of movement out of islands by adopting the theory of case computation of nominal clauses in Turkish developed in Colley and Davis (to appear). In Appendix C, we describe this theory and show how it helps understand movements described in this section. We also discuss some problems with this analysis.

4.4.Conclusion

In this chapter, we have provided independent evidence for the presence of a phasal NP in non-concord languages. We have shown that in those languages in which NP is phasal, APs are trapped inside the NP. This means that discontinuous nominal expressions derived by AP movement is not available to non-concord languages. We have presented evidence indicating that this prediction is empirically supported. We have shown that the observation that *Adj-Q Noun* order is unacceptable in Turkish can be explained with the assumption that Turkish is a Q-adjunction language with covert Q movement and that Q movement is blocked in the same way that AP movement is. We have observed that Q is licensed inside relative clauses, adjunct clauses and subject clauses. This is an apparent challenge for the covert Q movement approach since such clauses are generally islands in other languages. However, we have shown that movement out of relative, adjunct and subject clauses is possible in Turkish. Therefore, the fact that Q is licensed inside such clauses does not challenge the covert Q movement approach we have adopted.

CHAPTER 5

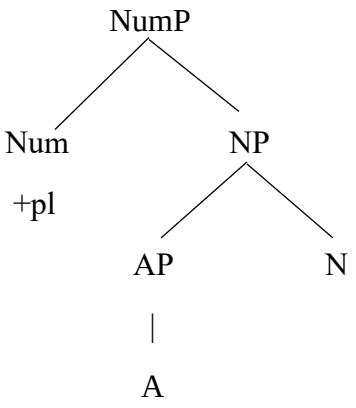
On Concord and Number

5.1.Introduction

The theory of concord we have developed has two major aspects: (i) the mechanism that underlies concord is uniform across the grammars of natural languages and (ii) the absence of the overt manifestation of concord in a language is a consequence of phasal NPs. In this chapter, we provide evidence for both of these claims. We first show that the presence of *pluralia tantum* nouns in a language implies that NP in this language is not a phasal domain. Given the universality of concord rules, we predict languages with *pluralia tantum* nouns to be plural concord languages. We show that this prediction is empirically supported. Second, we claim that the Num head can be optional only in those languages where NP is a phasal domain. The empirical consequence of this claim is that only non-concord languages can have count nouns unspecified for number (i.e. number neutrality).

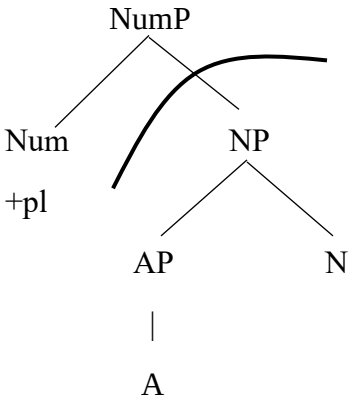
Recall the distinction between a language that has number concord and one that lacks it. Suppose we have the representation in (1).

(1)



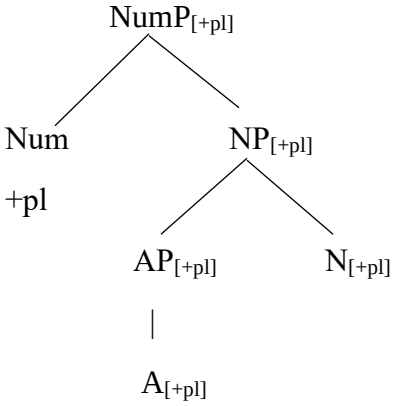
The next step is a point of variation among languages. In some languages, NP is a phasal domain and protected from the application of Feature Assignment. That is, in such languages, the plural feature cannot be copied to adjectives and the head noun inside NP. We represent the relevant step in (2):

(2)



There are also languages in which NP is not a phasal domain. Under this scenario, the plural feature will eventually appear on all heads inside NP and it will be realized in all these positions. This is the representation of a number concord language:

(3)



In what follows, we first show that languages with *pluralia tantum* nouns must have the representation in (3) and not in (2).

5.2.*Pluralia tantum* and Number Concord

One difference between the two types of languages described above is that in a non-concord language, NP is spelled out in a domain distinct from NumP. If a grammatical phenomenon requires that Num and NP be spelled out within the same domain, we expect that only a concord language will exhibit this phenomenon. In this context, consider *pluralia tantum* nouns, i.e. nouns that *only* have a plural form. Following Klockmann (2017:316), we assume that a *pluralia tantum* noun differs from other nouns in that it is licensed by the obligatory presence of a plural feature on Num. [71] Moreover, Spell Out is the relevant domain in which this condition must be met.

(4) *Pluralia tantum* nouns

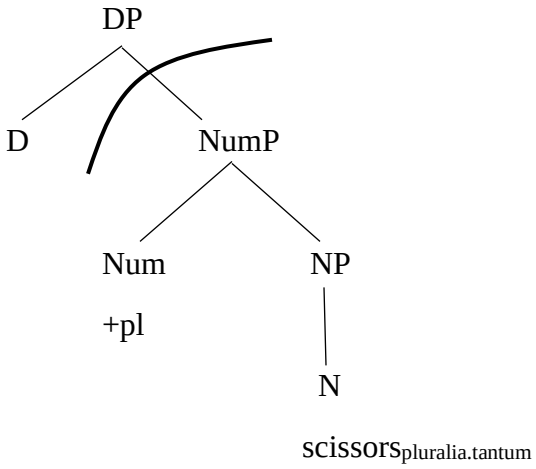
A *pluralia tantum* noun must be licensed by the feature [+pl] at Spell Out.

[71] It has been argued that *pluralia tantum* nouns come from the lexicon already specified with the plural number (Acquaviva, 2008, Pesetsky, 2013, Harizanov and Gribanova, 2015). Klockmann's analysis of *pluralia tantum* nouns is compatible with the assumption that number is always introduced as a functional head. This is why we have adopted this analysis.

Note that Klockmann's discussion of *pluralia tantum* nouns is embedded within an elaborated theory of nominal features and nominal syntax. We do not adopt Klockmann's theory here.

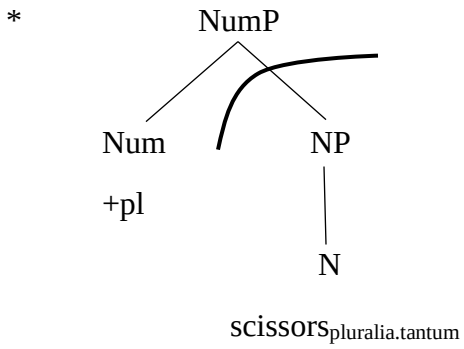
This implies that a noun and the Num head must be spelled out together, for instance as in (5)

(5)



NP in a language with *pluralia tantum* nouns cannot be a phasal domain. If it were, *pluralia tantum* nouns would not be licensed at Spell Out as shown in (6).

(6)



In languages that lack phasal NP, the plural feature of Num is copied onto every head inside NP by applications of Feature Assignment. The consequence is that languages with *pluralia tantum* nouns are plural concord languages.

(7) *Pluralia tantum* implies plural concord (*PT→PC*)
If a language has *pluralia tantum* nouns, then this language has plural concord

The reverse is also true. That is, if a language lacks plural concord, then NP is a phasal domain. If NP is a phasal domain in a language, then such a language cannot have *pluralia tantum* nouns.

(8) No plural concord implies no *pluralia tantum* (*nPC→nPT*)
If a language does not have plural concord, then this language has no *pluralia tantum* nouns

In what follows, we study these predictions. We start with languages of the Uralic family that minimally differ in having *pluralia tantum* and/or plural concord. We show that they behave as predicted by the proposal developed here. We then discuss plurality in English as it challenges the validity of the prediction in (7). We argue that English is *a plural concord language* despite the absence of plural morphology on attributive adjectives.

5.3.Inside the Uralic language family

In this section, we look at variation among languages within the Uralic language family. We first look at languages with *pluralia tantum* nouns (Finnish, Estonian and Mordvin). These languages are predicted to be plural concord languages and we show that they are. We then take a look at those languages that lack plural concord (Hungarian, Mari and Ostyak). We provide evidence indicating that this second class of languages does not have any *pluralia tantum* nouns.

5.3.1.The *Pluralia Tantum* languages: Finnish, Estonian and Mordvin

Finnish, Estonian and Mordvin are Uralic languages that possess *pluralia tantum* nouns (Kelemen, 2013). We expect these language to have plural concord. We discuss Finnish and Estonian together. We, then, turn to Mordvin, which challenges our generalization. In Finnish, nouns such as *farkut* 'jeans', *housut* 'pants', *sakset* 'scissors', *silmäsit* 'glasses' and *sortsit* 'shorts' are some of the *pluralia tantum* nouns (Sakuma, 2008). Estonian also has several *pluralia tantum* nouns, including *kliid* 'bran', *tangut* 'groats', *püksid* 'trousers', *käärid* 'scissors'. (Verschik, 2008: ft5). Finnish and Estonian are predicted to be plural concord languages. This prediction is borne out (Karlsson, 1999:75 for Finnish, and Norris, 2014: 25 for Estonian).

(9) Finnish

a. iso auto
big car
'a big car'

b. iso-t auto-t
big-PL car-PL
'the big cars'

c. iso-ssa auto-ssa
big-LOC car-LOC
'in the big car'

d. iso-i-ssa auto-i-ssa
big-PL-LOC car-PL-LOC
'in the big cars'

(10) Estonian

kõik nee-d Kärdi punase-d auto-d
all DEM-PL Kärt.GEN red-PL car-PL
'all these red cars of Kärt's'

As noted in Kelemen (2013), Mordvin also has *pluralia tantum* nouns. We expect adjectives in Mordvin to show concord with the head noun. This expectation is met - but in a restricted way. Normally, attributive adjectives in Mordvin are not marked for number or case (Zaicz, 1998).

(11) a. paro moda
good ground.NOM
'good ground'

b. paro moda-nʲ
good ground-GEN
'of good ground'

c. od kudo-t
new house-PL
'new houses'

d. od kudo-so
new house-INESS
'in a new house'

Some expressions in Mordvin do show plural concord. This is "the optional, and rare, plural nominative agreement of attributes with their animate head" (Zaicz, 1998).

(12) par-t loman^{j}-t^{j}
good-PL human-PL
'good people'

There are (at least) two analyses of the `optional, and rare' plural concord. The first one is to assume that Mordvin is indeed a plural concord language and that plural goes unpronounced on inanimate nouns. We would also have to assume that expressing plural on an adjective is optional in the context of an animate noun. A second interpretation could be that Mordvin is not a plural concord language and the plural morphology on adjectives in the context of animate nouns is regulated by a mechanism that is distinct from concord (whatever it is).

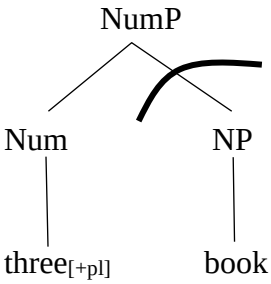
We will now provide independent evidence indicating that Mordvin is a plural concord language. First, we observe that languages differ as to whether or not the head noun shows plural morphology in the context of a numeral expression. In Turkish, nouns must be uninflected in the context of numerals while in Syrian Arabic, nouns must be in plural.

(13) Turkish
iki kitap(*-lar)
two book-PL
'two books'

Syrian Arabic
xamst iyyām
five day.PL
'five days'

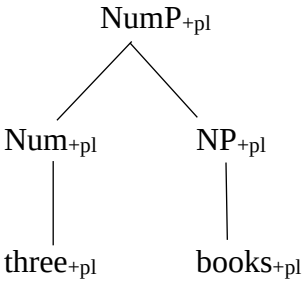
We might ask about the characterization of this phenomenon in the context of the theory of concord developed in this dissertation. Suppose that numerals occupy the Num position, where the plural feature is intrinsically specified on them. In a language where NP is phasal, the plural feature will not be copied onto the head noun.

(14)



In a language of this type, the head noun will not be in the plural form given that there is no plural feature on it. We take this to be the analysis of Turkish nouns in the context of a numeral. In a plural concord language, where NP is not phasal, plural will be copied on the head noun and consequently, the head noun will be realized in its plural form as in (15)

(15)



That is, plural marking in the context of a numeral is also handled by the mechanism that computes concord with adjectives. We summarize this observation with the following statement.

(16) Numerals and Concord

A language with plural nouns in the context of a numeral is a plural concord language

Nouns in Mordvin appear in plural form when they are used with numerals (Zaicz, 1998)

(17)	kavto či-tʲ	sʲado	ije-tʲ
	two day-PL	hundred	year-PL
	'two days'	'hundred	years'

We conclude that Mordvin is indeed a plural concord language[72], as predicted under the *PT→PC* generalization.

5.3.2.The Non-concord Languages: Hungarian, Mari and Ostyak

In some of the Uralic languages, there is no plural concord inside nominal expressions. The prediction for such languages is repeated below

(18) The *nPC→nPT* generalization

If a language does not have plural concord, then this language has no *pluralia tantum* nouns

How do we conclude that a language lacks plural concord? Such a language must show both of the following properties: (i) there is no plural concord on adjectives and (ii) nouns are not in plural form in the context of a numeral.

Ostyak (as described in Nikolaeva, 1999: 12) makes a three way distinction in number: singular, dual *–ŋən* and plural *–t.*

(19)	SG	DU	PL	
	xo:t	xo:tŋən	xo:tət	'house'
	e:wi	e:we:- ŋən	e:we:t	'girl'

[72] More precisely, there is feature assignment of plural, even if it does not show up as classical concord on adjectives.

Adjectives in Ostyak remain uninflected when used attributively. Moreover, nouns are not pluralized in the context of a numeral (Nikolaeva, 1999: 20)

(20) a. so:ra xo:p-na
fast boat-LOC
'in a fast boat'

b. ka:t tal xo:p we:r-s-ə-lli
two year boat do-PAST-EP-SG.3SG
'he was making the boat for two years'

c, luw ka:t wo:s-na u:-l
he two city-LOC be-nPAST.3SG
'he has been in two cities'

As noted in Nikolaeva (1999:12), Ostyak does not possess any *pluralia tantum* nouns. This is in conformity with the predictions of the *nPC→nPT* generalization.

We discuss Mari and Hungarian together. Both Hungarian (Kenesei et. al, 1998: 256) and Mari (Kangasmaa-Minn, 1998) make a two way distinction in number: singular and plural.

(21) SG PL [Hungarian]
város város-ok 'town(s) '
ház ház-ak 'house(s) '

Adjectives do not show concord in Mari (Kangasmaa-Minn, 1998: 225) or in Hungarian (Kenesei et al, 1998:92)

(22) Anna négy alacsony férfi ellen győzött [Hungarian]
Anna four small man against won
'Anna won against four small men'

Moreover, nouns in these languages are not pluralized in the context of a numeral (see Kenesei et al. 1998: 255 for Hungarian and Kangasmaa-Minn, 1998 for Mari)

(23) Maskan kum igəge satašenət [Mari]
Bear.GEN three child.COM go.astray.PAST.3PL
'The bear went astray with its three cubs'

két könyv [Hungarian]
two book
'two books'

As predicted, Mari has no *pluralia tantum* nouns (Kelemen, 1993). In Hungarian, only some proper names have plural-*only* forms. However, such nouns show agreement in singular (Anikó Lipták, personal communication). Since these nouns, an example of which is shown in (24), do not behave as plurals syntactically, we assume that they are not genuine *pluralia tantum* nouns. Note also that typical *pluralia tantum* nouns appear to have singular-plural pairs as in (25).

(24) Egyesült államok
united nation.PL
'USA'

(25) olló 'scissors'
ollók 'pairs of scissors'

We conclude that both Mari and Hungarian behave as predicted by the *nPC→nPT* generalization. In this section, we have shown that the theory of concord with which we are working correctly predicts differences between various Uralic languages. That is, the universal theory of concord we have developed is also a theory of how related languages must differ, given their properties.

5.4.English as a plural concord language

English possesses a number of *pluralia tantum* nouns.[73]

(26)	trousers	scissors	jeans	tongs
	pants	pliers	flares	glasses
	shorts	shears	overalls	binoculars
	leggings	tweezers		

Given the *PT→PC* generalization, we expect English to be a plural concord language. However, attributive adjectives in English are not inflected for plurality.

(27) beautiful(*s) big(*s) grey(*s) cats

In this section, we first show that English is a plural concord language despite the absence of plural morphology on attributive adjectives. We then suggest that the absence of plural morphology in English may be due to syntactic properties of English adjectives.

The first piece of evidence for plural concord in English comes from nouns in the context of numerals. We have noted that in non-concord languages, nouns remain uninflected in the context of numerals. English differs from non-concord languages in that nouns are necessarily in a plural form when they are used with a numeral.

(28) three book*(s)

The second piece of evidence for plural concord in English comes from a type of possessive construction. Munn (1995) notes that English has two types of possessive constructions. The first one is the regular possessive constructions (RPC) in which the specifier of a possessive is a Determiner Phrase (DP).

(29) Mary's school
Bill's shoes

[73] The list is taken from http://blog.oxforddictionaries.com/2015/05/12-nouns-that-are-always-plurals/ retrieved on 1/3/17

English also has a modificational possessive construction (MPC) in which the genitive marked NP is non-referential and behaves like a modificational element. Such NPs give rise to type-interpretations. (30)a denotes a school for girls (and not for some specific girl or girls). (30)b denotes a type of shoe intended for male individuals (and not for any specific man or men).

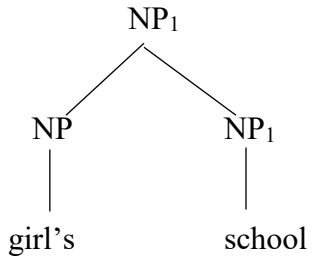
(30) a. a girl's school
b. a man's shoe/men's shoes

The possessor in a RPC is a DP while the possessor in an MPC can only be an NP. This claim is empirically supported by the observation that expressions in which the possessor is a DP can only be interpreted as a regular possessive construction.

(31) a. The large dog's bone
b. Bill's shoes
c. The man that I like's hat

The possessor NP in an MPC can be analyzed as an adjunct to the head NP[74] (see Munn, 1995 for the details of this adjunction analysis).[75]

(32) The Representation of the Modificational Possessive Constructions



[74] The genitive marked NP is argued to make a short movement to the specifier of the AGR head, which hosts the genitive marker. We ignore this movement operation here.

[75] Munn argues against a compound analysis of such constructions suggested in Barker (1991). Barker notes that some of these possesive constructions have an idiomatic interpretation and receive compound stress (*men's room* 'bathroom', *bull's eye* 'center of a target' etc.). One might then be tempted to analyze all such constructions as compounding. Against this option, Munn observes that there are also examples of the modificational possessive constructions which are not idiomatic in meaning (for instance, *men's shoes* and *men's pants*). Moreover, as we note next, there is feature co-variance between the modificational NP and the head noun.

Munn observes that the possessor in an MPC shows feature covariance with the head noun. The singular expression in (33)a can be used to talk of a room that shows characteristics of belonging to a man (male-ish properties).[76] It is crucial to note that when the head noun is plural, the modificational NP cannot be singular ((33)b). That is, there is feature co-variance between the head noun and the modificational noun.

(33) a. This is a man's room/shoe
b. *These are man's rooms/shoes

In some constructions, the modificational element can be plural in the context of a singular head noun. However, that is possible only with an idiomatic interpretation. That is, such an expression cannot have the non-idiomatic interpretation in (33)

(34) a. This is a men's room
'bathroom for men'
cannot mean 'male-ish room'

b. *This is a man's room
'bathroom for men'

Constructions like (34), where we obtain idiomatic interpretations, are analyzed as compounds. Such compounds are distinct from MPCs. In constructions with plural nouns, this distinction between the compounds and MPCs reveals itself as two distinct meanings. The sentence in (35) is ambiguous between a structure in which it is derived by plural concord from (33)a with the meaning *male-ish rooms* and a structure in which it is the plural form of the compound in (34), with the meaning *bathrooms for men*.

(35) These are men's rooms
'These are bathrooms for men'
'These are male-ish rooms'

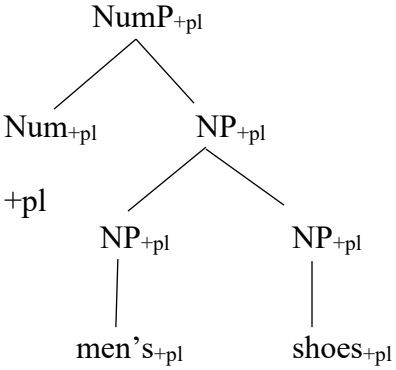
[76] One characterization of such a room could be "prototypical 'den' with its dark panelling, pictures of hunting scene, old sailing ships and the like" (Munn, 1995).

Once the distinction between compounds and MPCs is made, we obtain the following generalization.

(36) Modificational Possessive Constructions (MPCs)
In an MPC, the number value of modificational NP covaries with the number value of the head noun.

Note that this generalization can be captured within the theory of concord we have developed with the assumption that English is *a plural concord language*. The representation of plural concord in MPC constructions is as in (37)

(37)



We have provided two pieces of evidence indicating that English is indeed a plural concord language. One might wonder why English adjectives fail to show plural morphology in the context of a plural noun. We suggest that this might be due to the syntactic representation of English adjectives. Adjectives in English are known to be special in various ways (Stowell, 1981, Baker, 2003). For instance, they cannot take complements in prenominal position (Baker, 2003).[77]

[77] Post-nominal adjectives do not obey this restriction. They can take complements.

(1) The man proud of his son

Cinque (2010: 59-61), following Larson and Marušič (2004), argues that English postnominal adjectives must be analyzed as reduced relative clauses. One piece of evidence for this claim comes from non-predicative adjectives. Such adjectives cannot be post-nominal.

(2) a. *What is their reason main?

(38) *The proud of his son man
*An angry at the government boy

Stowell (1981) notes that *simple* adjectives must appear in the position preceding a head noun. This is unlike "heavy adjectives" in the language. The phrase *older than me* cannot be used in prenominal position.

(39) a. [the [big] man]
b. [the [old] [grey] mare]
c. [any man [older than me]]
d. *[any [older than me] man]

Stowell (1981) postulates a lexical rule introducing adjectives given in (40), which makes adjectives exempt from AP-like behavior. Adjectives in English come from lexicon already adjoined to a noun and they never project a distinct category.[78]

(40) N → A N

We have already introduced a concept that is capable of expressing the intuition behind the rule that Stowell proposes: g-Merge. We assume that adjectives in English are dependent. The definition of g-Merge is given in (41)

(41) Glue Merge (g-Merge)
Given two lexical objects, α and β, where α is dependent on β
g-Merge(α, β) = α^β
where α^β has the category β *and*
α^β behaves as a single unit for the rest of the derivation

b. *He is a drinker heavier than his father
c. *The winner sure from every possible viewpoint is John

[78] Baker (2003) also gives an analysis of English adjectives as adjoined heads to the head noun. For Baker, the merge of A and N heads form an NP as in:

(1) NP
/\
A N

Adjectives in English are subject to the following rule:

(42) Adjectives in English

Attributive adjectives in English must be g-Merged

Note that complements of adjectives are generated with Merge. That is, they are non-lexical syntactic objects. Therefore, Glue Merge cannot apply to them and they cannot be merged with adjectives.[79] In this way, we can explain why adjectives in English do not take complements. A consequence of (42) is that even though English is a plural concord language, adjectives in English cannot be moved on their own (noted in Boškovič, 2008)

(43) *Expensive [he saw cars]

A second consequence of g-Merge of adjectives in English is that adjectives are not accessible for the application of the rule of Feature Assignment. We take this to be the explanation for the absence of overt plural concord on adjectives in English.

In this section we have shown that both the *PT →PC* and *nPC→nPT* generalizations are empirically supported. This provides further evidence for the universal theory of concord we defend in this dissertation.

[79] English adjectives can be modified by adverbs. For consistency, we assume that adverbs and adjectives can be g-Merged and the output of a g-Merge operation can be input to another g-Merge operation (so that after adverbs and adjectives are g-Merged, the output can be g-Merged with nouns).

5.5.Number Neutrality and Number Concord

There are languages in which count nouns need not be in plural form to license plural interpretations. We will use the term *number neutrality* to talk about this aspect of natural languages. In what follows, we will clarify our understanding of what number neutrality is. Following Krifka (1995), Sauerland (2003) and Bale *et al* (2011), we assume that the denotation of a count noun contains both atomic (singular) and non-atomic entities.[80]

(44) [| book |] = $\lambda x \in D_e$. every atomic part of x is a book

where the books are a, b and c
[| book |] = {a, b, c, a+b, a+c, b+c, a+b+c}

Such a denotation contains both singular and plural entities. That is, it is not specified for singularity or plurality. A count NP is specified for a number only under the value of the Num head. To spell out this idea, we adopt the following entries for singular and plural.[81]

(45) [| SING |] = λP_{et}. λx. [P(x) & AT(x)]
[| PLU |] = λP_{et}. λx. [P(x) & $\neg$AT(x)]

[80] We assume here that the domain of entities contains both atomic and plural individuals. This can be achieved by the following definitions, modelled from Winter and Scha (2015).

Let E be a set of entities. A flat domain D over E is defined as follows

1. Every member of E is a member of D
2. For any two members x,y of D, their sum is in D iff $x \neq y$
3. Nothing else is in D

[81] The definition of PLU differs from Sauerland (2003) and Sauerland et al (2005), where plural is taken to be the unmarked number (the identity function) and presuppositional. We adopt the entry in (45) to avoid discussing details about presupposition maximization, anti-presuppositions etc.

The effects of number on a number neutral noun are shown in (46)

(46) where the books are a, b and c

[| book |] = {a, b, c, a+b, a+c, b+c, a+b+c}

[| book-SG |] = {a, b, c}

[| book-PL |] = {a+b, a+c, b+c, a+b+c}

Note that if there were no number value on a noun, there would be nothing in the syntax that forces a singular or plural denotation. That is, the specified number property observed in some languages can be formalized as the obligatory presence of Num. In a similar way, number neutrality is understood to be optionality or absence of the Num head. [82]

(47) Number Neutrality

A language shows number neutrality

only if Num is optional (or absent)

in the extended projection of a noun.

What is a language in which Num can be optional? This is where the theory of concord we have developed plays a role. Notice that in a plural concord language, Num and NP are in the same Spell Out domain. In a non-concord language, NP is spelled out in a domain that does not contain the Num head. We propose that NP and Num are more tightly connected in those languages where they are spelled out *within the same domain*. That is, in a language where Num and NP are within the same Spell Out domain, the presence of a Num head is obligatory. We assume that in a non-concord language, there is no such requirement. We express this as a requirement on optionality of the Num head.[83]

[82] Deprez (2005) argues for a similar analysis of number neutrality with different assumptions about the denotation of NPs and number features. Deprez (2005:1) proposes a parameter, *The Plural Parameter*, ``that distinguishes languages according to whether or not the structure of their nominal expressions obligatorily includes a functional projection for Num``. Haitian Creole is analyzed as a language with an optional Num projection. In what follows, we will argue that effects captured by *the Plural Parameter* interact with the presence or absence of Spell Out domains in ways that are (partially) predictable.

[83] An analogy can be formed with the absence of an embedded complementizer in the context of ECM verbs (*I believe John to be a genius*). How can a complementizer be absent when there is a TP? The fact that TP and CP are spelled out in distinct domains might be playing a role here. Similarly, NumP can be absent in the context of an NP given that, in a non-concord language, NumP and NP are spelled out in distinct domains.

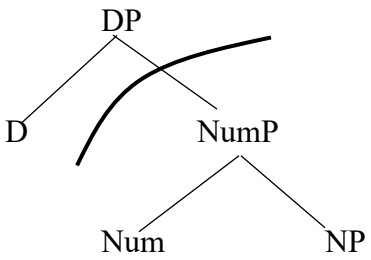
(48) A condition on optionality of functional projections

Num can be optional

unless Num and NP are in the same Spell Out domain. [84]

We now apply this idea to English-type and Japanese-type languages to see its empirical consequences. Note that Num is not a phasal head in an English-type language. For ease of exposition, let us assume that D is the phasal head. That is, we have

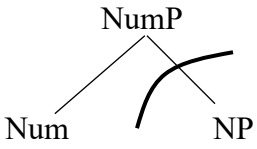
(49) English



[Num [NP]] is within the same Spell Out domain.

Since NP and Num are within the same Spell Out domain in English, whenever there is an NP, there is a Num head above it. Consider now a language in which NP is phasal (say, Japanese).

(50) Japanese



[84] In a plural concord language, the plural feature is copied on head nouns. It might be that in those languages where number is copied on a head noun, there is a minimal word requirement on nouns such that number must always be present on nouns. This morphological requirement might be what is responsible for a condition like (48). In a non-concord language, where nouns are spelled out independently, the plural feature is not copied on nouns. This enables such nouns to appear as a morphological word without number morphology. This, in turn, might be what enables nouns in non-concord languages to be used without the Number head. This speculative remark is not enough to make the condition in (48) natural. We leave this task to future work.

In Japanese, Num is not within the same spell out domain as with NP. Therefore, it is, at least in principle, possible to use NP without a Num head. Such constructions will give rise to number neutrality. We now summarize our findings from this section. We have first noted that in a language where Num is not a phasal head, every noun is specified for a number. This is given in (51) below.

(51) The Specified Number Generalization
In a number concord language, there is no number neutrality

The inverse is also true. That is, if we have a language in which it is possible to use an NP without number, it must be the case that NP is spelled out without number. That is, such a language should be a non-concord language.

(52) The Number Neutrality Generalization
In a number neutral language, there is no number concord

In what follows, we first discuss the properties of Japanese and Korean as number neutral languages. We then discuss some problematic cases for the Specified Number Generalization. Some number concord languages have been claimed to have number neutrality (Syrian Arabic, Hindi and Brazilian Portuguese). We show that these languages do not have genuine number neutrality and they systematically differ from Japanese and Korean.

5.5.1.Languages with number neutrality

In this section, we first report properties of two languages with number neutrality: Korean and Japanese. We then discuss Brazilian Portuguese, Hindi and Syrian Arabic as plural concord languages that are problematic for the Specified Number Generalization. We show that these languages cannot be described as being number neutral. Brazilian Portuguese (Pires de Oliveira and Rothstein, 2011) and Syrian Arabic (Zabbal, 2012) make use of mass nouns that give rise to number neutrality effects. In Hindi, on the other hand, apparent neutrality is a result of atelicity (Dayal, 2011). Let us call number neutrality effects in the absence of genuine number neutrality "spurious number neutrality". We suggest that spurious number neutrality has two sources.

(53) Spurious Number Neutrality

Mass nouns/kind terms are spuriously number neutral

Brazilian Portugese (Pires de Oliveira and Rothstein, 2011)

Syrian Arabic (Zabbal, 2012)

Atelic aspect may give rise to spurious number neutrality

Hindi (Dayal, 2011)

Korean and Japanese are examples of genuine number neutral languages. In a sentence with a non-plural subject and a non-plural object, the subject and the object can have both singular and plural interpretations (Nemoto, 2005: 384).

(54)	a. Haksayng-un	chayk-ul	ilk-ess-ta	[Korean]
	Student-TOP	book-ACC	read	
	' (A) student(s)	read	(a) book(s) '	
	b. Gakusei-wa	hon-o	yomimasita	[Japanese]
	Student-TOP	book-ACC	read	
	' (A) student(s)	read	(a) book(s) '	

Genuine number neutrality is a function of optionality of the Num head on count nouns and it is not sensitive to aspect. For future reference, let us note that nouns in Japanese are number neutral in a telic context[85]

(55) Context: There was a reading assignment and I had to read three books

Watashi-wa	hon-o	mikka-de	yon-da
I-TOP	book-ACC	3day.with	read-PAST

'I read the books in three days'

As expected under the Number Neutrality Generalization, nouns in Korean (Kim and Yang, 2006) and in Japanese (Miyagawa, 2017) do not surface as plural in the context of a numeral.

(56)

a. haksayng	sey	myengi-i	o-ass-ta	[Korean]
student	three	CL-NOM	come-PAST-DEC	
b. gakusei	san-nin	ga	kita	[Japanese]
student	three-CL	NOM	came	

'three students came'

We now discuss the three plural concord languages (Brazilian Portuguese, Hindi and Syrian Arabic) that have been claimed to exhibit number neutrality. We show that number neutrality in these languages is spurious. Let us start with Brazilian Portuguese, a plural concord language (Whitlam, 2010).

(57) a. Duas casas
Two house.PL
'two houses'

b. As forças armadas brasileiras
The force.PL armed.PL Brazilian.PL
'the Brazilian armed forces'

[85] all Japanese examples are from Takashi Morita, personal communication unless specified otherwise

Under the Specified Number Generalization, Brazilian Portuguese is predicted to lack number neutrality. However, Brazilian Portuguese allows (determinerless) non-plural nouns to be used with a plural interpretation in generic (58)a and non-generic sentences in both object (Pires de Oliveira and Rothstein, 2011) position (58)b and subject (Schmitt and Munn, 1999) position (58)c. Such nouns are sometimes called *bare singulars*.

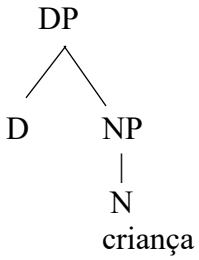
(58) a. Michoca cav-a buraco
Earthworm dig-PRES.SG hole
'Earthworms dig holes'

b. João comprou caderia
João bought.PERF.SG chair
'John bought chairs'

c. Criança brinvaca na rua
Child played.SG in the street
'Children played in the street'

Schmitt and Munn (1999) argue that bare singular nouns in Brazilian Portugese are number neutral count nouns and have no Num projection. In such a construction. NP is the sister of the D head.[86]

(59)



[86] They also postulate an Agr head, which we ignore here.

This analysis of bare singulars clearly contradicts the predictions of the proposal developed in this dissertation. Brazilian Portuguese is expected to exhibit no number neutrality with count nouns. Pires de Oliveira and Rothstein (2011) argue that bare singular nouns in Brazilian Portuguese cannot be analyzed as number neutral count nouns and they are best analyzed as mass nouns (which are closely related to kind terms, see Chierchia, 1998: 350 - 353). They make a distinction between semantic atomicity and natural atomicity, where ‘‘semantic atomicity is an aspect of count nouns and [n]atural atomicity can in principle be a property of both mass and count predicates: *furniture* is a naturally atomic mass predicate and *child* is a naturally atomic count predicate.’’ For them, bare singulars are naturally (but not semantically) atomic mass nouns. They note various differences between plural count nouns and bare singulars and they show that, in each case, the behavior of bare singulars mimics the behavior of mass nouns. For instance, plural count nouns have existential and generic readings in the context of the dispositional predicate *gostar de* ‘like’

(60) João gosta de cachorro-s
João likes of dog-PL
‘João likes dogs in general’ or ‘João likes some individual dogs’

Bare singular nouns, on the other hand, only have generic readings (61)a. In this respect, they behave identical to mass nouns (61)b

(61) a. João gosta de cachorro
John likes of dog
‘John likes dogs in general’ (only reading)

b. João gosta de suco
John likes of juice
‘John likes juice in general’ (only reading)

In the analysis of Pires de Oliveira and Rothstein (2011) the plural predicate *dogs* can be turned into a *kind* term or into an existential quantifier over individuals. Mass nouns, including bare singulars, cannot be turned into existential quantifiers. They can only be used as kind terms[87]

Plural count nouns can be used with stage-level predicates (Suzana Fong, personal communication). In such context they have generic readings.

(62) Bombeiro-s est-ão felizes/alegre agora
Fireman-PL ESTAR-PRES.3PL happy/joyful now
'Some firemen are joyful'
'Firemen in general are joyful' (unavailable)

'Bare singulars' (63)a, just like mass nouns (63)b, lead to unacceptability in this context (Suzana Fong, personal communication). [88]

(63) a. *Bombeiro est-á feliz/alegr agora
Fireman ESTAR-PRES.3sg happy/joyful now
b. *Água est- á suja agore
Water ESTAR-PRES.3sg dirty now

For Pires de Oliveira and Rothstein, the possibility for existential readings for count plurals follows from the fact that count plurals can be turned into existential quantifiers. The unavailability of generic readings in (62) and any reading in (63)a and (63)b is a consequence of an incompatibility between kind terms and stage level predication.

[87]For semantic details of the explanation, the reader is referred to Pires de Oliveira and Rothstein (2011) sections 4.1 and 5.3.

[88] The copular verb *ESTAR* is used only with stage-level predicates. When bare singulars and mass nouns are used with individual-level copular verb, the sentences are acceptable and have only kind interpretations (Pires de Oliveira and Rothstain, 2011: 2159)

(1) Bombeiro é disponivel
Fireman SER.PRES.3sg available
'Fireman in general are available'

(2) Petróleo e disponivel
Oil is available
"Oil is available" (generic reading)

It is worth noting that Japanese bare nouns, unlike bare singulars in Brazilian Portuguese, can be used with non-generic interpretations under stage level predicates.

(64) isha-wa yot-tei-ru
doctor-TOP be.drunk-PROG-PRES
'The doctors are drunk'

Going back to Brazilian Portugese, we observe that there are also aspectual restrictions on the occurrence of bare singulars. They cannot be used in the subject position of episodic sentences with perfective aspect. Bare plurals are completely acceptable in such contexts.[89]

(65) a. ??Menino jog-ou bola
Boy play-PAST.PERF.3SG ball
'a boy or boys played soccer. '

b. Menino-s jog-ara-m bola
Boy-PL play-PAST.PERF-PL ball
'boys played soccer'

[89] Similar results are obtained with episodic sentences in the present progressive. Bare plurals are acceptable in such contexts; however, bare singulars are not acceptable (Suzana Fong, personal communication).

(1) *Menino est-á joga-ndo futebul agora
Boy estar-PROG play-ing soccer now
'a boy or boys are playing soccer now'

(2) Menino-s est-ão joga-ndo futebul agore
Boy-PL estar-PROG.3PL play-ing soccer now
'Boys are playing soccer now'

Mass nouns, again, behave exactly as bare singulars. They are unacceptable in subject position of a sentence with perfective aspect.[90]

(66) ?? Cerveja cust-ou caro
Beer cost-PAST.PERF.3SG expensive
'Beer was expensive'

Note that similar sentences are acceptable with Japanese number neutral nouns.

(67) Otoko-no-ko-wa soccer-o shi-ta
male-GEN-child-TOP soccer-ACC did-PAST
'boy(s) played soccer'

Given these observations, we conclude that bare singulars in Brazilian Portuguese are not number neutral count nouns; rather, they are mass nouns. Number neutrality in this language is spurious. Therefore, Brazilian Portuguese does not constitute real counterevidence against the Specified Number Generalization.

Syrian Arabic is another plural concord language. Adjectives show plural concord and nouns are plural in the context of numerals.

(68) a. xamst iyyām
five day.PL
'five days'

b. tmənt ənfod
eight person.PL
'eight people'

c. bēḍāṭ ʾmnāḥ
egg.PL good.PL
'good eggs'

[90] With imperfective aspect, both bare singular and mass nouns are acceptable (Pires de Oliviera and Rothstein, 2011: 2160 and 2161)

(1) Menino jog-ava bola
Boy play-PAST.IMPF soccer
"boys used to play soccer"

(2) Cerveja cust-ava caro
Beer cost-PAST.IMPF expensive
"Beer used to be expensive"

Since Syrian Arabic is a plural concord language, it should have no number neutrality. However, there are a set of collective nouns that denote vegetables, fruits, grasses, mammals, birds, fish, insect, and some other miscellaneous objects (Cowell, 1964: 297 – 302) and such collective nouns appear to have both a singular and a plural interpretation available to them. Below are some examples of such nouns with glosses given in Cowell (1964)

(69) baṭāṭa ‘potato(es) ’
žāž ‘chicken(s) ’
ṣadaf ‘oyster(s) ’
blāṭ ‘flagstone(s) ’

These collective nouns can be used both in generic (70)a and non-generic (70)b sentences (Zabbal, 2002: 85):

(70) a. ʔinna an-naml mawjuuda fi kull makaan
PART the-ant.COLL existed.F.SG in every place
‘Ants existed everywhere’

b. al baqar-u taSʕudu ʔila l-jabal-i
the cow.COLL-NOM climbed.IMPF.F.SG to the mountain-GEN
‘The cattle are climbing the mountain’

Zabbal (2002) argues that Syrian Arabic collective nouns show some properties that are similar to mass nouns. One property of mass nouns is that they cannot be pluralized.

(71) a, *I bought the furnitures
b. *I drained the waters from the bathtub

Arabic collective nouns are similar to mass nouns in that they cannot be marked (directly) with number morphology.[91]

(72) *al-tamr-aani
the-date.COLL-DU

A second property of mass nouns is that (at least in some languages) they cannot be modified by numerals.

(73) *I bought three furnitures
*I drained three waters from the bathtub

Syrian Arabic collective nouns behave similar to mass nouns in this respect, too (from Wright, 1993, vol.i 237 as cited in Zabbal, 2002).

(74) *ʔarbaʕ-at-a aT-Tayr-i
four-F-ACC the-bird.COLL-GEN
'four birds'

We conclude from this discussion that these collective nouns are mass nouns.[92] Therefore, number neutrality in Syrian Arabic is spurious.

---

[91] There is a "singulative" morpheme, whose presence allows collective nouns to be used with number morphology

(1) al-tamr-at-aani
the-date.COLL-SINGULATIVE-DU
'the two dates'

Zabbal (2002) argues that this singulative morpheme is a classifier and it behaves similar to the classifier "piece" in the context of a mass noun like "furniture"

(2) *furniture
one piece of furniture
two pieces of furniture

[92] Zabbal (2002) notes that one difference between canonical mass nouns and the Arabic collectives is that the canonical mass nouns cannot be used with individuating predicates.

(1) *I counted the water
(2) *I numbered the water

The Arabic collectives can be used with individuating predicates.

(3) ʔinna-ni ʔa-jmaʕ-a n-naml-u
PART-1.SG 1-counted-SG the-ant.COLL-NOM
'I counted the ants"

Another language that raises a potential problem for the proposal developed in this paper is Hindi. Hindi is a plural concord language (Spencer, 2005).

(75) a. acchaa laRkaa
good.SG boy.SG
'good boy'

b. acche laRke
good.PL boy.PL
'good boys'

c. ca:r kami:zê
four shirt.PL
'four shirts'

Hindi is expected to not exhibit number neutrality. However, incorporated (non-plural) direct objects in Hindi are not necessarily interpreted as singular (Dayal, 2011).

(76) a. anu puure din cuuhaa pakaRtii rahi
Anu whole day mouse catch-IMPF PROG
'Anu kept catching mice (different ones) the whole day'

b. Anu botal ikaTThaa kartii hai
Anu bottle collect do-IMPF be-PRES
'Anu collects bottles'

Dayal notes that one reasonable hypothesis is to assume that ''incorporated singulars can be NumPs or NPs lacking number specification'' so that they can denote entities in a number neutral way. Dayal rejects this hypothesis and argues ''that incorporation in Hindi always involves NumP, not NP, and number morphology is never semantically inert''. For Dayal (2011), apparent number neutrality in Hindi is a property of predicates being atelic (and not a property of the nouns themselves). Indeed, a number neutral interpretation is impossible when the adverb *tiin ghanTe meN* 'in three hours' is used to control for a telic interpretation.

In this respect, they behave like *furniture-type* mass nouns.

(4) I labelled the furniture

Following Pires de Oliveira and Rothstein (2011) and Rothstein (2010), we take the furniture-type nouns to be naturally (but not semantically) atomic mass nouns. The crucial point is that furniture-type nouns are mass nouns even though they occur with individuating predicates. This is also true of Arabic collectives, which are similar to furniture-type mass nouns.

(77) Anu-ne tiin ghanTe meN kitaab paRhii
Anu-ERG 3 hours in book read-PERF
'Anu read a book in three hours (exactly one book) '

We have already noted that in Japanese number neutrality is preserved under telic contexts.

(78) Watashi-wa hon-o mikka-de yon-da
I-TOP book-ACC 3day.with read-PAST
'I read the books in three days'

The completive particle in Hindi, which makes the sentence unambiguously telic, disallows number neutral interpretations.

(79) Anu-ne tiin ghanTe meN/*tiin ghanTe tak kitaab paRh Daalii
Anu-ERG three hours in/ three hours for book read COMPL-PERF
'Anu read a book in three hours (exactly one book) '

Finally, when a plurality of entities is required due to context, there is no number neutrality. Suppose, for instance, that Anu is looking for more than one girl (for instance, for a play). The singular is not acceptable in such a context.[93]

(80) Anu-ne laRkiyaaN cun liiN /* laRkii cun lii
Anu-ERG girl.PL choose COMPL-PERF / girl.SG choose COMPL-PERF
'Anu chose (the) girls'

[93] In this respect, Hindi differs from both Japanese and Korean. Nemoto (2005: 387) notes that in Japanese bare nouns are number neutral even when entities denoted by the noun are introduced to the context (Nemoto, 2005: 387).

(1) Context: There are three benches outside

ku beynch-nun mae halmeoni-ui seomnulita [Korean]
that bench-TOP my grandmother's gift
sono benti-wa sobo-kara-no okurimono desu [Japanese]
that bench-TOP grandmother-from-GEN gift COP

'the benches are gifts from my grandmother'

We conclude that Hindi does not have number neutrality and does not form a problem for the Specified Number Generalization.[94]

We have noted that Japanese and Korean exhibit number neutrality in the context of inanimate nouns. With animate nouns, the situation is different. When some plural individual is introduced to the context, pluralization of nouns is obligatory (Nemoto, 2005)

(81) Context: There are three students outside

a. Haksayng-tul-un/*haksayng-nun acwe ttwungttwung-hata [Korean]
Student-PL-TOP/student-TOP very fat
'the students are very fat'

b. Gakusei-tati-wa/*gakusei-wa totemo hutotteimasu [Japanese]
Student-PL-TOP/student-TOP very fat
'the students are very fat'

There might also be non-concord languages in which the presence of number is obligatory for all nouns. Turkish seems to be a language of this kind. As Sağ (2016) notes, subjects and case marked objects must be pluralized for plural interpretations.

(82) a. Çocuk kitab-ı okudu
Child book-ACC read.PAST
'The child read the book' (not 'the child\children read book\books')

b. Ali çocuğ-a elma-yı verdi
Ali child-DAT apple-ACC gave
'Ali gave the apple to the child'

The non-case marked objects may give rise to number neutrality effects.

(83) Ali araba tamir.etti
Ali car fixed
'Ali fixed car/cars'

[94] Dayal (2011) provides a semantic analysis of how aspectual specifications leads to the plural interpretations for the singular nouns. The interested reader is referred to sections 6.3 and 6.4 for the analysis.

However, one cannot conclude from this that Turkish has genuine number neutrality. As Sağ (2016) notes, number neutral interpretations are lost in telic contexts.

(84) Ali iki günde araba tamir.etti
Ali two day.LOC car fixed
'Ali fixed the car in two days'

We have already noted that number neutrality is not lost in Japanese in similar contexts. All in all, we conclude that Turkish has an obligatory Num head in the absence of plural concord. That is, number neutrality is a property of a subset of non-plural concord languages.

In this section, we have shown that various potential counter examples to the Specified Number Generalization can be analyzed as spurious number neutrality. Plural concord languages have an obligatory Num head while number neutral languages lack plural concord. These observations can be derived from the theory of concord we have adopted, together with some assumptions about the obligatoriness of Num.

5.6.Conclusion

The universality of concord implies that we should be able to observe concord whenever NP is not a phasal domain. In this chapter, we have argued that the presence of *pluralia tantum* nouns in a language can be taken to show that NP in this language is not a phasal domain. Combined with the theory of concord developed here, this leads to the conclusion that languages with *pluralia tantum* nouns are plural concord languages. We have shown that certain differences between Uralic languages in having *pluralia tantum* nouns and/or plural concord are correctly predicted with this model.

A second aspect of the theory developed in this dissertation is that a language lacks overt concord only if it has a phasal NP. Assuming that Num can be optional only in those languages with phasal NP, we have shown that only non-concord languages can have number neutrality (Japanese, Korean). While some plural concord languages have been argued to show number neutrality, we have argued that all these cases can be analyzed as spurious number neutrality. Therefore, they do not constitute read counterevidence against the proposal developed here.

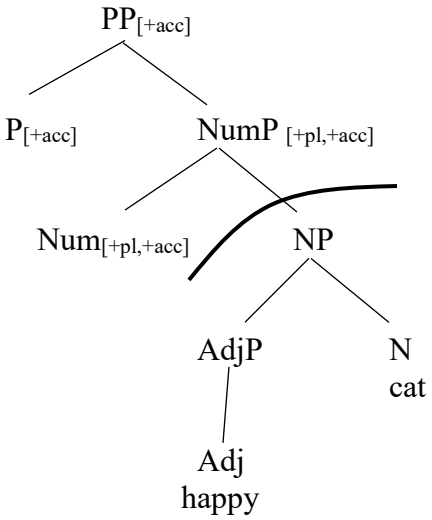
CHAPTER 6

On Concord and Suspension

6.1.Introduction

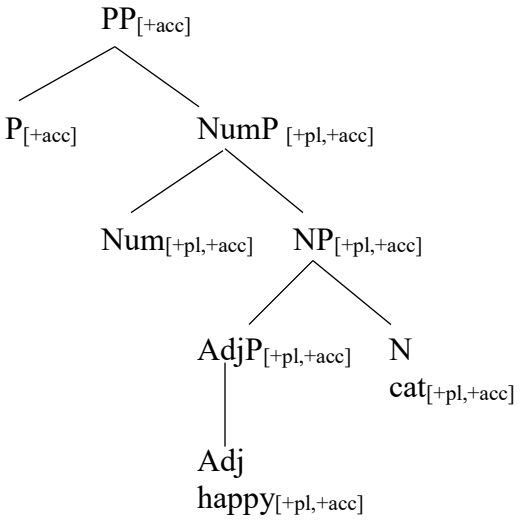
The theory of concord developed in the previous chapters relies on the hypothesis that a non-concord language differs from a concord language in that it has a phasal NP. In this way, adjectives inside NP are protected from the rule of Feature Assignment. The representation of a language without concord looks as in (1)

(1)



In a concord language, NP is not phasal. In such a language, nominal features (gender, number, and case) are copied onto adjectives and the head noun inside an NP.

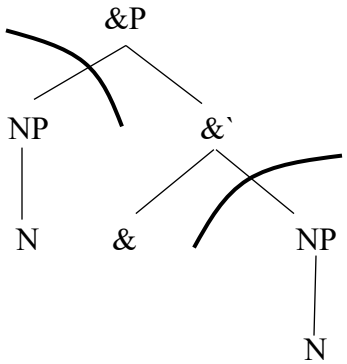
(2)



In this chapter, we provide independent evidence for the presence of a phasal NP in non-concord languages. We study a phenomenon that interacts with Spell Out: realization of coordinated structures. We show that the theory of concord we have developed makes correct predictions about realization of coordination of noun phrases.

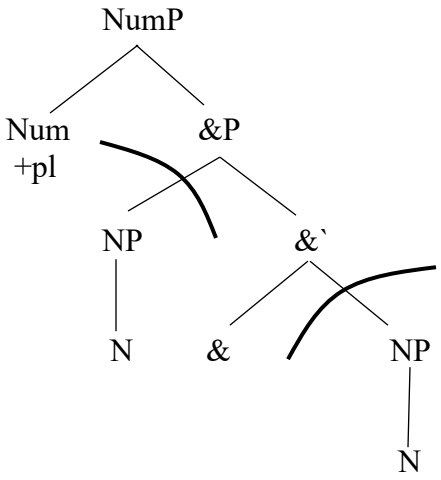
Suppose that two NPs in a non-concord language are coordinated (we will discuss NumP coordination in the next section). Since NP in such a language is phasal, both of the NPs are spelled out once they are merged with another category.

(3)



Suppose now that &P is merged with Num to obtain a NumP.

(4)



In a language with phasal NP, plural is not copied onto any of the noun heads. Therefore, the number morpheme will appear on the coordinated complex as a whole, rather than the individual nouns.[95] That is, in a language with this property, expressions of the form in (5) can be acceptable, as is indeed the case with Turkish as seen in (6).[96]

(5) [N and N]-PLU

(6) Kedi ve köpek-ler [Turkish]
cat and dog-PL
'cats and dogs'

Following Lewis (1967/2000), we will call constructions like (6) instances of ''suspension''. We talk of a morpheme allowing suspension or not.

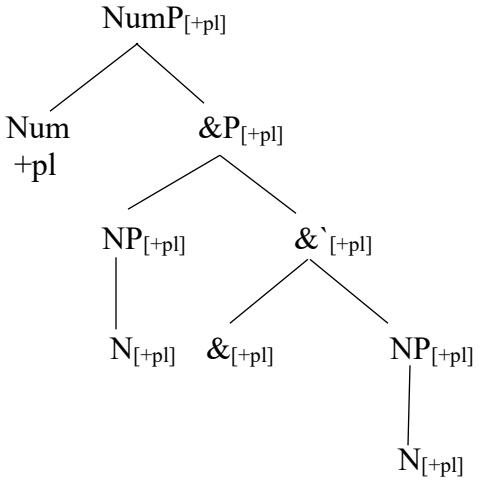
[95] This is a consequence of *A Rule of Pronunciation* introduced in Chapter 2, repeated below.

a. If a feature [f] is copied to lexical elements (noun or adjective), then the feature [f] is realized only on the lexical elements.
b. Otherwise, [f] is only realized in its original position

[96] One might wonder whether (6) can be analyzed as a coordination of two NumPs with the deletion of the plural in the first conjunct. In the next section, we show that this is not the right analysis for suspension in Turkish.

We now show that suspension is not possible in a concord language. Note that, in such a language, NP is not a phasal domain. Therefore, the plural feature on Num will percolate down to the noun heads as shown in (7).

(7)



We assume that once a feature is copied on a head, it cannot be deleted. Therefore, in a plural concord language, (7) will be realized as in (8)a and not (8)b.[97] That is, the plural feature of the Num head will appear on each noun head. English is a language that exhibits this property (9).[98]

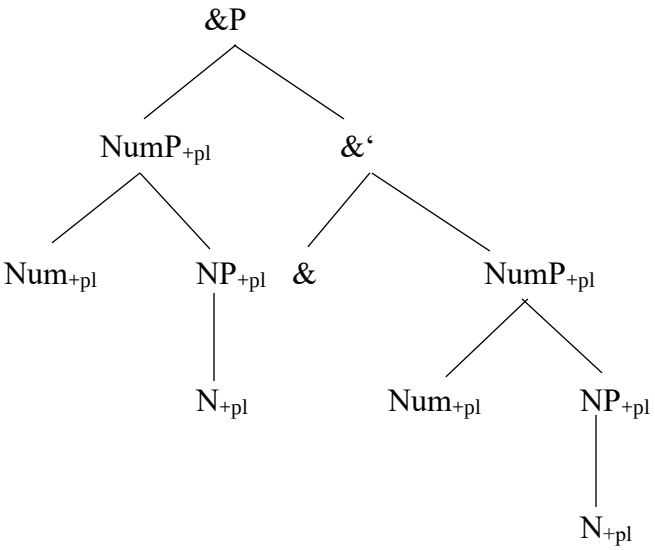
(8) a. N-PL and N-PL
b. *N and N-PL

(9) a. John fed dogs and cats
b. *John fed dog and cats

[97] We assume here that once features are collected on a head, they cannot be deleted.
[98] It is worth noting that, in general, English behaves like a plural concord language (and we have argued in Chapter 5 that it is). It lacks number neutrality. It has *pluralia tantum* noun. It does not allow suspension of plural morphemes.

One might wonder whether suspension in a plural concord language is possible when two NumPs are coordinated. After application of Feature Projection and Feature Assignment to plural in a concord language, the result is the tree in (10)

(10)



Note that the plural feature is copied onto the noun heads. With the assumption that the feature on a head noun cannot be deleted, (10) cannot be realized as a suspension construction.

There are two properties of languages that are sensitive to the presence of Spell Out domains: concord and suspension. If a language has plural concord on adjectives, then NP is not a phasal category. In the context of the coordination of two NPs (or NumPs), plural will be realized on both N heads (that is, there will be no suspension of plural morpheme). The inverse is also true. If we see a morpheme for which suspension is possible, it must be the case that features are blocked from appearing on noun heads. If a feature is blocked (by Spell Out) from appearing on noun heads, this means that it is also blocked for purposes of concord. These observations lead us to expect the following generalization to hold.

(11) Concord-Suspension Complementarity

a. If a feature [f] enters into concord, suspension of the morpheme that expresses it is not possible.
b. If a morpheme that expresses a feature [f] can be suspended, then the feature [f] does not enter into concord phenomenon.

6.2. Evidence for Concord-Suspension Complementarity

In this section, we provide evidence indicating that Concord-Suspension Complementarity is empirically supported.

A confirmation of Concord-Suspension Complementarity comes from Hindi. Hindi has concord for gender, number and layer I cases (direct, oblique, vocative)[99] but, as we will see, no concord for layer II cases (ergative, accusative, dative). Various forms of attributive adjectives are shown in (12) from Spencer (2007):

(12)

		M	F
SG	DIR	acchaa	acchii
	OBL	acchee	acchii
PL	DIR	acche	acchii
	OBL	acche	achii
		'good'	

The prediction is that with such morphemes suspension is not possible. This is indeed what we observe (Butt and King, 2005). The gender, number or layer I cases cannot be shared when the noun is in the uninflected form (13)a or inflected with gender and number (13)b:

(13) a. *[kʊtt aur ghor]-e –ko
[dog and horse]-M.SG.OBL.-ACC
b. *[kʊtt-a aur ghor]-e –ko
[dog.MS.SG and horse]-M.SG.OBL.-ACC

However, it is not a general rule of Hindi that suspension in nominal inflection is disallowed. When it comes to layer II cases (ergative, accusative, dative) suspension is possible. ((14)a and (14)b from Butt and King (2005) and (14)c from Rajesh Bhatt, personal communication)

(14) a. [kʊtt -e aur ghor-e] –ko
[dog-M.SG.OBL. and horse-M.SG.OBL.]-ACC
b. [lahor or karachi]-se
[Lahore and Karachi]-INST
c. [Ram aur Ramesh]-ne
Ram and Ramesh-ERG

[99] We assume here that layer I cases in Hindi take NumP as complement and projects a phasal category, call it caseP. Layer II cases are assigned from other categories (verb, preposition, tense) in the usual manner.

As expected under Concord-Suspension Complementarity, Hindi layer II cases do not trigger concord (Spencer, 2007).[100]

In Bangla, plural and case morphemes can be suspended (Ishani Guha, personal communication).

(15) a. [kukur ar beRal]-gulo ghumocche
dog and cat -PL sleeping
"Dogs and cats are sleeping"
b. Ben [Ishani ar Isa] -ke dekhlo
Ben Ishani and Isa-ACC saw-3
'Ben saw Ishani and Isa'

As predicted, Bangla has no concord for number or case.

(16) a. choTo bacca-ra
small kid-PL
'small kids'

b. *choTo-ra bacca-ra
small-PL kid-PL
'small kids'

A similar observation can be made about Turkish. As noted in Lewis (1967/2000: 40) Turkish allows suspension of both number and case.

(17) a. [Tebrik ve teşekkür]-ler-im-i sunarım
congratulation and thank-PL-GEN-ACC offer
'I offer my congratulations and thanks'

b. [Ali ve Ahmet]-e
Ali and Ahmet-DAT
'to Ali and Ahmet'

As expected, Turkish lacks concord completely.

(18) Küçük(*-ler-e) köpek-ler-e
small-PL-DAT dog-PL-DAT
"to small dogs"

[100] Spencer (2007) does not provide an example showing that there is no concord for layer II cases. He notes, however, that "no adjective or other modifier in Hindi agrees with respect to any Layer II property, in particular, the case particles do not trigger any kind of agreement"

Other languages with similar properties are Digor Ossetic (Erschler, 2012) and Western Armenian (Hrayr Khanjian, personal communication).

Let us take a look at concord languages. Russian is a language with gender, number and case concord. As predicted, Russian does not allow suspension of nominal inflectional elements.

(19) a. Ja lublu Mash-u i Ver-u
I love Masha.F.ACC and Vera-F.ACC
'I love Masha and Vera'
b. *Ja lublu [Mash i Ver]-u

Finnish is a language with number and case concord (and has no gender) in the nominal inflection (from dal Pozzo, 2007: 19)

(20) Kauniille nuorelle kiltille prinsessalle annettiin ruusu
beautiful-ALL.SG young-ALL.SG good-ALL.SG princess-ALL.SG given rose.NOM.SG
'A rose was given to the beautiful young good princess'

We expect Finnish to not allow suspension of nominal morphemes. This is confirmed by Erschler (2012), who notes that Finnish lacks suspension completely. The fact that this prediction is confirmed for Finnish is important in that Finnish is mostly an agglutinative language and it behaves similarly to Russian, which is not an agglutinative language, than to Turkish, which is agglutinative, when it comes to suspension.

We observe that some of non-concord languages do no allow suspension of morphemes. Hungarian does not allow suspension for number or case (Kiss, 2002). Digor Ossetic allows suspension for case but not for number (Erschler, 2012).

(21) *a haz es a garazsnal [Hungarian]
the house and the garage-ADESSIVE
'at the house and the garage'

(22) *kuj ama tikis-ta [Digor Ossetic]
dog and cat-PL
'dogs and cats'

These are languages with a phasal NP (so that they have no concord) but the realization of coordination of NPs is not grammatical for some independent reason. [101] We provide below a table that summarizes some of the observations discussed in this chapter.[102]

[101] We do not have an account as to why number in Digor Ossetic and number and case in Hungarian cannot be suspended. We simply make the following speculations.

In Turkish, word stress is in final syllable (we express stress with ')

(1) kedi'

In suspension constructions, the first conjunct seems to lose its stress. Instead, the whole suspension construction is stressed as if it is a single word.

(2) kedi ve köpekler'
cat and dog.PL
'cats and dogs'

This observation might be important in that the stress of the second conjunct (which has the plural suffix) as an independent word and the stress of the whole coordination is on the same syllable.

Hungarian is a language with word initial stress (Kiss, 2002). Suppose that Hungarian had plural suspension and suppose, moreover, that its behavior was identical to Turkish in that the whole suspension construction is treated as a word for stress. Then, the stress would fall on the first syllable.

(3) la'mp es task.ak
lamp and bag.PL

The example in (3) is ungrammatical in Hungarian (Aniko Liptak, personal communication.) Note that the second conjunct, the conjunct with the plural suffix, does not get any stress. However, if we treat it as an independent word, it should get word-initial stress. Perhaps, the reason why suspension is not acceptable in Hungarian is that the stress requirement on the second conjunct is not met. We can express this observation with the following generalization.

(4) Stress Requirement on Suspension
A language allows suspension only if the stress of the suspension construction and the stress of the inflected conjunct (as an independent word) falls on the same syllable.

We do not have an account for why (4) must be true. We leave this task to future work. For Digor Ossetic, we simply note that the hierarchy with which morphosyntactic features are introduced in the structure seems to be playing a role here. Perhaps a language that allows number suspension but no case suspension does not exist.

[102] A potential counter-example for Concord-Suspension Complementarity is Tagalog, an Austronesian language. Tagalog allows suspension (Norvin Richards, personal communication) of the plural morpheme.

(1) mga-[guro at bata]
PL-teacher and child
'teachers and children;

Table 6.1. Concord Suspension Complementarity

CONCORD / SUSPENSION	Yes	No
Yes	(non-existent)	Turkish number, Turkish case Bangla number, Bangla case Japanese number, Japanese case, Western Armenian case, Hindi layer II cases, Digor Ossetic case
No	Russian gender, Russian number, Russian case, Bulgarian gender, Bulgarian number, Bulgarian case, Finnish number, Finnish case, Hindi gender, Hindi number, Hindi layer I case	Hungarian number, Hungarian case, Digor Ossetic number

In this section, we have formulated an empirical generalization about the interaction of suspension of morphemes with concord and provided some evidence for this generalization.

Tagalog adjectives are used with obligatory linkers. There is a certain class of adjectives (ma-adjectives), some members of which are preferred to be plural when they modify a plural noun (Schahter and Otanes, 1983)

(2) Mga massisipag na bata
PL Industrious Linker child
'industrious children'

We suggest that the linker construction in Tagalog is a relative clause (similar to the analysis of DE particle in Chinese by Sproat and Shih, 1991) and the plural agreement on adjectives is predicate agreement (and not concord). We first note that the linker can indeed be used to introduce relative clauses (Scontras and Nicolae, 2014)

(3) Bahay na nakita ko
House Linker saw I
'The house that I saw'

Secondly, ma-adjectives are pluralized in predicative uses.

(4) magaganda ang mga bulaklak
Beautiful.PL PRED PL flower
'The flowers are beautiful'

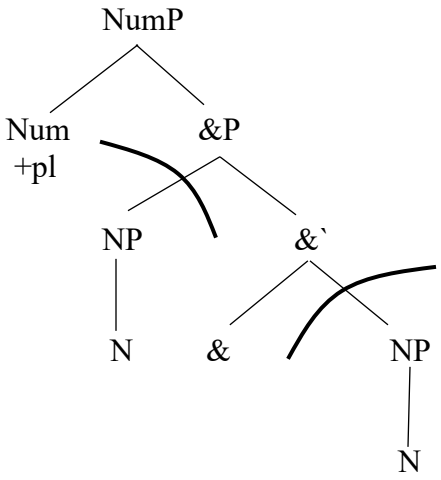
We suggest that Tagalog is not a plural concord language. We leave the evaluation of these claims to future work.

6.3.Two arguments for NP coordination in Turkish

In the previous section, we have assumed that the syntactic representation of the suspension construction in (23) is as NP coordination as in (24):

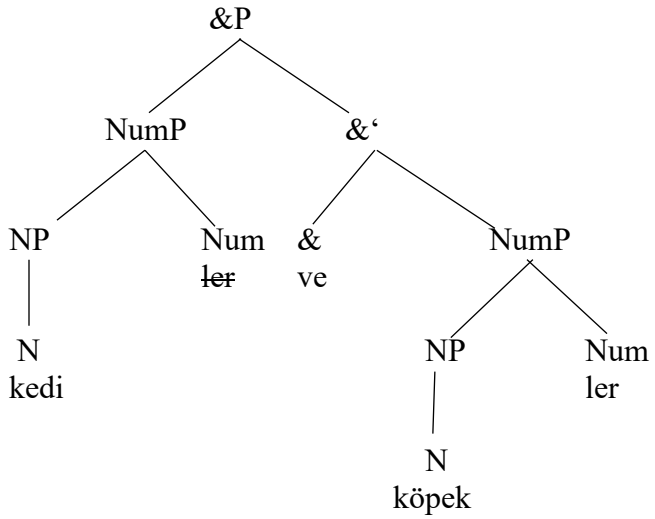
(23) Kedi ve köpek-ler [Turkish]
cat and dog-PL
'cats and dogs'

(24)



There is, however, another possible analysis for (23). It might be that it is actually derived from NumP coordination with the deletion of the plural morpheme in the first conjunct as in (25) (we express deletion of a morpheme with ~~strikethrough~~)

(25)



In this section, we show that (25) cannot be the analysis of suspension in Turkish. Under this analysis, suspension constructions have the same underlying representation as their non-suspension counterparts. This leads to the prediction that suspension constructions and non-suspension constructions have the same range of meanings associated with them. We present evidence indicating that this prediction is not borne out. We show that the available and unavailable readings of suspension constructions follow from the fact that they involve the coordination of NPs (and not of NumPs). We first present an argument based on the differences between NP disjunction and NumP disjunction. We then give an argument from conjunction where suspension constructions systematically lack interpretations that derive from NumP conjunction.

6.3.1.An argument from disjunction

In this section, we study nominal disjunction in order to show that suspension constructions are NP-coordination. We are interested in the differences in the interpretation of the following sentences (various versions of these sentences are discussed in Rooth and Partee, 1982 and Larson, 1985)

(26)

a.	Ali	[hizmetçi	veya	aşçı]-lar	arıyor
	Ali	maid	or	cook-PL	look.for
b.	Ali	hizmetçi-ler	veya	aşçı-lar	arıyor
	Ali	maid-PL	or	cook-PL	look.for

'Ali is looking for maids or cooks'

There are many contexts under which both (26)a and (26)b can be true. For instance, they can be true in contexts in which Ali is looking for a plurality of maids. They can also be true in contexts in which Ali is looking for a plurality of cooks. There are also many contexts in which neither (26)a nor (26)b can be true. For instance, they cannot be true if Ali is looking for a single maid. They cannot be true if Ali is looking for a single cook. There is one scenario under which (26)a can be true while (26)b is not and we are interested in this reading. (26)a can be true if Ali is looking for a plurality that contains a single maid and a single cook. Under same scenario, (26)b is not acceptable.

(27)

Ali can be satisfied if he finds a maid.	(# with a, # with b)
Ali can be satisfied if he find a cook.	(# with a, # with b)
Ali can be satisfied if he finds a maid and a cook	**(ok with a, # with b)**
Ali can be satisfied if he finds maids	(ok with a, ok with b)
Ali can be satisfied if he finds cooks.	(ok with a, ok with b)

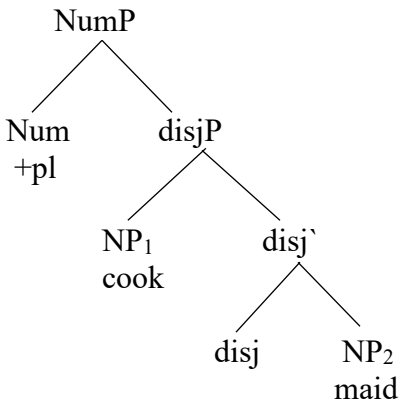
That is, (26)a can be felicitous in a scenario where there is a plurality and each one of its parts shows one of the following properties: either it is a maid or it is a cook. This is compatible with scenarios that contain only one cook and only one maid (since their sum is a plurality). Using the non-suspension construction in such a scenario would be infelicitous. We will now show that this distinction can be understood be a consequence of NP vs NumP disjunction. This means that suspension constructions cannot be analyzed as NumP disjunction.

In what follows, we spell out the assumptions with which this distinction is characterized as being the consequence of disjunction below or above NumP. Nouns have their usual number neutral interpretations. We assume that disjunction has the entry given in (28)b. Let us start with disjunction below NumP. We are working with the structure in (29). The total meaning of (29) is calculated in (30)

(28)

a. [| maid/cook |] = $\lambda x \in D_e$. every atomic part of x is a maid/cook
b. [| disj |] = λP_{et}. λQ_{et}. λx. $\exists y\ P(y)=1$ and $y \leq x$
   or $\exists z\ Q(z)=1$ and $z \leq x$
c. [| PL|] = λP_{et}. λx [P(x) & $\neg$AT(x)]

(29)

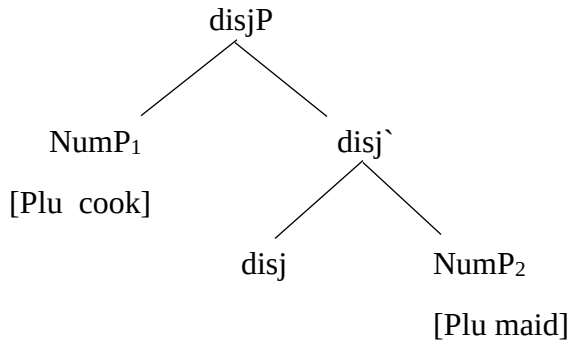


(30)

[| disjP]] = λx. $\exists y$ such that every atomic part of y is a cook and $y \leq x$
or $\exists z$ such that every atomic part of z is a maid and $z \leq x$
[| NumP |] = λx. x is not an atom
and [$\exists y$ such that every atomic part of y is a cook and $y \leq x$
or $\exists z$ such that every atomic part of z is a maid and $z \leq x$]

Suppose that the context contains a single cook and a single maid and their sum. The only plural individual that the context provides is the sum of $cook_1$ and $maid_1$ (i.e. $c_1 + m_1$). We note that the denotation of NumP is compatible with $c_1 + m_1$ since $c_1 + m_1$ is not an atom and it contains either an individual whose every part is a cook or an individual whose every part is a maid (in fact, it contains both). We see that NP disjunction under plurality gives rise to the reading described in (27). We now show that NumP disjunction is incompatible with such a reading. We have the syntactic representation in (31) with the interpretation given in (32) and we make no new assumptions about lexical entries.

(31)



(32)

$[|\ NumP_1\ |] = \lambda y \in D_e$. y is not an atom and every atomic part of y is a cook
$[|\ NumP_2\ |] = \lambda z \in D_e$ .z is not an atom and every atomic part of z is a maid
$[|disjP|] = \lambda x.$ [$\exists y$. y is not an atom and every atomic part of y is a cook and $y \leq x$
or $\exists z$ z is not an atom and every atomic part of z is a maid and $z \leq x$]

Suppose that the context provides c_1+m_1. For this plural individual to be compatible with the denotation of *disjP,* it must contain either a plural individual whose every part is a cook or a plural individual whose every part is a maid. We note that c_1+m_1 contains neither a plural cook nor a plural maid.

We have seen that NP disjunction gives rise to readings that are not available with NumP disjunction. We have also seen that such readings are available with the suspension constructions but not with non-suspension constructions. We take all this discussion to provide an argument for the claim that Turkish allows NP disjunction.

6.3.2.An argument from conjunction

In this section, we look at semantic differences between NP conjunction and NumP conjunction. We show that suspension constructions have the interpretations of NP conjunction and not those of NumP conjunction. Winter and Scha (2015) note that there are three possible interpretations of coordinated plurals. The first one is the union interpretation where the predicate is understood to apply to all the individuals in the sum.

(33) a. The girls and the boys met (a meeting of a mixture of boys and girls)
b. The soldiers and the policemen surrounded the factory

The union interpretation in Turkish is available with both constructions. There is, perhaps, a slight preference for expressions with suspension.

(34) a. Asker ve polis-ler binayı sardı
soldier and police-PL the.building surrounded
b. Askerler ve polisler binayı sardı
soldier-PL and police-PL the.building surrounded
'the soldiers and the policemen surrounded the building'

A second interpretation for conjoined plurals is the semi-distributive interpretation. Under such an interpretation, the predicate is distributed over both conjuncts.

(35) The girls and the boys met ≈ The girls met and the boys met

In Turkish, this interpretation is easily available with non-suspension constructions. With the suspension construction, this interpretation is much less available (or at least, considered to be quite misleading).

(36) a.Kadınlar ve erkekler buluştu
Women and men met
'women met and men met'

b. #Kadın ve erkekler buluştu
woman and man-PL met
'women met and men met'

The third interpretation for conjoined plurals is the symmetric interpretation, under which the sentence is judged to make a statement about a relationship that holds symmetrically between the plural individuals.

(37) The girls and the boys were separated from each other
≈ The girls were separated from the boys and the boys were separated from the girls

Such an interpretation is easily available for non-suspension constructions in Turkish. However, suspension constructions do not seem to license such an inference. Instead, we get a reading in which there was an arbitrary separation of the men and the women where each group contains both men and women.

38) a. Kadınlar ve erkekler birbirlerinden ayrıldılar
women and men from.each.other separated
'Women were separated from men and men were seperated from women'

b. #Kadın ve erkekler birbirlerinden ayrıldılar
woman and man-PL from.each.other were.separated
'Women were separated from men and men were separated from women'

To summarize, semi-distributive and symmetric interpretations do not seem to be available with suspension constructions. Winter and Scha (2005) note that semi-distributive and symmetric interpretation require access to the plural individuals as distinct entities.

(39)
meet({P, Q}) ≈ meet(P) & meet(Q)
were_separated({P,Q}) ≈ were_separated(P, Q) & were_separated(Q,P)

We suggest that these observations can be explained by the distinction between NumP coordination and NP coordination with the following assumption. First, suppose that NumP coordination yields a set of plural individuals as in (40) rather just the sum of two plural individuals.[103]

[103] This means that we have to re-define the domain so as to include "nested individuals". As shown in Winter and Scha (2015), this can be done in the following manner:

(40) [| & |] ([| NumP1 |])([| NumP2 |]) = { [| NumP1 |], [| NumP2 |] }

The distinction between taking the *sum* of two plural individuals and forming the *set* of the two plural individuals is that the set of the plural individual keeps the plural individuals differentiated in the set while the sum operation creates a flat object with both plural individuals as subparts.[104] The observation that the semi-distributive and the symmetric interpretations are much less available with the suspension structures can be understood as due to the fact that the conjunction of the NPs is the SUM operation; this operation can only give rise to undifferentiated plural individuals. On the other hand, NumP conjunction is Set Formation. After this operation, each plural individual is still accessible for semantic manipulation as required for the semi-distributive and symmetric interpretations. This discussion provides a second piece of evidence for the claim that suspension constructions must be analyzed as NP coordination.

Let E be a set of entities. Let $D_0 = E$ and for every $i>0$

$D_i = D_{i-1} \cup \{A \subseteq D_{i-1}: |A| >2\}$

A domain D over E is the union of all D_j from some $j\geq 0$

$D = D_0 \cup D_1 \cup D_2 \cup \ldots$

[104] The distinction can be appreciated with the following correspondences. A plural individual can be thought of as the set of atoms that make up this individual. The SUM of two plural individuals can be thought of as the union of these two sets. However, if we apply SET formation to the sets that characterize the plural individuals, we obtain a set whose members are two sets. To summarize, let P and Q be plural individuals and let P' and Q' be their set-theoretic characterizations

P` = {p: ATOM(p) and p≤P}

Q` = {q: ATOM(q) and q≤Q}

SUM(P,Q) ≈ P`∪ Q` = {r: r is a member P` or r is a member of Q`}

{P,Q} ≈ {P`, Q`}

6.4.Conclusion

In this chapter, we have shown that the suspension of functional morphemes is possible only in those languages in which these features are not copied on noun heads. This leads to Concord-Suspension Complementarity. Languages that allow suspension are non-concord languages and languages that have concord lack suspension. We have provided evidence indicating that this prediction is empirically supported. All in all, we have presented independent evidence for the presence of phasal NPs in non-concord languages.

CHAPTER 7

Open Questions and Conclusion

7.1. Concord on numerals and demonstratives

In this dissertation, we have been concerned with adjective concord. We have argued that concord on adjectives is regulated by the rules of Feature Projection and Feature Assignment given below:

(1) Feature Projection

When φ is a projection of ψ and k is a set of features

INPUT	OUTPUT
φ	$\varphi_{[k]}$
|	|
$\psi_{[k]}$	$\psi_{[k]}$

Feature Assignment

When φ dominates ψ, and i and k are sets of features

INPUT	OUTPUT
$\varphi_{[i]}$	$\varphi_{[i]}$
|	|
$\psi_{[k]}$	$\psi_{[i \cup k]}$

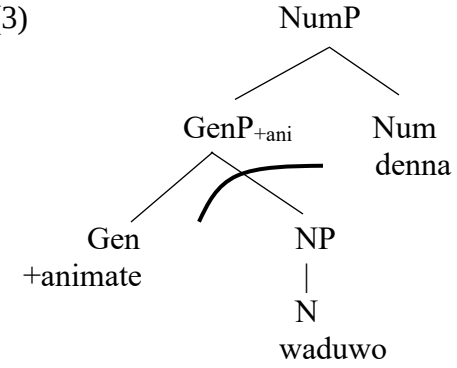
It is important to note that concord on other nominal elements (numerals, determiners, demonstratives etc.) cannot be handled by this mechanism. To see why, consider animacy concord on numerals in Sinhala (Chandralal, 2010: 44).

(2) a. waduwo denna
carpenter two.AN
'two carpenters'

b. ibbo dekə
padlock two.INA
'two padlocks'

As we have noted in Chapter 3, Sinhala is a non-concord language with semantic gender. The representation of a Sinhala nominal expression is as in (3).

(3)



Recall that the rule of Feature Projection applies only if the relevant nodes are projections of each other. Under this definition, the gender feature on GenP in Sinhala cannot be copied onto NumP as NumP is not a projection of GenP. Therefore, numerals cannot obtain this feature. This means that, under current assumptions, concord on numerals in Sinhala cannot be explained by the mechanism for adjective concord. If we want to explain numeral concord by the same mechanism with adjective concord, we must make changes to various assumptions we have made about concord and/or the syntactic representation of nominal elements.

One way to extend the mechanism for adjective concord to concord on other nominal elements is to avoid reference to projection levels in the definition of Feature Projection. The revised rule of Feature Projection might instead be defined as in (4)

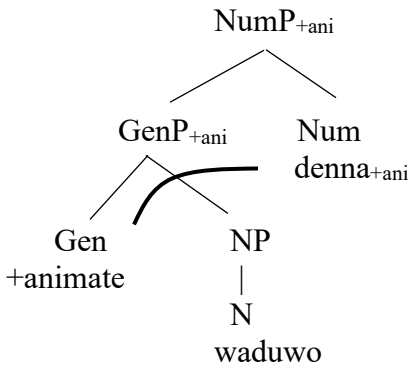
(4) (Revised) Feature Projection

When φ dominates ψ, and i and k are sets of features

INPUT	OUTPUT
$\varphi_{[i]}$	$\varphi_{[i \cup k]}$
|	|
$\psi_{[k]}$	$\psi_{[k]}$

If we adopt this definition, we can explain how numerals in Sinhala show gender concord while adjectives do not. NP in Sinhala is a phasal domain and adjectives inside NP are protected from features of functional projections. Numerals, on the other hand, are not protected from the gender feature. When the (revised) Feature Projection applies to gender, it copies the gender feature from GenP to NumP. Feature Assignment then copies the feature on NumP onto the number head.

(5)

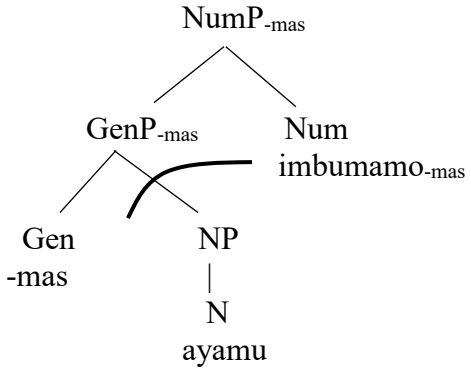


There are some questions that must be answered before the rule of (revised) Feature Projection can be adopted. One immediate challenge is that there are languages in which numerals and demonstratives do not show concord for any feature. For instance, Menggwa Dla is a non-concord language with semantic gender (de Sousa, 2006).[105] However numerals in Menggwa Dla do not show concord for gender.

(6) ayamu imbumamo
Chicken.nM three
'three chickens'

Given the (revised) rule of Feature Assignment, gender should appear on numerals in Menngwa Dla.

(7)



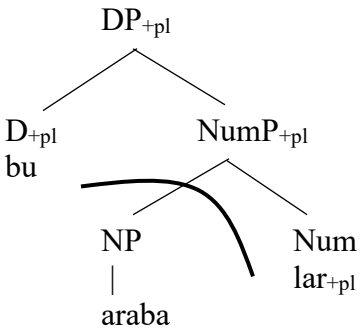
Note also that demonstratives in Turkish do not show concord for number (or case).

(8) a. bu araba-lar b. *bun-lar araba-lar
this car-PL this-PLU car-PL
'these cars'

[105] In Menggwa Dla, nouns are divided into masculine and non-masculine gender. For nouns that are not masculine, we use the feature "-mas".

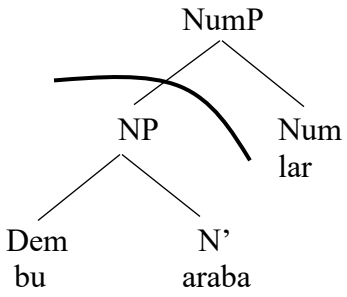
Given the (revised) rule of Feature Assignment, it is not clear what blocks copying of the plural feature on the DP.

(9)

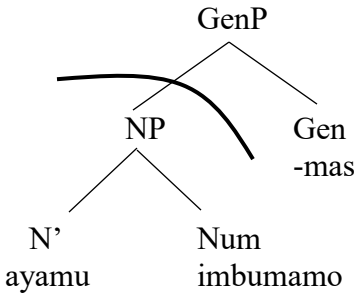


It might be that we must give up the assumption that numerals and demonstratives are always introduced as functional heads. It might be that, at least in some languages, they do not project a functional head and they are, instead, introduced as modifiers to nouns. In this way, they undergo spell out together with NP. For instance, demonstratives in Turkish and numerals in Menngwa Dla might be introduced as sisters to a noun projection. As a result, they are protected from the features of functional heads.

(10) Demonstratives in Turkish



(11) Numerals in Menggwa Dla



In order to show that this approach is on the right track, one must find independent evidence for the distinction between numerals and demonstratives that are functional heads and those that are noun modifiers.[106] We leave this task to future work. More generally, extending the mechanism for concord on adjectives to concord on other nominal elements is a question that is left open in this dissertation.

[106] Note that this approach adds some ambiguity for the analysis of numerals and demonstratives in concord languages. A demonstrative, for instance, might show concord as an adjectival element or it might show concord as a functional element. It seems that this ambiguity might actually be needed for the analysis of demonstratives in Levantine Arabic (Shlonsky, 2004). In this head-initial language, there are two demonstratives. The first one shows adjectival pattern in that it is postnominal (similar to adjectives) and shows concord for gender and number (again, similar to adjectives)

(1) l bint haydi
the girl that.F
‘ that girl’

The second demonstrative seems to behave as a functional head. It precedes its complement and it differs from adjectives in that it does not show concord

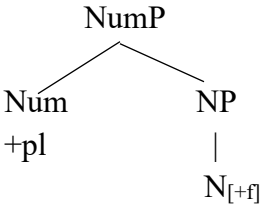
(2) hal bint
that girl

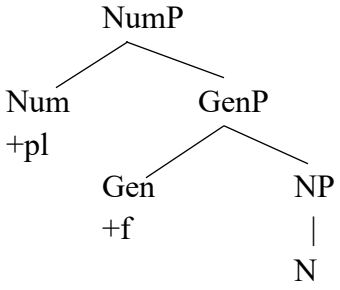
It is a task for future research to understand the nature of distinction between adjectival nominal elements and functional nominal elements. The patterns from Levantine Arabic suggest that such a distinction exists.

7.2.A note on various syntactic assumptions

Throughout this dissertation, we have assumed that number is a functional head that takes NP as its complement. Gender, on the other hand, is either a functional head that projects a GenP or a lexical property of nouns. Given our assumptions, nominal structures available to natural languages are as given in (12).

(12) a. An Idiosyncratic Gender System b. A Semantic Gender System



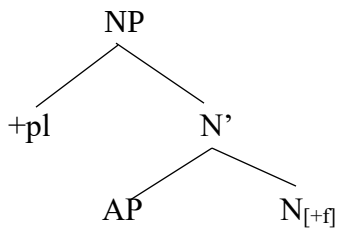


A second assumption we have made is that languages differ as to which phrase they pick as the phasal category (NP, or GenP, or NumP etc.). In this section, we ask whether or not these two assumptions are crucial in deriving the empirical generalizations discussed in this dissertation.

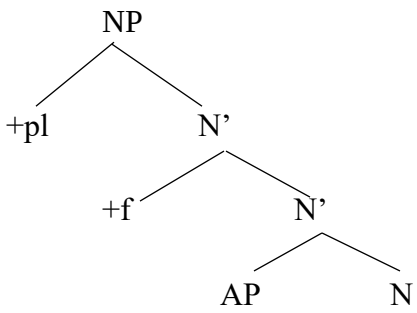
Let us start with the assumptions about the syntax of gender and number. Consider the assumption that number and semantic gender are introduced by projecting functional heads. Suppose, instead, that the number feature is directly merged with a noun, after which the category of the phrase is NP (and not NumP). Similarly, suppose that gender in a semantic gender system is introduced as a feature inside NP. That is, it might be that the syntax of gender and number in natural language is as given in (13)

(13)

a. An Idiosyncratic Gender System

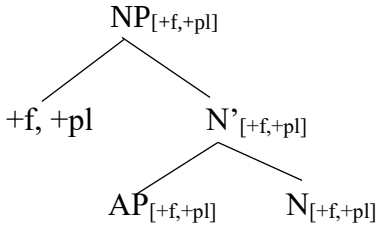


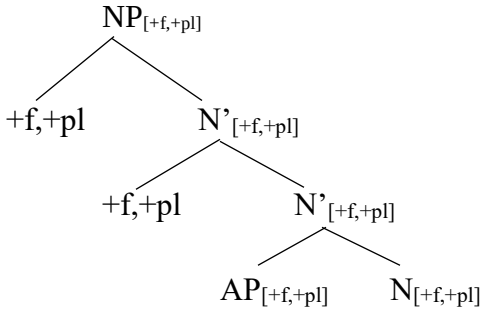
b. A Semantic Gender System



Assuming that the rules of Feature Projection and Feature Assignment are universal, gender and number features will end up on the head noun and adjectives. This gives us a way to represent concord without assuming that number (or semantic gender) takes NP as its complement.

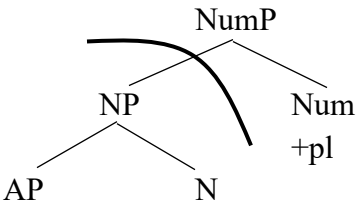
(14)





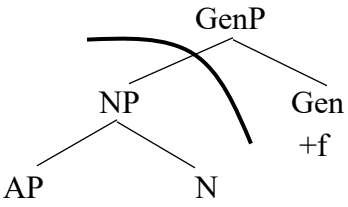
What is the analysis of the absence of concord? It cannot be the case that number is always introduced inside NP. If it did, given the universality of concord, every language would be a number concord language. One might, instead, assume that there is variation among languages as to whether number is introduced by Num that takes an NP-complement or whether number is introduced inside NP. In a non-concord language like Turkish, adjectives inside NP are protected from the plural feature since Num takes NP as its complement and NP is a phasal domain.

(15)



Similarly in a non-concord language with grammatical gender, gender must be a functional head.

(16)



This means that even under the revised syntax for gender and number, we must assume that gender and number *can be* functional projections. If both gender and number were introduced only inside NP, the universality of concord implies that every language must show both gender and number concord. This is clearly not true.

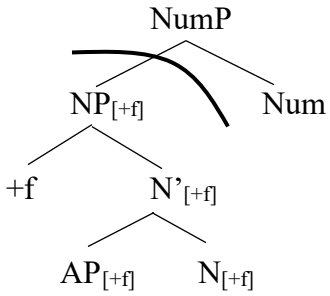
Can we avoid the assumption that languages differ in which category they pick as the phasal domain? Could we instead adopt the following universal statement?

(17) The Universal Phase
NP is a universal phasal domain

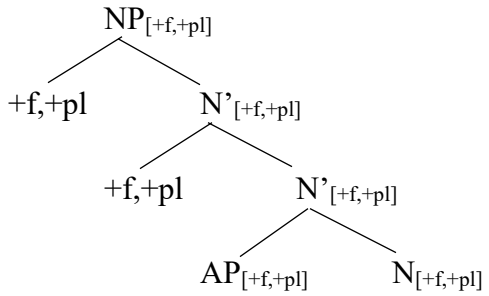
We need to show that we can explain partial concord under this assumption. Suppose, again, that gender and number can be introduced inside NP. If gender and number in a language are introduced inside NP, these features are copied onto every terminal node inside this phrase. If gender is introduced inside NP but number is a functional head that takes NP as its complement, then we have a languages with only gender concord.

(18)

a. Gender Concord

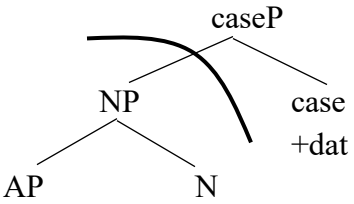


b. Gender and Number Concord



One question about the universal phase claim is the analysis of case concord. It is generally assumed that case originates in a position outside of NP (for concreteness, let us call this position caseP). We observe that the universal phasal NP claim leads to the conclusion that there is no language with case concord. This is, of course, not true.

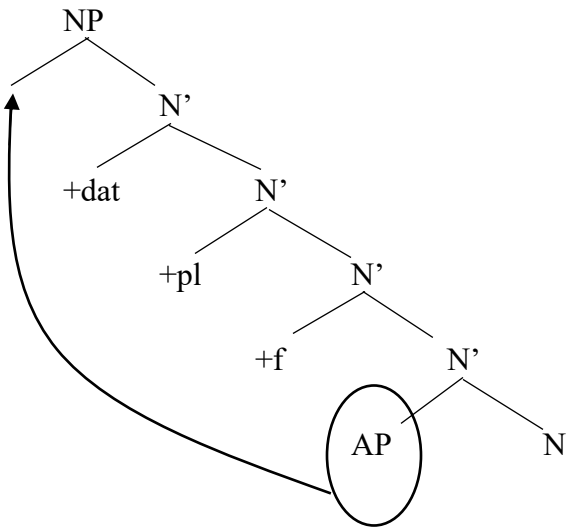
(19)

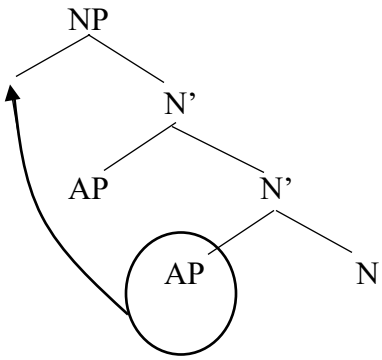


As an alternative, one might assume that in case concord languages, case is also introduced inside NP. We leave it to future work to explore this idea in depth.

A second issue with the universal phasal NP claim is about AP-movement out of NP. If NP is a universal phase, the *Anti-locality Constraint* that we have adopted in this work leads to the conclusion that AP movement is not grammatical in concord languages or in non-concord languages (given that AP does not cross NP in either type of languages)

(20) a. AP movement in a concord language b. AP movement in a non-concord language





We want AP movement to be possible in concord languages (for instance, in Russian). That is to say, we need a new definition of *Anti-Locality* so that movement over morphosyntactic features as in (20)a is not local in the same way as AP movement in a non-concord language. Finding the right definition of *Anti-Locality* to achieve this task is also left to future work.

7.3. Conclusion

We conclude the dissertation with a brief summary of its major claims. This dissertation started with the observation that there is an asymmetry between morphosyntactic features that enter into concord. There are languages with gender concord but no number and case concord (Bangla, Shughni); however, we have not found any languages with grammatical gender that have only number concord. Moreover, there are languages with gender and number concord but no case concord (Kubachi); however, we have not found any languages with case concord that lack gender or number concord (provided that gender and number are grammatical categories). In order to explain this asymmetry, we have developed a theory of concord with two major aspects:

(i) The mechanism for concord is a universal

(ii) The overt realization of concord is suppressed by phasal domains.

The universality claim has led to two predictions: (1) idiosyncratic gender languages are gender concord languages and (2) languages with *pluralia tantum* nouns are plural concord languages. We provided evidence indicating that these predictions are empirically supported.

Under this theory, a language lacks an overt manifestation of concord only if it has a phasal Noun Phrase. We provided various types of evidence to support this claim. We showed that, due to the phasal status of NP, non-concord languages exhibit the following properties: (1) AP movement out of NP is not possible, (2) the Num head need not be obligatory in the extended projection of a noun (leading to number neutrality) and (3) nominal inflectional elements can be shared between coordinated nouns. We provided evidence supporting these claims.

Appendix A

The World Atlas of Language Structures

In Chapter 3, we provided typological evidence for the generalization that idiosyncratic gender implies gender concord (*IG* → *C*). We looked at fifty-nine "formal and semantic" gender languages listed in *Feature 32A: Systems of Gender Assignment* (Corbett, 2013) of the online database *The World`s Atlas of Language Structures* (WALS, Dryer and Haspelmath, 2013) and argued that none of these languages contradict *IG* → *C*. In this Appendix, we briefly describe the gender system and the concord properties of these languages.

1. Alagwa, Cushitic (Mous, 2016)

   a. Gender Features: masculine, feminine, neuter
   b. Gender System: idiosyncratic

   ''gender is not predictable from the meaning of the noun'' (p. 44)

   Examples

(1)

FEM	MAS	
seree/a 'buffalo'	qeentu	'person with one leg'
karama'castrated bull'	isa'amu	'breast'
slaama 'person who is made ill'		

   c. Concord: concord on linker

(2) a. haare ta hhoo'o
woman L.F nice
'a nice woman'

b. hiru ku hhoo'o
man L.M nice
'a nice man'

2. Amharic, Semitic (Teferra and Hudson, 2007)

    a. Gender Features: masculine, feminine
    b. Gender System: semantic

    ‘‘Nouns are usually grammatically masculine unless they refer to biological feminines, but inanimate nouns such as *agər* ‘country’ and *məkina* ‘car’ may be affectionately made grammatically feminine … Small things vs. large may be preferred as feminines, for example *bučč*illa-*wa* ‘the puppy’ vs *wišša-w* ‘the dog’.’’ (p. 43)

    c. Concord: no concord (p. 42- 43)

3. Apurinā, Maipurean (Facundes, 2000)

    a. Gender Features: masculine, feminine
    b. Gender System: semantic

    ‘‘with a few exceptions, sex-non-differentiable noun stems are almost entirely assigned the masculine gender” (p. 220)

    c. Concord: no adjectives in the language

    ‘‘ [t]he functions normally associated with adjectives in other languages are accomplished in Apurinā either by C(lassificatory)N(oun)s or by descriptive verbs’’ (p. 342)

4. Arabic, Egyptian (Khalafallah, 1969)

    a. Gender Features: masculine, feminine
    b. Gender System: underdiscussed, probably idiosyncratic
    c. Concord: adjective concord (p. 55)

(3)

a. ge:t	wa:seʕ	b. turga	wa:sʕi
Field.M	wide.M	corridor.F	wide.F
‘wide field’		‘wide corridor’	

5. Arabic, Gulf (Qafisheh, 1977)

    a. Gender Features: masculine, feminine
    b. Gender System: idiosyncratic (p. 96)
    c. Concord: adjective concord

    “[a]djectives have two genders: masculine and feminine. They differ from nouns in that nouns are either masculine or feminine; adjectives have two forms, a masculine form and a feminine form, depending upon the noun they modify”. (p. 153)

6. Arabic, Syrian (Cowell, 1964)

   a. Gender Features: masculine, feminine

   b. Gender System: idiosyncratic

   "for nouns that are neither names nor human designations, gender cannot be inferred from meaning, but can usually be inferred from form" (p. 374)

   Examples

(4)

MAS		FEM	
maktab	'office'	maktabe	'library'
daraž	'staircase'	daraže	'step/degree'
nəsr	'eagle'	būme	'owl'
ʔəstəqlāl	'independence'	hərriyye	'freedom'
murād	'desire/intention'	mubārā	'match/game'

   c. Concord: adjective concord

(5)

FEM	MAS	
mərr	mərra	'bitter'
mhəmm	mhəmme	'important'
fāḍi	fāḍye	'empty'

7. Arapesh, Papuan (Fortune, 1942)

a. Gender Features: class system, thirteen classes
b. Gender System: idiosyncratic

"The system of noun classes is not a division of meaningful objects on any recognized principle of meaning, or of the form of things meant. Sex is indicated in two classes, but does not absorb them, and is sometimes indicated outside of them" (p.11).

c. Concord: adjective concord

" [t]he adjective may be clearly defined as a word with constant root or stem form, which is always used with a variable suffix in agreement with the noun qualified by it" (p. 55).

Examples of Adjective Inflection

(6)

Class	Adjectival Singular	Adjectival Plural
I	-bi	-bysi
III	-gi or –gali	-gasi
V	-mi	-eipi or –ipi
VI	-ni	-bu
IX	-pi	-si

8. Arbore, Cushitic (Hayward, 1984)

   a. Gender Features: masculine, feminine and plural[107]

   b. Gender System: probably idiosyncratic

   Examples

(7)

MAS		FEM		PLU	
keléh	'gelded goat'	goran	'heifer sheep'	?eenú	'milk'
kér	'dog'	?eeg	'fire'	reeká	'backbone'

   c. Concord: adjective concord (p. 133)

(8)

dílota	fayya?a:ná	?éenoha	fayya?á:no
flour(f)	good	milk(p)	good

9. Babungo, Niger-Congo (Schaub, 1985)

   a. Gender Features: class system, fourteen classes, some classes are sing-plu pairs[108]

   b. Gender System: idiosyncratic

   c. Concord: adjective concord (p. 188)

(9)

a. ŋgá	bày	b. yìbí	yìbáy	c. kàŋkwà	kəbáy
antelope.1	red.1	colanut.5	red.5	game.15	red.15
'a red antelope'		'a red colanut'		'a red game'	

[107] Plural is included in the list of genders since it is the intrinsic gender of some of nouns (Hayward, 1984: 160).
[108] The class of a noun is expressed both as noun morphology and as concord on adjectives. Class 2 is the plural form of class 1. Class 4 and class 13 are the plural forms of class 3. There are nine such singular-plural pairs (p. 173). Following the Bantu tradition, we treat singular-plural pairs as distinct classes.

10. Bayso, Cushitic (Hayward, 1979)

a. Gender Features: masculine, feminine and plural

b. Gender System: underdiscussed, probably idiosyncratic (p. 118- 132)

Examples

(10)

MAS		FEM		PLU	
unnu	‘baby’	aabos	‘father-in-law’	sae	‘cattle’
káro	‘bat’	tunce	‘ant’	ogorroo	‘hair’
wodam	‘island`	gaaga	‘highland’	eenoo	‘milk’
diginni	‘moon’	hemeen	‘night’	ilkoo	‘tooth/teeth’
muuze	‘banana’	acaano	‘beard’	bekee	‘water’

c. Concord: adjective concord

(11)

a. ka-njinki	ibaaddo	b. gumaarati	oroono
big.M	man	white.F	goat.F

11. Beja. Cushitic (Vanhove, 2014)

a. Gender Features: masculine and feminine

b. Gender System: idiosyncratic (p.11)

c. Concord: adjective concord

(12)

dabal	ʔawi	dabalo:t	ʔo:r
‘small	stone’	‘small	girl’

12. Awjila Berber, Afro-Asitic (van Putten, 2013)

a. Gender Features: masculine and feminine

b. Gender System: idiosyncratic (p. 53)

c. Concord: adjective concord

(13) a. təkabərt təzwaɣt amədən mlil
shirt.F red.F man.M white.M
'a red shirt' 'a white man'

13. Chichewa, Niger-Congo (Watkins, 1937, Mchombo, 2004)

a. Gender Feature: class system, eighteen classes, some classes are sing-plu pairs

b. Gender System: idiosyncratic

"conventional and largely, though perhaps not entirely, arbitrary" (Watkins: 1937:23)

c. Concord: adjective concord

(14) a. mwana wá-búli
child.1 1-innocent
'an innocent child'

b. ukɔndɛ bwábú-talí bwá-kálɛ́
animal.net.4 4-long 4-old
'the long old animal net'

14. Diola-Fogny, Niger-Congo (Sapir, 1965)

a. Gender Features: class system, nineteen classes, some classes are sing-plu pairs
b. Gender System: underdiscussed, probably idiosyncratic
c. Concord: adjective concord (p.76)

(15) kuŋil ku-ikun
child.2 2-small

15. French, Romance (Batchelor and Chebli-Saadi, 2011)

a. Gender Features: masculine, feminine
b. Gender System: idiosyncratic

‘‘rules for learning the gender of nouns would be pointless, and the only practical method is to… try to remember it’’ (p.123)

c. Concord: adjective concord

(16)

Un	grand	garçon	une	grande	fille
A	big.M	boy	a	big.F	girl
‘a big boy’			‘a big girl’		

16. Fula, Niger-Congo (Arnott, 1970)

a. Gender Features: class system, twenty five classes, some classes are sing-plu pairs

b. Gender System: idiosyncratic

‘‘the class to which a noun belongs is essentially a grammatical feature of that noun. Nevertheless, some useful generalizations can be made about the meanings of nouns occurring in the various classes; but it must be emphasized that in many cases they are simply generalizations and not hard-and-fast rules’’ (p. 73)

c. Concord: adjective concord (p. 12)

(17)

a. wudere	mawnde	nde`e	b. sawru	mawndu	ndu`u
cloth.9	big.9	this.9	stick.11	big.11	this.11
‘this big cloth’			‘this big stick’		

17. Gaelic, Scottish (Gillies, 2009)

a. Gender Features: masculine and feminine

b. Gender System: idiosyncratic (p. 225), dialectical variation

Examples

(18)

FEM		MAS	
bròg	shoe	ugh	egg
sùil	eye	each	horse
iuchair	key	rud	thing
luch	mouse	guth	voice

c. Concord: adjective concord

(19)

a. balach	beag	b. nighean	bheag
boy.M	little.M	girl	little.F
‘a little boy’		‘a little girl’	

18. German, Germanic

a. Gender Features: masculine, feminine, neuter
b. Gender System: idiosyncratic
c. Concord: adjective concord

(20) a. ein teur-er Ausflug
an expensive-M outing.M
'an expensive outing'

b. ein rot-es Kleid
a red-N dress.N
'a red dress'

19. Godié, Kru language (Marchese Zogbo, 2012)

a. Gender Features: human, (big) animal and others
b. Gender System: probably semantic
c. Concord: adjective concord

(21) a. nyukpɔ kʌdɔ nɔ
man big this
'this big man'

b. mlɛ kʌdɛ nɛ
animal big this
'this big animal'

c. bùtu kʌdv nv
house big this
'this big house'

20. Greek, Indo-European (Holton, Mackridge and Philippaki-Warburton, 2004)

a. Gender Features: masculine, feminine, neuter

b. Gender System: idiosyncratic

‘‘Every Greek noun belongs to one of three gender classes: masculine, feminine or neuter. These do not correspond to the division between male, female and inanimate’’ (p.12)

c. Concord: adjective concord

(22) to megalo piano
the big.AGR piano
‘the big piano’

21. Hausa, Chadic (Caron, 2012)

a. Gender Features: masculine and feminine

b. Gender System: idiosyncratic

‘‘lexical items have arbitrary gender’’ (p. 17)

c. Concord: adjective concord (p.21)

(23) a. zungureːrìjar tsoːjuwar faɽar moːtàː
long.F old.F white.F car.F
‘a (very) long old white car’

b. ɗan ƙàɽamin jaːɽòː
DIM.M little.M boy
‘a little boy’

22. Hebrew, Semitic (Glinert, 2005)

a. Gender Features: masculine, feminine
b. Gender System: idiosyncratic

‘‘ [e]very Hebrew noun is either masculine or feminine. Such gender does not have very much to do with maleness or femaleness: although most nouns denoting a male or a female are indeed masculine or feminine, respectively, noun denoting objects are masculine or feminine without any apparent rhyme or reason’’ (p. 7)

c. Concord: adjective concord

(24)

sefer	qa’tan	bu’ba	qəta’na
book.M	small.M	doll.F	small.F
‘a small book’		‘a small doll’	

23. Hindi, Indo-Aryan (Koul, 2008)

a. Gender Features: masculine, feminine
b. Gender System: idiosyncratic

“[b]esides the natural gender of animate nouns, every inanimate noun is assigned a gender. Though the gender of a large number of inanimate nouns can be predicted by their endings, there are no hard and fast rules for assigning the gender” (p.33).

c. Concord: adjective concord

(25)

acchaa	laRkaa	acchii	laRkii
good.M	boy	good.F	girl
‘good boy’		‘good girl’	

24. Icelandic, Indo-European (Neijmann, 2001)

a. Gender Features: masculine, feminine, neuter

b. Gender System: idiosyncratic

‘‘ [t]he gender of Icelandic nouns is grammatical, which means that it relates to the form of the noun rather than its meaning’’ (p. 13).

Examples

(26)

Masculine		Feminine		Neuter	
lampi	‘lamp’	rúta	‘rose’	bord	‘table’
stóll	‘chair’	spurning	‘question’	bakarí	‘bakery’
steinn	‘stone’	verslun	‘shop’		

c. Concord: adjective concord

“adjectives do not have a set gender, but reflect instead, through different forms, the gender of the noun or subject they qualify” (p. 31)

(27)

MAS	FEM	NEU	
gamall	gömul	gamalt	‘old’
nýr	ný	nýtt	‘new’

25. Ingush, North Caucasian (Nichols, 2011)

a. Gender Features: masculine, feminine and two other genders (III, IV)

b. Gender System: idiosyncratic

"[f]or nouns referring to humans, gender is predictable from sex … the other genders have no specific semantic content" (p. 143).

c. Concord: adjective concord

(28)

a. v-oaqqa	sag	b. j-oaqqa	jiwig
M.big	man	F.big	girl
c. d-oaqqa	zhwalii	d-oaqqa	ch'qeara
III.big	dog	IV.big	fish

26. Iraqw, Afro-Asiatic (Mous, 2007)

a. Gender Features: feminine, masculine

b. Gender System: idiosyncratic

''the gender of the noun is not predictable; not by the shape of the noun, not by its meaning''

c. Concord: adjective concord (tonal)

(29)

garmóo niiná	dasír níina
boy.M small.M	girl.F small.F
'a small boy'	'a small girl'

27. Ju|'hoan, Kx`a (Dickens, 2005)

a. Gender Features: class system, five classes
b. Gender System: idiosyncratic (class I for humans, class II for animals)

"[m]ost plants, as well as food products that come from them, belong to this class [Class III, ǂKB], There are, however, many exceptions to this generality" Some examples of these exceptions are *!aìhn* 'tree', *||àìsì* 'grass', *útò* 'car', *g|aàxú* 'chair' and *tí* 'tea'.`` (p. 32)
"[m]any objects belonging to this class [Class IV, ǂKB], are characterized by length … but apart from this, there is little semantic coherence among its members." (p.33)

c. Concord: no concord

Explanations

a. adjectives are incorporated to nouns
b. plural marked at the edge (similar to Buli)

(30) bá jàn-sín (*básín jànsín, *básín jàn)
father good-PL

tjù zé-sín (*tjùsù zésín, *tjùsù zé)
house new-PL

c. limited number of adjectives (nine in total)

28. Kashmiri, Indo-Iranian (Wali and Koul, 2006)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic

"[g]ender of a large number of inanimate nouns is predictable from their endings. However, in general, it is unpredictable". (p. 26)

c. Concord: adjective concord (p.63)

(31)	a. n'u:l	ko:th	b. ni:j	kəmi:z
	blue.M	coat.M	blue.F	shirt.F
	'blue coat'		'blue shirt'	

29. Khoekhoe (Nama Hottentot), Khoe (Haacke, 1976, Hagman, 1977)

a. Gender Features: masculine, feminine
b. Gender Features: idiosyncratic (if grammatical, see the footnote)

‘‘an inanimate noun stem has either masculine or feminine gender assigned to it arbitrarily’’ (Hagman: 1977: 22)

c. Concord: no concord

Explanations

a. limited number of adjectives (ten in total)
b. attributive adjectives are reduced relative clauses

‘‘adjectives appear in a reduced relative sentence’’ (Haacke, 1976:55)

c. adjectives and verbs are not clearly distinguished (Haacke, 1976:51)

(32) Taras ge ra !anu
Woman PRES clean
‘The woman is becoming clean’ or
‘The woman is cleaning up’

30. Kisi, Niger-Congo (Childs, 1995)

a. Gender Features: class system, seven classes, some classes are sing-plu pairs
b. Gender System: probably idiosyncratic
c. Concord: adjective concord

(33) a. wɛ́ɛ́ŋ yùwɛ́í-o
woman.I old-I
'old woman'

b. mɛ́ŋ-mà yùwɛ́í-áŋ
water-IV old-IV
'old water'

c.lɛ́ɛ́ŋ-là yùwɛ́í-láŋ
cutlass.III.PL old-III.PL
'old cutlasses'

d.bɛ̌l-ŋ̀ yùwɛ́í-óŋ
palm.kernel-II.PL old-II.PL
'old palm kernels'

31. Kongo, Niger-Congo (Carter and Makoondekwa, 1987)

a. Gender Features: class system, eighteen classes, some classes are sing-plu pairs
b. Gender System: probably idiosyncratic
c. Concord: adjective concord

''ezak' is … one of the few true adjectives in Kongo; it precedes its noun and has a class prefix in agreement with it'' (p. 52)

32. Latvian, Balto-Slavic (Mathiassen, 1997)

a. Gender Features: masculine, feminine

b. Gender System: probably idiosyncratic

c. Concord: adjective concord (p. 58)

liels 'big'

(34)

	FEM	MAS
NOM	liela	liels
GEN	lielas	liela
DAT	lielai	lielam

33. Lavukaleve, Central Solomons (Terill, 1999)

a. Gender Features: masculine, feminine, neuter

b. Gender System: probably idiosyncratic

" [n]ouns ending in *–io* and *–f* are feminine"

" [n]ouns ending in *–e*, *-ng*, *-g*, *-i*, *-l*, *-s*, *-t* and *–v* are masculine or neuter" (p. 123).

Examples

(35)

FEM		MAS	
tagio	'snake'	ge	'bottom'
aunio	'evening'	sing	'womb'
urio	'coconut'	na'nug	`thought`
lefalef	'basket'	mari	`sacrifice`

c. Concord: adjective concord

(36) a. tome rua fin koi ika lei-m
hole.M big.M FOC.M also there exist-3SGM
'there was a big hole there'

b. mina ho'bea la feo
thing.F good.F ART.F FOC.F
'a good thing'

34. Lele, Chadic (Farjzyngier, 2001)

a. Gender Features: masculine, feminine
b. Gender System: underdiscussed, probably idiosyncratic (p. 55)
c. Concord: adjective concord

(37) tamá tùnya
woman tall:F
'tall/strong woman'

35. Lingala, Niger-Congo (Meeuwis, 1998)

a. Gender Features: class system, thirteen noun classes, some classes are sing-plu pairs
b. Gender System: underdiscussed, probably idiosyncratic
c. Concord: adjective concord

(38) a. moto mo-kúsé
person AGR-short
'a short person'

b. bato mi-kúsé
people AGR-short
'short people'

36. Luvale, Niger-Congo (Horton, 1949)

a. Gender Features: class system, eighteen classes, some classes are sing-plu pairs
b. Gender System: probably idiosyncratic
c. Concord: adjective concord

(39) a. jila yàyi-súku
path.5 5-long
'a long path'

b. lihina lyàli-vwóvu
cloth.3 3-soft
'a soft cloth'

37. Maltese, Afro-Asitic (Borg and Azzopardi-Alexander, 1997)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic

‘‘it would be very difficult to find significant semantic characteristics shared by other masculine or feminine nouns’’ (p. 192)

c. Concord: adjective concord

‘‘ [i]n the singular, adjectives agree in gender with the noun’’ (p. 260)

(40)

MAS	FEM	
kiefer	kiefra	‘cruel’
helu	helwa	‘sweet’
habrieki	habrieka	‘hardworking’
skur	skura	‘dark’

38. Marathi, Indo-Aryan (Dhongde and Wali, 2009)

a. Gender Features: masculine, feminine, neuter

b. Gender System: idiosyncratic

‘‘ animateness or natural gender are irrelevant for the grammatical gender of nouns. For example, the animate noun *undir* ‘mouse’ is masculine, *ghus* ‘rat’ is feminine and *muŋgus* ‘mongoose’ is neuter. On the other hand, the inanimate noun *čeha* ‘tea’ is masculine, *kəphi* ‘coffee’ is feminine and *dudh* ‘milk’ is neuter.’’

c. Concord: adjective concord

(41)

kaḷa mulga	kaḷi mulgi	kaḷə mūl
‘black boy’	‘black girl’	‘black child’

39. Miya, Chadic (Schuh, 1998)

a. Gender Features: masculine, feminine

b. Gender System: probably idiosyncratic

c. Concord: adjective concord

(42) a. mbərgu pyóo-na
ram.F white-F

b. tərnáku pyóo-ya
ewe.M white-M

c. ndùwul həmày-na
pot.F empty-F

d. tsərdíy həmày-ya
space.M empty-M

40. Mosetén, Mosetenan (Sakel, 2004)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic

‘‘female human beings are in feminine gender and male human beings in masculine gender. In most other cases, gender assignment seems to be arbitrary in Mosetén’’ (p. 86)

c. Concord: concord on linker

(43) a. jaem’-tyi’ mintyi’
good-L.M man
‘a good man’

b. mö’ aka’ jäechbäe’-sï Martin-si’
3.F.S house.F red-L.F Martin-L.F
‘Martin’s red house’

41. Nkore-Kiga, Niger-Congo (Taylor, 1985)

a. Gender Features: class system, seventeen classes, some classes are sing-plu pairs
b. Gender System: probably idiosyncratic
c. Concord: adjective concord

(44)

omuntu	omu-rungi	ekishushani	eki-rungu
person.1	1-good	picture.7	7-good
'a good person'		'a good picture'	

42. Nunggubuyu, Australian (Heath, 1984)

a. Gender Features: masculine, feminine, plural and five other non-human classes
b. Gender System: idiosyncratic

semantic for human nouns
idiosyncratic for non-human nouns
"the category of M, F and Pl are essentially given automatically by the real-life sex of the referrent." (p. 177)
"[i]f we are looking for simple rules of thumb for explaining why each nonhuman noun is assigned a particular NC [Noun Class, İKB] category, we are going to be disappointed… None of the classes is particularly unitary semantically" (p. 179)

c. Concord: adjective concord

(45)

a-wurungu-wuy	a-run^{g}gal-wuy
CL-pond-DAT	CL-big-DAT
'to the big pond'	

43. Nyamwezi, Niger-Congo (Maganga and Schadeberg, 1992)

a. Gender Features: class system, eighteen noun classes, some are sing-plu pairs
b. Gender System: idiosyncratic

"[n]ouns belonging to the gender of the classes 1/2 are all human beings and all (?) nouns referring to human beings belong to this gender ... The other genders correspond only vaguely to semantic notions" (p.69).

c. Concord: adjective concord

Examples

(46)

ŋwaaná m-do	lupála lu-daki
child.1 1-small	hawk.11 11-brave
'a small child'	'a brave hawk'

44. Nyiha, Niger-Congo (Karels, 2014)

a. Gender Features: class system, some classes are sing-plu pairs
b. Gender System: probably idiosyncratic
c. Concord: adjective concord

(47)

i-pele ihali	umutelesi	umupiti
5-strong 5.wine	1.cook	1.big
'stong wine'	'chief cook'	

45. Oromo (Harar), Cushitic (Owens, 1985)

a. Gender Features: masculine, feminine

b. Gender System: underdiscussed, probably idiosyncratic

c. Concord: adjective concord

(48)

MAS	FEM	
gúddáa	gúddóo	'big'
hámáa	hámtúu	'bad'
hiyesá	hiyéettii	'poor'

(49)

niitii-n	hiyéetii-n	má	beet-t-i
woman.F-NOM	poor.F-NOM	me	know-F-IMPF

'The poor woman knows me'

46. Panjabi, Indo-Iranian (Tolstaya, 1981)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic

"In the case of animate nouns, grammatical gender corresponds to natural gender; in the case of inanimate nouns one must consult dictionary" (p. 24-25).

c. Concord: adjective concord

(50)

cangā	ghorā	cangī	ghorī
good.M	horse.M	good.F	mare.F
'a good horse'		'a good mare'	

47. Pashto, Indo-Iranian (Tegey and Robson, 1996)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic

"words denoting all male animals and people .... In addition, however, most masculine nouns refer to objects, qualities, and ideas that have no natural gender." (p. 47).

"[f]eminine nouns also denote objects, qualities and ideas that have no natural gender" (p 54)

c. Concord: adjective concord

(51)

wəgay	alək	wəge	péghlə
hungry.M	boy	hungry.F	girl
'a hungry boy'		'a hungry girl'	

48. Qafar, Cushitic (Bliese, 1981)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic (p. 181)

Examples

(52)

MAS		FEM	
'saaku	'morning'	bir'ro	'flower'
'bagu	'abdomen'	da'ro	'grain'
'alfi	'thousand'	cammu're	'cloud'
'dammi	'sin'	duy'ye	'stuff'
ba'xari	'meadow'	ataa'le	'work'

c. Concord: no adjectives (Mous, 2012)

49. Rendille, Cushitic (Oomen, 1981)

a. Gender Features: masculine, feminine
b. Gender System: idiosyncratic

‘‘gender assignment in nouns denoting inanimate objects in unpredictable on semantic grounds” (p. 39)

c. Concord: concord on linker

inam-ki	der	inám-ti	der
boy-L.M	tall	girl-L.F	tall
‘the tall boy’		‘the tall girl’	

50. Russian, Balto-Slavic (Wade, 2011)

a. Gender Features: masculine, feminine, neuter
b. Gender System: idiosyncratic
c. Concord: adjective concord

51. Shona, Niger-Congo (Stevick, Mataranyika and Mataranyika, 1965)

a. Gender Features: class system, eighteen classes, some classes are sing-plu pairs

b. Gender System: probably idiosyncratic

c. Concord: adjective concord

–kúrú ‘large’, *–téte* ‘narrow’

(53) a. vánodá imbá húrú
want.they house.9 large.9
‘they want a large house’

b. vánodá imbá nhéte
want.they house.9 narrow.9
‘they want a narrow house’

52. Spanish, Italic (Butt and Benjamin. 1994)

a. Gender Features: masculine, feminine

b. Gender System: idiosyncratic

‘‘The gender of nouns referring to inanimates (and to plants) must be learnt for each nouns’’ (p. 7)

c. Concord: adjective concord

Examples

(54)

MAS	FEM	
bueno	buena	‘good’
hablador	habladora	‘talkative’

53. Supyire, Gur (Carlson, 1994)

a. Gender Features: class system, five classes
b. Gender System: idiosyncratic

"Supyire is typical of Niger-Kongo languages in exhibiting only weak correlations between noun classes and semantic categories. The usual situation obtains in every one of the Supyire genders: most of the nouns used to refer to entities belonging to a particular semantic category are included in a particular gender, but the gender also contains many other nouns which do not refer to entities in that category" (p. 95)

c. Concord: no concord

Explanations

adjectives incorporated to nouns (similar to Buli)

limited number of adjectives (thirteen in total)

Examples of incorporated adjectives

(55) lu-bwo-o
water-big-3
'lake'

54. Swahili, Niger-Congo (Polome, 1967 and Mpiranya, 2015)

a. Gender Features: class system, eighteen noun classes, some are sing-plu pair
b. Gender System: idiosyncratic
c. Concord: adjective concord (Mpiranya, 2015: 23)

Examples

(56)

m-toto	m-dogo	vi-tabu	vi-dogo
CL-child	CL-small	CL-book	CL-small
'small child'		'small books'	

55. Tigré, Semitic (Raz, 1997)

a. Gender Features: masculine feminine
b. Gender System: idiosyncratic

"[t]he gender of the singular noun is statable lexically" (p. 448)

c. Concord: adjective concord

(57)

esit senet	enas seni
woman good.F	man good.F
'a good woman'	'a good man'

56. Tsez, North Caucasian (Plaster, Polinsky, Harizanov, 2013)

a. Gender Features: masculine, feminine, two other genders

b. Gender System: unclear

"[c]omputational modelling of the Tsez system shows that the noun classification in Tsez is highly predictable, with a simple semantic core and a set of highly salient formal features, that can be ranked with respect to each other." (p. 153)

c. Concord: adjective concord

(58) a. y-exora ɣanabi
II-tall woman.ABS.II
'a tall woman'

b. b-exora got'i
III-tall haystack.ABS.III
'a high haystack'

57. Ukranian, Balto-Slavic (Danylenko and Vakulenko, 1995)

a. Gender Features: masculine, feminine, neuter

b. Gender System: idiosyncratic

c. Concord: adjective concord (p.23)

(59) syni-e neb-o
blue-N.SG sky-N.SG
'a blue sky'

58. Yimas, Lower Sepik (Foley, 1991)

a. Gender Features: class system, ten noun classes

b. Gender System: idiosyncratic

class I to class IV semantic

class IV to class X idiosyncratic (see the main text)

c. Concord: adjective concord

Example

(60) tnkntk-ntrm tktnttm amana-ntrm
heavy-V.DU chair.V.DU my-V.DU
'my two heavy chairs'

59. Zulu, Niger-Congo (Poulos and Bosch, 1997)

a. Gender Features: class system, seventeen classes, some classes are sing-plu pairs

b. Gender System: idiosyncratic

"most of noun classes display a diversity of semantic contents" (p.4)

c. Concord: adjective concord

(61) izintachulo ezint-sha
shoe.8 8-new
'new shoes'

Appendix B

Adjectives in Buli

Previous work on Buli attributive adjectives (Matushansky, 2003 and Akaling-Pare, 2005) has led to the conclusion that they are actually nouns. Abdul-Razak Sulemana (personal communication), on the other hand, notes that the evidence in favor of the claim that Buli lacks the adjective category is not as compelling as it might appear. In what follows we show that Buli adjectives are not nouns.

One argument Matushansky (2003) provides for the claim that Buli lacks the adjective category comes from the observation that the adjectives *seem* to belong to a class just like all nouns do. Consider the pronominal forms that are triggered by the unmodified nouns in (1) and (2).

(1) ṇ̀ ɲà ná:b. bù kà ná: fí:k
1.SG saw cow.V it.V F1 cow small
'I saw a cow. It was a small cow'

(2) ṇ̀ nyǎ báŋ. kà kǎ báŋ fí:k
1.SG saw lizard.III it.III F1 lizard small
'I saw a lizard. It was a small one.'

These nouns can be modified by *mɔ̀nùŋ* 'red'. We observe that in such a situation the pronoun may take another form

(3) ṇ̀ nyà ná:b mɔ̀nùŋ. kù kà ná: fí:k
1.SG saw cow.V red it.IV F1 cow small
'I saw a red cow. It was a small cow'

(4) ṇ̀ nyǎ báŋ mɔ̀nùŋ. kù kǎ báŋ fí:k
1.SG saw lizard.III red it.IV F1 lizard small
'I saw a red lizard. It was a small one. '

For Matushansky, the new form of the pronoun reflects the class of the adjective. Since only nouns have classes, she concludes that adjectives in Buli are nouns. Further observations about such constructions do not support this conclusion (Abdul-Razak Sulemana, personal communication). If it is the adjective that is responsible for the use of the pronoun *kù*, we predict that *kù* will be unavailable when there is no adjectival element in the NP. This prediction is not borne out. The pronoun *kù* can be used even when there are no adjectives.

(5) ṇ̀ nyà ná:b. kù kà ná: fí:k
1.SG saw cow.V it.IV F1 cow small
'I saw a cow. It was a small cow'

(6) ṇ̀ nyǎ báŋ. kù kǎ báŋ fí:k
1.SG saw lizard.III it.IV F1 lizard small
'I saw a lizard. It was a small one.'

This means that the presence of the pronoun *kù* need not be taken as evidence for the "class" of adjectives. It is also important to note that the pronoun *kù* is not obligatory in the context of the adjective *mɔ̀nùŋ* 'red'

(7) ṇ̀ nʲà ná:b mɔ̀nùŋ. bù kà ná: fí:k
1.SG saw cow.V red it.V F1 cow small
'I saw a red cow. It was a small cow'

(8) ṇ̀ nyǎ báŋ mɔ̀nùŋ. kà kǎ báŋ fí:k
1.SG saw lizard.III red it.III F1 lizard small

It seems that *kù* behaves like an expletive.

(9) kù a-ní
it IMPF-rain
'it is raining'

(10) kù aɲɛ asi Ajohn dʒam dela
it seems C John came here
'it seems that John came here'

One might hypothesize that the pronoun *kù* is devoid of any specification for class or meaning. It can be used in the context of the NPs and modified NPs as a pronoun because, by its vacuity, it does not contradict with the class of the noun. The details of this proposal remain to be worked out. It is to be noted that when the head noun is from class I (class for humans), only the class I pronoun can be used. Below we show an example with *nàlɛ̀ŋ* 'pretty' which Matushansky takes to be class III (kà).

(11) mí nyǎ nipo:k nàlɛ̀ŋ. *kù/*kà/*bù/wà fi:sa
1.SG saw woman pretty. it.IV/it.III/it.V/it.I small
'I saw a pretty woman. She was small'

This is an instance in which the pronoun is assigned the class of the noun and nothing else. Adjectives are simply irrelevant to the determination of the class of the pronoun when the noun is from class I. Therefore, following Sulemana (personal communication and contra Matushansky, 2003), we assume that Buli does have the adjective category.

Appendix C

Leaving islands

In Chapter 4, we observed that Turkish allows movement out of subject, adjunct and relative clauses.

(1)a. [Hoca Ahmeti [~~Ali'ye~~ bağırdığı için] takımdan atacak] ~~Ali~~-ye
Coach Ahmet-ACC ~~Ali-DAT~~ shout.NMZ for from.team throw.out Ali-DAT
'The coach will throw Ahmet out of the team because he shouted at Ali'

b. Ahmeti [Ali [çetelerin ~~Ahmeti~~ öldürdüğü binayı] satın.aldı]
Ahmet.ACC Ali gangsters ~~Ahmet.ACC~~ kill.REL building bought
'Ali bought the building in which the gangsters killed Ahmet'

c. [[Alinin ~~Ahmetle~~ konuşması] işimizi kolaylaştırdı] Ahmet.le
Ali-GEN ~~with.Ahmet~~ talk.NMZ our.work.ACC ease.CAUS.PAST with.Ahmet
'that Ali talked with Ahmet made our task easier'

In section 4.3.7. we argued that these are instances of movement and not base-generation at the periphery. We did not address the question of how such movements are licensed in the first place. In this Appendix, we provide an account of some cases of movement out of subject, adjunct and relative clauses. However, it is not clear that this explanation works for all cases of movement out of "islands". Therefore, this Appendix should be considered as a progress report on an unsolved problem. We leave the task of solving this problem to future work. We will argue that the fact that Turkish allows movement out these clauses is correlated with the fact that such clauses in Turkish are nominalized. We will argue that the syntax of nominal clauses adopted in Colley and Davis (to appear) might play a key role.

Colley and Davis (to appear), building on Kornfilt (2006), develop a theory of case assignment that explains various case possibilities for subjects of embedded nominalized clauses in Turkish. In what follows, we present this approach and show that it helps understand movement out of subject, relative and adjunct clauses.

In Turkish, subjects in matrix or (non-nominalized) embedded clauses show nominative case. The verb in such clauses agrees with subjects in person and number. (We denote the verbal agreement as VA).

(2) Ben sen git-ti-n san-dı-m
1.SG.NOM 2.SG.NOM go-PAST-2SG(VA) think-PAST-1SG(VA)
'I thought that you went'

Embedded nominal clauses display an agreement pattern drawn from the paradigm of possessed nouns (to be denoted as NA for "nominal agreement") and embedded subjects surface with genitive case.

(3) Ben Ali'nin git-tiğ-in-i duy-du-m
1SG.NOM Ali-GEN go-NMZ-3SG(NA)-ACC hear-PAST-1SG(VA)
'I heard that Ali went'

In this appendix, we are concerned with the case patterns of subjects in two types of nominalizations: indicative and subjunctive. Indicative nominalizations (*-DIK*) are used with predicates like *say, think, know* and subjunctive nominalizations (*–MA*) are used with predicates like *want, hope, miss.*

(4) a. Ben Ali'nin gel-diğ-in-i bil-iyor-um
1PNOM Ali-GEN come-I.NMZ-3SG(NA)-ACC know-IMPF-1SG
'I know that Ali came'

b. Ben Ali-nin gel-me-sin-i isti-yor-um
1PNOM Ali-GEN come-S.NMZ-3SG(NA)-ACC want-IMPF-1SG
'I want Ali to come'

We note that in both cases, subjects in nominalized clauses appear with genitive case and subject agreement is from the nominal paradigm. As discussed at length by Kornfilt (2006), there is an asymmetry between indicative and subjunctive clauses in the context of adjunct nominalizations. Subjects of indicative nominal adjunct clauses bear nominative case while those of subjunctive clauses are still in genitive case.

(5) a. Ali gel-diğ-i için biz çık-tı-k
Ali.NOM come-I.NMZ-3SG(NA) for we.NOM go.out-PAST-1PL
'We went out because Ali came'

b. Ali-nin gel-me-si için biz çık-tı-k
Ali-GEN come-S.NMZ-3SG(NA) for we.NOM go.out-PAST-1PL
'We went out so that Ali can come'

To sum up, all embedded nominalized clauses have genitive subjects, except indicative adjuncts, whose subjects bear nominative case. This is the main set of data that Colley and Davis (to appear) develop an account for. Their account has two major ingredients. First of all, they assume a configurational theory of case assignment (Marantz, 2000 and Baker, 2015)

(6) Case Assignment
NOM is the unmarked case within the verbal domain
GEN is the unmarked case within the nominal domain

What makes a domain nominal or verbal is the nature of the phasal head that spells it out. A phase is verbal if it is little v, or is in the extended projection of little v, for instance CP. A phase is nominal if it is little n or in the extended projection of little nP.

The second relevant piece is the notion of phase-extension. This is summarized in den Dikken (2007: 1):

(7) Phase Extension
Syntactic movement of the head H of a phrase α to the head X of the node β dominating α extends the phase up from α to β; α loses its phasehood in the process…

Following Kornfilt (2006), Colley and Davis (to appear) assume that indicative nominalizations contain a CP while subjunctive nominalizations have less structure. Evidence for this claim (discussed first in Kornfilt, 2006) comes from the observation that indicative nominalizations license A-bar phenomena like embedded questions and relative clauses – a behavior unavailable to subjunctive nominalizations.

(8) a. Ali'ye kim-in git-tiğ-in-i söyle-di-m
Ali-DAT who-GEN go-I.NMZ-3SG-ACC tell-PAST-1SG
'I told Ali who went'

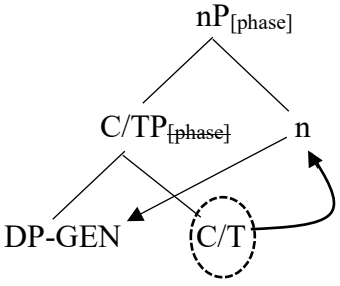
b. *Ali'ye kim-in git-me-sin-i söyledim
Ali-DAT wh-GEN go-S.NMZ-3SG-ACC tell-PAST-1SG

(9) a. Ali-nin git-tiğ-i okul
Ali-GEN go-I.NMZ-3SG school
'the school to which Ali went'

b. *Ali-nin git-me-si okul
Ali-GEN go-S.NMZ-3sg school

For Colley and Davis, such clauses are nominalized by a little n head. In indicative clauses, this head selects for a CP while in subjunctive clauses it selects for a TP. They assume that this little n head triggers movement of the T or C head to itself, therefore extending the phase from CP to nP. The new phase is nominal and the subject in the embedded clause becomes genitive due to the configurational case assignment rules. This is shown below:

(10)

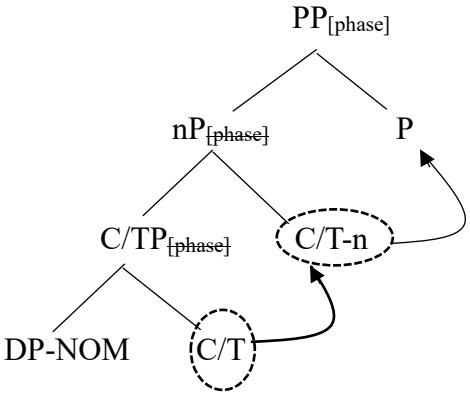


This leaves us with the puzzle of nominative case in the context of indicative adjuncts. They note that the postpositions used in indicative nominalizations[109] assign nominative to DPs.

(11) Ali için
Ali.NOM for
'for Ali'

They propose that there is a second movement that extends the phase from nP to PP.

(12)



What is the nature of the PP phase? They assume that it is neither nominal nor verbal, resulting in default case on DP, which is nominative in Turkish (Kornfilt, 2006).

We suggest that this analysis of Turkish nominal clauses can also explain why movement out of embedded nominal clauses is possible in Turkish. We claim that it is the extra structure that is provided by the little n head that licenses such movements. Let us see how this little n head licenses movement out of CPs that are otherwise islands for extraction. We start with relative

[109] Subjunctive nominalizations can also be introduced by a postposition. A question arises as to why they cannot have nominative subjects. Colley and Davis note that subjunctive nominalizations can be pluralized, which, for them, implies that there is extra layer of structure hosting the plural feature (a Num head) at the top of the n head.

(1) Git-me-**ler**-im seni üzer
Go-S.NMZ-**PLU**-1sg you.ACC sad.CAUS.AOR
'Each time I leave, you are sad'

Colley and Davis argue that this Num head blocks the extension of phasehood to PP. Therefore, the phasal head remains nominal and subjects are genitive.

clauses (which is a type of nominalized clause in Turkish with genitive subjects and nominal agreement)

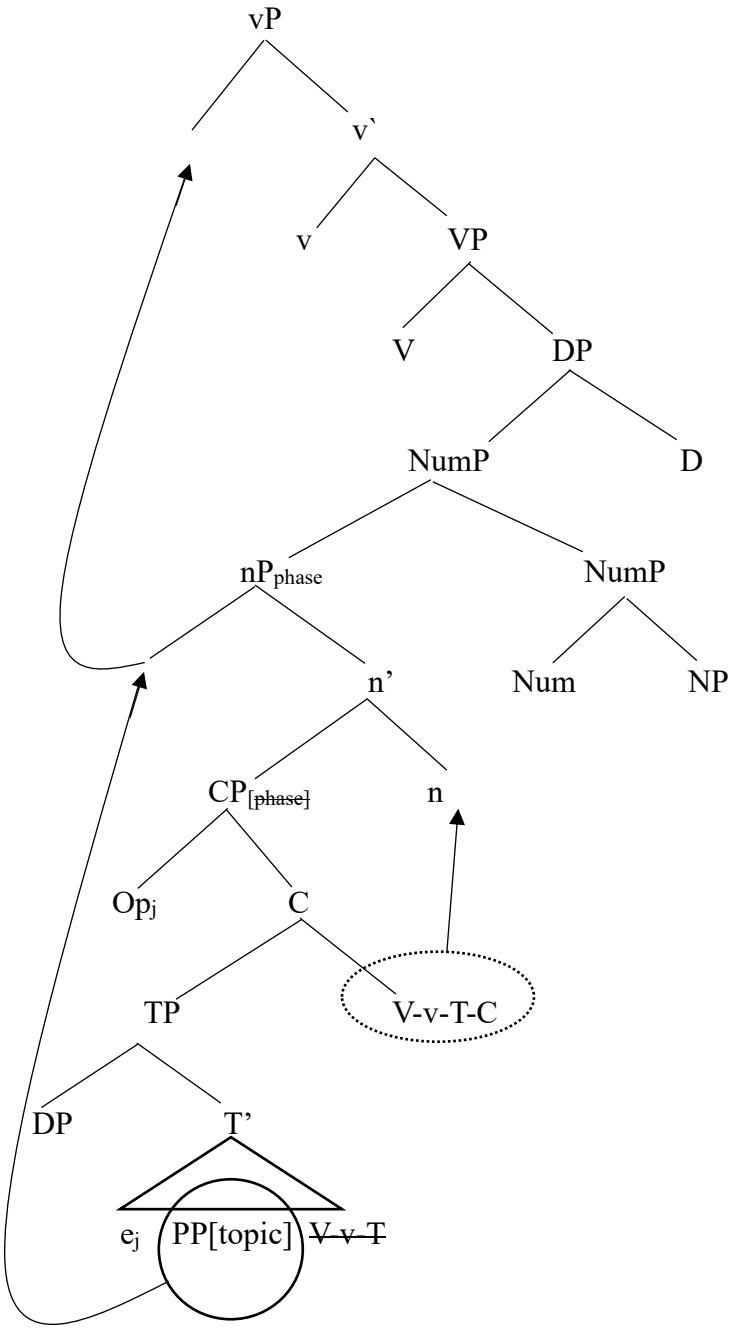
(13) Ben Ali-nin Türkiye ile ilgili yaz-dığ-ı kitap-lar-ı satın.al-dı-m
1SG Ali-GEN Turkey with about write-REL-3SG.NA book-PLU-ACC buy-PAST-1SG.VA
'I bought the books that Ali wrote about Turkey'

We first note that, when used with a numeral, relative clauses necessarily precede the numeral. We take this to mean that relative clauses are adjuncts on NumP or a higher projection.

(14) Ben (*iki) Ali-nin Türkiye ile.ilgili yaz-dığ-ı (iki) kitab-ı satın.al-dı-m
1SG two Ali-GEN Turkey about write-REL-3SG.NA two book- ACCbuy-PAST-1SG.VA
'I bought two books that Ali wrote about Turkey'

We assume that in languages in which relative clauses are islands, movement out of a relative clause is banned due to an Operator at Spec CP. The situation with Turkish is different. The n head creates extra structure through which movement of an XP from inside CP is possible.

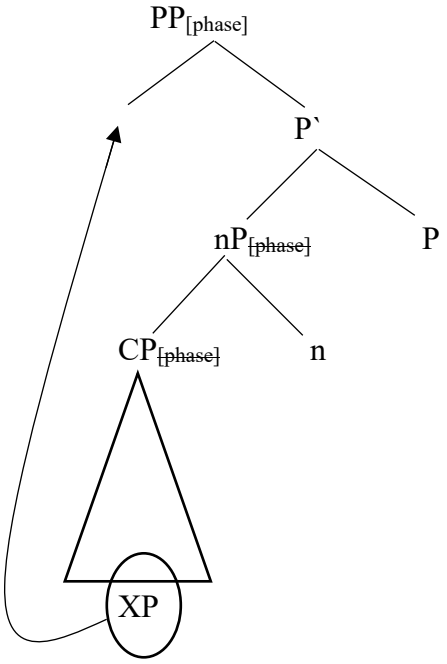
(15)



If there were no little n head, the C head would be the phasal head that spells out TP. The specifier of CP is unavailable for movement since this position is occupied by the operator that binds the variable inside the relative clause.

We have now seen that adjunct clauses in Turkish are postpositional phrases that are built on the top of a nominalized CP. We propose that movement from inside the adjunct clauses take advantage of the specifier of the postpositional head, which is the phase head according to Colley and Davis (to appear).

(16)



We have now seen the mechanism for movement out of relative and adjunct clauses in Turkish. For subject clauses, we might adopt a similar explanation. It is still worth noting that, as discussed in Stepanov (2007), many languages allow extraction out of clausal subjects. Below we give examples from Russian ((17) from Stepanov, 2007) and Palauan, an Austronesian language, ((18) from Georgopoulos, 1991). We remain agnostic about the conditions that license or anti-license extractions from clausal subjects in various languages. We simply note that Q-adjunction inside subject clauses is licensed in Turkish by the fact that Turkish is one of the languages that license movement out of subject clauses.

(17) čto by ty xotel čtoby kupit` ne sostavljalo by nikakogo truda
what SUBJ you wanted that-SUBJ to buy not constitute SUBJ no labor
'what would you want that to buy __ would not be any trouble? '

(18) Mary [a kltukl [el kmo ng-oltoir er a John t_{Mary}]
Mary clear C R-3SG-IMPF-love John
'that MARY loves John is clear'

It must be noted that the account we have developed is not complete. There is at least one construction in Turkish for which the explanation developed here does not work in any obvious way. Turkish has correlative/conditional clauses, an example of which is given below

(19) Ali hiçkimseyle konuşmazsa işimiz kolay
Ali anyone-COM talk-NEG-AOR-COND/COR task.our easy
'If Ali doesn`t talk with anyone our task is easy'

Movement of XPs out of such clauses are slightly marked, but clearly acceptable.

(20) Ali ~~hiçkimseyle~~ konuşmazsa işimiz kolay hiçkimseyle
Ali ~~anyone-COM~~ talk-NEG-AOR task.our easy anyone-COM
'If Ali doesn`t talk with anyone our task is easy'

Such correlative/conditional clauses are not nominalized (they have verbal agreement and nominative subjects). Therefore, extraction of XPs from them cannot be due to the presence of an n head. We offer no account of extraction from these clauses. We simply make several observations that might turn out to be important for such an account. It is worth noting that the edge of a conditional/correlative clause is available for extraction. That is, an XP can be moved to the edge of the adjunct clause.

(21) Hiçkimseyle Ali ~~hiçkimseyle~~ konuşmazsa işimiz kolay
Anyone-COM Ali ~~anyone-COM~~ talk-NEG-AOR-COND/COR task.our easy
'If Ali doesn`t talk with anyone our task is easy'

Note also that we use the term "conditional/correlative" because such clauses are also used in correlative constructions (discussed at length in Iatridou, 2013. For a detailed semantic analysis of such constructions, see Demirok, 2017)

(22) Yarışı kim kazan-ır-sa Ayşe onunla evlenecek
Competition-ACC who win-AOR-COND/COR Ayşe with.him/her will.marry
'Ayşe will marry whoever wins the race'

One might hope that extraction of XPs can be explained by reference to various properties of correlative syntax in Turkish. We leave this task for future work.

It is important to note that Turkish does have some islands. In Chapter 4, we have show that symmetric conjunction in Turkish behaves as an island.

(23) (*Ali-nin) [Ayşe ~~Ali'nin~~ babasını ve Ahmet'in annesini gördü] (*Ali-nin)
Ali-GEN Ayşe ~~Ali-GEN~~ father-ACC and Ahmet-GEN mother-ACC saw Ali-Gen
'Ayşe saw Ali's father and Ahmet's mother'

Moreover, post-verbal non-nominal clauses show island-type behavior.

(24) a. *Ahmetle [ben bu adamı ki ~~Ahmetle~~ dün tartıştı tanıyorum]
Ahmet.with I.NOM this guy.ACC REL ~~Ahmet.with~~ yesterday debated know
'I am acquainted with this guy who debated with Ahmet yesterday'

b. *Mehmet'i [Ahmet Ayşe-ye kızdı çünkü o ~~Mehmet'i~~ dövdü]
Mehmet-ACC Ahmet Ayşe-DAT got.angry because she Mehmet-ACC beat.PAST
'Ahmet got angry with Ayşe because she beat Mehmet'

However, post-verbal clauses do not behave as island when they are complements to verbs.

(25) Ayşeyi Ali zanneti ki Ahmet ~~Ayşeyi~~ seviyor
Ayşe.ACC Ali thought that Ahmet Ayşeyi likes
"Ali thought that Ahmet likes Ayşe"

We leave the task of building a complete theory of islandhood in Turkish to future work.

In this Appendix, we have shown that the structural analysis of embedded nominal clauses adopted in Colley and Davis (to appear) in order to capture case patterns of embedded subjects in Turkish can be used to explain the observation that movement of out of relative, adjunct and subjects clauses is possible. The little n head that is responsible for embedded genitive subjects is also the extra structure that licenses movement out of such clauses. However, there are also cases of movement out of "islands" in the absence of the little n head. Such constructions remain unexplained under this analysis.

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