

The Syntax of Functional Projections in the vP Periphery

by

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University of Toronto

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Abstract

This thesis investigates the functional categories in the vP domain, including aspect, modality, and focus. For this research initiative, five constructions were examined: the Mandarin temporal adverbial, the Mandarin excessive *tā*, the Mandarin *dé/bù*, the Turkish question particle *-mI*, and the Armenian auxiliary constructions. These constructions involve functional categories that are expected to appear at the C/IP periphery; however, they surface inside the vP domain. The existence of these low grammatical elements raises non-trivial questions such as how functional categories should be mapped out in the structure, and whether a unified structure can be proposed to account for the cross-linguistic phenomena examined in this thesis. The investigation of these constructions showed that there are cross-domain interactions between low and high functional categories. While Mandarin temporal adverbial constructions showed interactions between viewpoint aspect and lexical aspect via the distributions of the temporal adverbials and various co-occurrence restrictions, the other four constructions demonstrated interactions between the low and the high categories via intervention effects. I argue that low functional categories must be licensed by their counterparts in the C/IP domain, and that the licensing relation and the structural conditions imposed on

this relation can be captured if an Agree relation is established between the functional categories in these two domains. The analysis also reveals that low functional categories are the result of feature lowering from v^* to some functional projection below it, and the formal features of the low functional categories must assign their values to their counterparts in the C/IP domain via Agree to provide a meaningful input to LF. I propose a parallel analysis between CP and vP to account for the existence of the low grammatical elements in two respects: (1) C and v^* , as phase heads, have an edge feature (EPP) and Agree features that need to be valued and/or checked at a functional projection lower than the each phase head; (2) the formal features of C can appear at v^* if they are licensed by an associate feature present in the C/T domain for the purpose of Full Interpretation (Chomsky 1995, 2000).

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List of Abbreviations

ACC	accusative
AUX	auxiliary
C	complementizer
CL	classifier
CON	conditional
COP	copular
DAT	dative
EXP	experiential
FUT	future
GEN	genitive
IMPF	imperfective
INCH	inchoative
INST	instrument
LOC	locative
MOD	modifier
NEG	negation
NOM	nominative
PART	participial mood
PAR	particle
PL	plural
POS	posterior
PRES	present
PRF	perfective
PROG	progressive
Q	question particle
REPO	reportive
SG	singular
VN	verbal noun
1	1 st person
2	2 nd person
3	3 rd person

Chapter 1

Introduction

1.0. Issues and research questions

Rizzi's (1997) work on the CP periphery has inspired many researchers to explore information structure in the domain of CP with a focus on how many and in what order functional categories are projected between CP and IP. The cartographic approach to the left edge of the clause has been extended to the TP domain, for example, Jayaseelan (2001), Butler (2003), and Belletti (2004) show that the middle field of a clause (the area between IP and vP, also called internal periphery) has a syntactic configuration richer than generally assumed, and that it may exhibit a resemblance to the external periphery. However, while the research on CP and IP has yielded a rich contribution, relatively less attention has been paid to the vP area. This may not be much of a surprise, as in much of the generative tradition, verbal projections have fallen into the lexical domain, a domain that is distinct from the functional domain in that while the former establishes theta relations and realises arguments, the latter licenses morpho-syntactic features.

However, proposals for the existence of functional projections inside the lexical domain are not unheard of; AgroP was introduced to account for object case-assignment (e.g., Kayne 1989), and other argument-licensing (both non-oblique and oblique) projections have been proposed in the literature as well: VoiceP was introduced to relate the external argument to the event described by VP (Marantz 1993, Kratzer 1996), and it has been suggested that the semantics of Applicative projections is to add a participant to the event (Pylkkänen 2002, Cuervo 2003, Kim 2011). In addition to the projections of arguments discussed above, the establishment of functional categories associated with various types of adverbials can also be found in Cinque's influential work (1997), in which each adverb class enters into a spec-head relation with a functional head, and the hierarchy established by the adverb phrases is claimed to be responsible for the variability of structural positions and the scopal properties demonstrated by different adverb classes.

The issue of functional categories is particularly important as there is a growing consensus that “language variation is probably to a large extent, if not exclusively, determined by functional categories.” (Ouhalla 1991: 1). Building on the insights of the previous work on functional projections and domain peripheries, this dissertation aims to explore the relation between functional phrases at the left edges of CP/IP and vP, and uncover any cross-domain interaction between them. This dissertation addresses: (1) the functional projections which encode the information of aspect, modality, negation, and focus. (2) the constructions including Mandarin temporal adverbial constructions, Mandarin excessive *tā* constructions, Mandarin modal *dé/bù* constructions, the Turkish question particle *-mI*, and Armenian auxiliaries. While Mandarin temporal adverbial constructions show interactions between an IP-internal functional projection encoding viewpoint and a vP-internal projection encoding lexical aspect via the distributions of the temporal adverbials, what the other four constructions under investigation share is that they all involve grammatical elements that should appear at the CP/IP periphery, but nonetheless, they either obligatorily or optionally surface inside the vP domain. It will be clearly shown that the low grammatical elements in Mandarin excessive *tā* constructions, Mandarin modal *dé/bù* constructions, the Turkish question particle *-mI*, and Armenian auxiliaries also display cross-domain interactions between CP/IP and vP, and hence the goals of this dissertation are to examine these interactions and to account for the existence of these “low” functional categories. Below I sketch a brief outline for the constructions to be investigated.

The first construction under investigation is Mandarin temporal adverbial constructions, where two types of temporal adverbials are examined: duratives (*for*-PPs) and frame adverbials (*in*-PPs). Unlike other adverbs, which typically appear pre-verbally, duratives occupy a post-verbal position, as shown in (1).

- (1) a. *tā* [hěn kuàide]/[zúotiān] xǐ-le zǎo.
 He very fast/yesterday wash-PRF bath
 ‘He had a quick shower./He showered yesterday.’

- b. *tā xǐ-le [hěn kuàide]/[zúotiān] zǎo.
 He wash-PRF very fast/yesterday bath
- c. tā xǐ-le [sān tiān] zǎo.
 he wash-PRF three day bath
 ‘He showered for three days.’
- d. *tā [sān tiān] xǐ-le zǎo.
 he three day wash-PRF bath

In (1a-b), the manner adverb *hěn kuàide* ‘very fast’, and the temporal adjunct *zúotiān* ‘yesterday’ are shown to precede the verb obligatorily, and a post-verbal position is not accepted, as illustrated in (1b). In contrast, the durative adverbial in (1c-d) must appear after the main verb. In addition, the telicity of the predicate is shown to affect the occurrence of the duratives, as the example in (2) indicates that duratives are not compatible with a sentence with a telic predicate such as *xǐ-wán* ‘to finish washing’:

- (2) * tā xǐ-wán-le [sān tiān] zǎo.
 he wash-finish-PRF three day bath
 ‘He finished taking a bath for three days.’

Frame adverbials, occurring pre-verbally like other regular adverbs, seem to demonstrate a distribution complementary to that of the duratives. The examples below show that the frame adverbial *sān tiān nèi* ‘in three days’ doesn’t co-occur with the atelic predicate *xǐ-zǎo* ‘to shower’, but is allowed in a telic environment such as (3a).

- (3) a. tā [sān tiān nèi] xǐ-wán-le zǎo.
 he [three day in] wash-finish-PRF bath
 ‘He finished taking a bath in three days.’
- b. * tā [sān tiān nèi] xǐ-le zǎo.
 he [three day in] wash-PRF bath
 Intended, ‘He showered within three days.’

It has long been observed that lexical aspect of the predicate demonstrates co-occurrence restrictions with temporal adverbials (Tenny 1987, Smith 1994, Borer 2005, Travis 2010); however, it appears that in Mandarin, frame adverbials must also interact with viewpoint aspect. (4) shows the prohibition of the frame adverbial with the progressive aspect *zài*, even though the telic predicate *jiàn-miàn* ‘to meet’ is employed in the sentence.

- (4) a. *tāmen* [sān tiān nèi] jiàn-le miàn.
 they [three day in] see-PRF face
 ‘They met within three days.’
 b. **tāmen* [sān tiān nèi] zài jiàn miàn.
 they [three day in] PROG see face
 *‘They are (in the process of) meeting within three days.’¹

Assuming that lexical aspect and viewpoint aspect are encoded separately in the structure, and that viewpoint aspect is structurally higher than lexical aspect (cf. Borer 2005, Travis 2010), the questions thus arise as to how to capture the syntactic distributions of the two types of temporal adverbials, and to explain the co-occurrence restrictions between the temporal adverbials and the different types of Aspect.

The second and third constructions of concern also come from Mandarin. The two constructions we will be looking at involve the appearance of modal elements in a post-verbal position: Mandarin excessive *tā* constructions, which contains a pronoun that seems to lack referentiality but rather expresses a meaning of excessiveness, and the *dé/bù* construction, in which a modal is found to appear inside a resultative verbal compound. Examples for each construction are provided below.

¹ The English translations in (4) also suggest that frame adverbials in English are sensitive to the viewpoint aspect of the sentence. Please see Thompson (2006) for the analysis of temporal adverbials in English.

- (5) wǒ yào hē (tā) ge jǐ-bēi jiǔ.
 I want drink it CL several-glass wine
 ‘I want to drink several glasses of wine.’

- (6) a. Lǐsǐ kǎn-dé-dǎo zhè-kē shù.
 Lisi chop-can-fall this-CL tree
 ‘Lisi can chop the tree down.’
 b. Lǐsǐ kǎn-bù-dǎo zhè-kē shù.
 Lisi chop-not-fall this-CL tree
 ‘Lisi cannot chop the tree down.’

We can see that the pronoun *tā* in (5) refers to neither the internal nor the external arguments of the verb based on the following reasons. First of all, the person feature of *tā* does not match that of the subject in (5): the subject is the first person, while the pronoun *tā* is a third person. Secondly, *tā* does not refer to the object of the verb *hē* ‘drink’, since the number feature of *tā* does not match that of the object: the object is plural as indicated by the measure phrase *jǐ-bēi* ‘several glasses’.² Yeh (2006) suggests that sentences with

² I should point out that no pronoun in colloquial Mandarin can be used to refer to an inanimate plural nominal in Mandarin; the 3rd personal plural pronoun *tāmén* can only be coreferential with an animate nominal such as *yì-chún xuéshēng* ‘a group of students’, as shown in (i).

- (i) a. wǒ kànjiàn yì-chún xuéshēng; tāmén dōu ná-zhe shū.
 I see one-group student they all hold-PROG book
 ‘I saw a group of students, and they all held books.’

- b. wǒ kànjiàn yì-dié shū; #tāmén dōu shì hóngsè de.
 I see one-stack book they all be red PAR
 Intended, ‘I saw a stack of books, and they are all in red.’

the non-referential pronoun *tā* convey a sense of excessiveness, while the omission of *tā* does not affect the grammaticality of the sentence but results in the absence of the excessive reading.

On the other hand, in (6), the two modality elements *dé* ‘can’ and *bù* ‘not’ appear in between the verb *kàn* ‘chop’ and the result *dǎo* ‘fall’, and as can be seen in the English translations, the modal meanings expressed by *dé/bù* scope over the entire VP, not just the following result. The issues concerning us here are the syntactic positions of those post-verbal modality elements, and how the structures represented by those configurations can be mapped onto the semantic component.

The last group of grammatical objects to be examined include the Turkish question particle (henceforth, Q- particle) *–mI* and Eastern Armenian auxiliaries. The Q-particle *–mI* and E. Armenian auxiliaries share some properties: they have a relatively freer distribution than other C/T elements. The examples from (7)–(9) demonstrate the property of flexibility in both constructions. The contrasts obtained in (7) and (8), and (9a, b) and (9c), show that on one hand, complementizers such as *–tuğ-* in (8) and TAM morphemes such as *–el*, *–um*, and *–em* in (9) have a fixed position and are required to appear post-verbally. On the other hand, the Q-particle *–mI* and E. Armenian auxiliaries can occur in the middle field between the subject and the main verb, and follow an indefinite object such as *iskambil* ‘card’ in (7a) and *girk^h* ‘book’ in (9a), or a manner adverb like *hızlı* ‘fast’ in (7b) and *lav* ‘well’ in (9b).

(7) Turkish :

- | | | | | |
|---------------------------------|-----------|----------|----------|---------|
| a. Ali | dün | iskambil | <u>m</u> | oyladı? |
| Ali | yesterday | cards | Q | played |
| ‘Did Ali play cards yesterday?’ | | | | |

(ia) and (ib) demonstrate that the coreference between *tāmén* ‘they’ and its antecedent is only possible when the antecedent is animate.

b. Ali hızlı mı iskambil oynuyor?

Ali fast Q cards playing

‘Does Ali play cards fast?’

(Kamali 2010)

(8) Turkish:

Ali-nin geçen akşam nehr-in kenar-ın-da

Ali-GEN past evening river-GEN shore-3SG-LOC

koş-tuğ-un-u gör-dü-m.

run-C-3SG-ACC see-PAST-1SG

‘I saw that Ali was running along the river the other evening.’

(Kornfilt 2001: 187)

(9) Eastern Armenian:

a. Ara-n girk^h a ar-el.

Ara-NOM book AUX/3SG.PRES buy-PRE

‘Ara has bought a book/books.’

b. Nairi-n lav er gndax xaq-um

Nairi-NOM good AUX/3SG.PST ball play-PROG

‘Nairi was playing ball well.’

c. valë namak kgr-em .

tomorrow letter.NOM write-CON.FUT.1SG

‘Tomorrow I will (shall) write a letter.’

((a, b) from Kahnemuyipour and Megerdumian 2008,

(c) from Dum-Tragut 2009: 253)

It has been suggested that Turkish Q-particle *-mı*, and E. Armenian auxiliary follow sentence stress (cf. Kabak and Vogel 2001 for Turkish Q-particle *-mı*), and in the cases above, the sentence stress falls on the indefinite objects in the (a) examples of (7) and (9), and on the manner adverb in the (b) examples of (7) and (9). However, this prosody-based claim must be rejected, since there are cases where the two elements clearly do not follow the word that bears sentence stress (the stress is indicated by underlining):

(10) Turkish:

- a. *Ali [beyaz mı bir araba] al-dı?
 Ali white Q a car buy-PAST
 b. Ali [beyaz bir araba] mı al-dı?
 Ali white a car Q buy-PAST
 ‘Did Ali buy a white car?’

(Kamali 2010)

(11) Eastern Armenian:

- Ara-n [kapuyt (*a) maz-er-ov təgh-in] a hravir-el.
 Ara-NOM blue AUX hair-PL-INST boy-DAT AUX invite-PRF
 ‘Ara has invited the BLUE-haired boy.’

(Kahnemuyipour and Megerdooian 2008: 13)

(10) and (11) both involve a noun phrase with a modifying adjective, and *-mI* in (10) is not allowed to follow the adjective *beyaz* ‘white’ accented with the stress, but the entire noun phrase. Similarly, as noted in Kahnemuyipour and Megerdooian (2008), the E. Armenian example in (11) shows that the stress-bearing adjective *kapuyt* ‘blue’ cannot attract the auxiliary *a*; instead, the auxiliary must follow the syntactic constituent which contains *kapuyt* ‘blue’. Moreover, Kamali (2010) argues that the distribution of the Q-particle *-mI* clearly has input to syntactic computation, as only when *-mI* is merged at CP can *-mI* license an NPI element, such as *hiç* ‘ever’ in the example below:

- (12) Ali (*mI) hiç (*mI) iskambi (*mI) oynar-mı?
 Ali ever cards plays-Q
 ‘Does Ali ever play cards?’

(Kamali 2010)

Our discussion of the Turkish Q- particle *-mI* and E. Armenian auxiliaries suggests that on the one hand, their sensitivity to syntactic constituency may create a problem for a prosody-based analysis, and on the other hand, the seemingly free

distributions of the two functional categories may also pose a challenge to the approaches, which assume a fixed T/Infl and C position where grammatical elements endowed with the information of tense and clause-type reside.

In view of the cross-linguistic facts discussed so far, the ability of some functional categories to appear in non-canonical, i.e., syntactically low, positions raises a general concern of how functional categories should be mapped out in the structure, and whether a unified structure skeleton can accommodate the data observed above. Assuming that each of the low elements involved in each of the constructions above heads a functional projection inside vP, one more research question to be answered is: if there is any interaction between these functional projections in the domain of vP and those in the domain of CP, how do we implement the remote relation between them? The goal of this research is twofold: (a) to explore the left edge of vP, particularly, the issue of what functional projections can be in the domain of vP, and (b) to capture any cross-domain interaction between the “outer” and the “inner” functional projections shown in the constructions under examination. Before I start the investigation, I will briefly introduce the framework adopted in this dissertation, and a few key concepts that are relevant to our discussion of the phenomenon of low functional categories.

1.1. Framework and theoretical assumptions

1.1.1. Agree

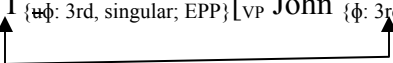
The syntactic operation Agree is historically related to the phenomenon of agreement, which refers to some systematic covariance between a semantic or formal property of one element and a formal property of another (Steele 1978: 610). English verbal agreement between the verb and the subject is one case of agreement. In the context of the Minimalist program, the operation Agree is said to establish a relation between two elements, α and β , where α (Goal) has interpretable inflectional features, and β (Probe) has uninterpretable ones, which are deleted under Agree (Chomsky 2001). More specifically, the syntactic operation Agree assigns values to uninterpretable features, while at the same time deleting such uninterpretable features; uninterpretable features must be eliminated before the derivation is sent to PF to obtain a legible representation,

i.e., a phonological form, and to LF for the purpose of Full Interpretation³. The dependency between a probe and a goal can be stated as below:

- (13) Probe and Goal dependency (Chomsky 2001: 6):
- a. Probe and Goal must be active for Agree to apply
 - b. Agree divides into Match and Valuation
 - c. Probe must contain a full set of features to delete uninterpretable formal features of a matched Goal

As mentioned above, the syntactic operation Agree establishes a formal relation between Probe and Goal, and eliminates any formal features that cannot be interpreted at the interfaces via Match and Valuation. The Probe and Goal dependency in (13) serves as a condition on the application of this syntactic operation; it requires that Probe and Goal both be active, and the paired element must be complete for Agree to delete the features of Probe or Goal, and “once their features are checked and deleted, these elements can no longer enter into the Agree relation” (Chomsky 2005: 115). The English example below demonstrates how Agree proceeds.

- (14) John runs.

- a. $[_{TP} T_{\{\emptyset: 3rd, singular, EPP\}} [_{VP} John_{\{\phi: 3rd, singular\}} [_{V'} run]]]$
- 
- b. $[_{TP} John_{\{\phi: 3rd, singular\}} [_{T'} T_{\{\emptyset: 3rd, singular, EPP\}} [_{VP} t [_{V'} run]]]]$

Assuming that Φ features of verbal predicates are generated in T, finite T possesses a full set of uninterpretable Φ features which probes the interpretable Φ features of *John*, and is valued and deleted via Agree. *John* is raised to [Spec, TP] to satisfy the EPP/edge feature of T; this movement will be justified shortly in the next subsection. At the PF level, Φ features of T are given phonological content (-s) and they lower to v (Embick and Noyer 2001).

³ Full Interpretation is a principle in the computational system that requires that all the features of the pair (π, λ) , formed by a PF object and an LF object, be legible at the relevant interfaces.

However, the view of Agree which treats agreement as a valuation process that applies to uninterpretable and interpretable instances of a feature raises some non-trivial theoretical questions, as noticed in Pesetsky and Torrego (2007); particularly, the dependency between a probe and a goal detailed in (13) entails a biconditional relation held between valuation and interpretability of the features:

(15) A feature F is uninterpretable if and only if F is unvalued (Chomsky 2001: 5)

As Pesetsky and Torrego (2007) argue, the biconditional proposal in (15) must assume a generative system with a powerful lexicon, which is able to “couple such distinct properties of lexical items as interpretability (“Does the item have a message to send to the semantics?”) and valuation (“Are any syntactically relevant properties of the lexical item left unspecified?”)” (Pesetsky and Torrego 2007: 265). To remove the need for (15), Pesetsky and Torrego (2007) propose an alternative view on the mechanism of Agree:

(16) Agree (Pesetsky and Torrego 2007: 265)

- (i) An unvalued feature F (a probe) on a head H at syntactic location α (F_α) scans its c-command domain for another instance of F (a goal) at location of β (F_β) with which to agree.
- (ii) Replace F_α with F_β , so that the same feature is present in both locations.

According to (16), when Agree applies between a probe and a goal, the result is a single feature shared by two locations, which may serve as a goal or a probe⁴ for further operations of Agree. This feature-sharing version of Agree abandons the biconditional in (15), and allows lexical items in the lexicon endowed with four different combinations of properties, as illustrated in (17).

⁴ As will be discussed later, if the operation of Agree applies between two unvalued F s, the result will be one occurrence of unvalued F with two instances, which is available for further probing. The term *occurrence* refers to distinct features that might undergo Agree, and *instance* refers to a feature-location pair.

(17) Table 1.1.1. Types of features (modified from Pesetsky and Torrego 2007: 266)

(i) $uF [val]$	uninterpretable, valued	(iii) $iF [val]$	interpretable, valued
(ii) $uF []$	uninterpretable, unvalued	(iv) $iF []$	interpretable, unvalued

In the system sketched in (16), since there is no direct relation between valuation and the interpretability of a feature, an unvalued feature F , be it $uF []$ or $iF []$, acts as a probe and agrees with another instance of F , be it any type from (17). This agreement view is also different from the one proposed in Chomsky (2000, 2001) in that it is possible to establish an agreement between an unvalued goal and unvalued probe, and the output will be a structure that contains only one occurrence of F with two instances, as represented by the arbitrary number 3 in (18).

(18) ... $F []$... $F []$... \Rightarrow ... $F_3 []$... $F_3 []$...

(modified from Pesetsky and Torrego 2007: 266)

As shown in (19), if one of the instances of unvalued F enters an Agree relation with a distinct valued F at a later stage of computation, the result will be a valued F present at three locations.

(19) ... $F_3 []$... $F_3 []$... $F [\alpha]$... \Rightarrow ... $F_3 [\alpha]$... $F_3 [\alpha]$... $F_3 [\alpha]$...⁵

(modified from Pesetsky and Torrego 2007: 266)

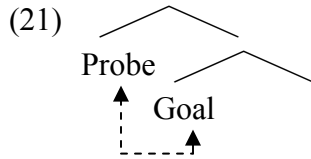
A second characteristic of the mechanism of Agree is that it is structurally conditioned, since it requires a matching relation that meets the following conditions (cf. Chomsky 2000, 2001, 2005, 2008):

- (20) 1. Probe searches Goal in its c-command domain via matching.
2. Agree obeys Relativized minimality: Goal is accessible to a given probe only if there is no intervening element with the relevant set of features.

⁵ Notice that in (19), neither the two instances of unvalued F will block the agreement, since they have been identified as a single occurrence of F via Agree at the earlier derivation.

3. Probe and Goal are inside the same phase.

The first condition defines the search domain of Agree, that is, Goal has to be c-commanded by the Probe as shown in (21).



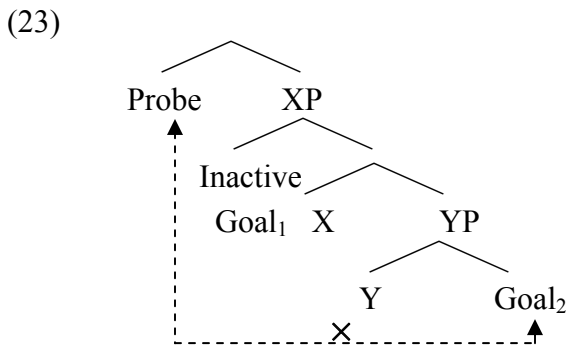
The second condition imposed upon Agree is also called the Intervention Constraint, which requires a probe to be in a local configuration with its matching goal without any interveners:

(22) Intervention Constraint (Chomsky 2000: 123)

$$\alpha > \beta > \gamma$$

(Agree(α , γ) fails when α is a probe and β is a matching goal, and β is inactive due to a prior Agree with some other probe.)

The constraint stated in (22) rules out the Agree relation between the Probe and Goal₂ in (23), since Goal₁ is closer to the Probe than Goal₂.



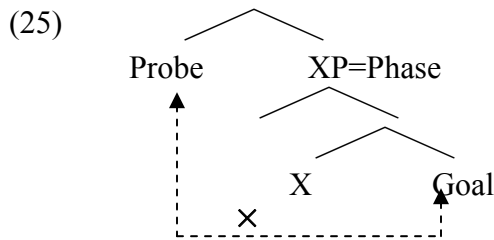
The intervention constraint explains the ungrammaticality of the example in (24) below. In (24a), the subjects, the expletive *it* and *John*, are assigned case via Agree with the matrix and the embedded T respectively. The contrast between (24b) and (24c)

suggests that the embedded subject *John* can Agree with the matrix T as long as there is no intervener *it*, an inactive matching goal which has entered an Agree relation with the embedded T.

- (24) a. [_iit_i seems [_it_i to be likely [that John will win]]]
 b. [John seems [_it_i to be likely [_it_i to win]]]
 c. *[John_i seems [that it is likely [_it_i to win]]]

(Hornstein, Nunes, and Grohmann 2005: 144)

The third condition states that Agree cannot cross the boundary of a phase, namely, a CP or a transitive vP. The notion of phases will be discussed in greater detail in the next section where the theory of phases is introduced, but let's see how this condition is demonstrated in the structure of (25), and can be used to explain the examples in (26):



- (26) a. [_{TP} there_i seem [_{TP} t_i to be [_{PP} many people in the room]]]
 b. *[_{TP} there seem that [_{TP} [many people]_i are [_{PP} t_i in the room]]]

(Hornstein, Nunes, and Grohmann 2005: 299)

The contrast between (26a) and (26b) is captured by the third condition mentioned above; the Φ features of the matrix T can be valued in (26a) via Agree with *many people*, whereas in (26b), the relation of Agree cannot be established between *many people* and the matrix T since the embedded clause is a finite CP, therefore, a phase in the current theory.

We have seen above how Φ features are valued via the syntactic operation Agree. In this dissertation, I explore the A' agreements on Aspect, Modal, and Focus, and show that the very same syntactic operation for Φ assignment is responsible to achieve agreement

between A' elements; that is, A' agreement is also a process that involves feature matching and valuation. It should be noted that there are some proposals in which Agree is argued to apply to non-A-related formal features. For instance, to account for the phenomenon of negative concord, Zeijlstra (2008) takes negative agreement to be a relation between elements that carry an interpretable formal negative feature and elements that carry an uninterpretable one. On the other hand, *wh*-movement has also been handled as a relation of Agree between C^0 and the *wh*-feature of the *wh*-word (eg. Chomsky 1995). In this dissertation, I will argue that the syntactic operation Agree applies to all the investigated constructions, and this Agree approach will enable us to better understand the relation between the high functional head and the low functional head examined in this thesis.

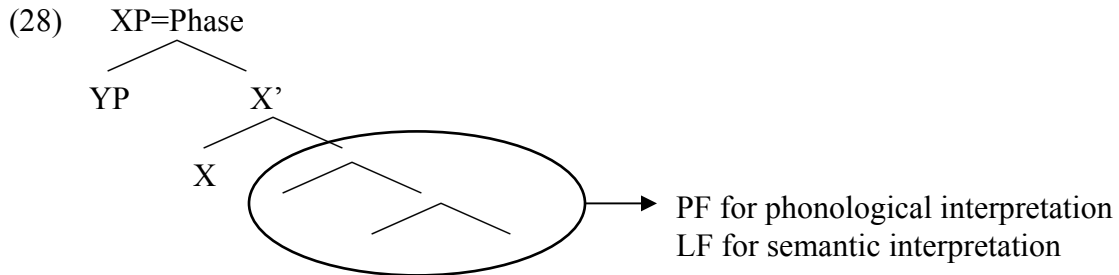
1.1.2. The theory of phases

In the strong minimalist thesis (SMT), the derivation proceeds by phase, where each phase is determined by a subarray, i.e., a collection of lexical items placed in active processing. The derivation must exhaust a subarray, by forming a certain syntactic object, before returning to the lexical array to extract another subarray (Cecchetto 2004: 358). The syntactic object formed in this way is called a phase. Once a phase is formed, the lexical items inside the phase can no longer be accessed by further computation, and the features of the lexical items are transferred to LF and PF, the two interfaces with Conceptual-Intentional and Articulatory-Perceptual systems.⁶ This process ensures the cyclic nature of narrow syntax, and at the same time, reduces the burden of the computation. Two phases are identified in the literature, CP and *vP; the latter is a verbal domain with a full argument structure (Chomsky 2001). Phases are subject to Phase Impenetrability Constraint (PIC), a version of which is given in (27):

⁶ See Bobaljik and Wurmbrand (2003) for the proposal that phasehood might not be the same for LF and PF, and Cecchetto's (2004) claim that only the access to PF is cyclical, and the access to LF, on the other hand, is a one-step operation when the derivation has reached the root of the sentence.

(27) Phase Impenetrability Constraint (Chomsky 2001):

Material within a phase XP is not accessible to operations at ZP (the next phase) unless it is within the edge of XP.



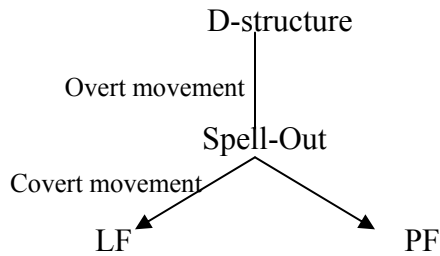
Two consequences follow from a computational model embedding Agree and the theory of phases:

(I) covert movements which were argued to be syntactic operations that take place at LF, can be dispensed with.

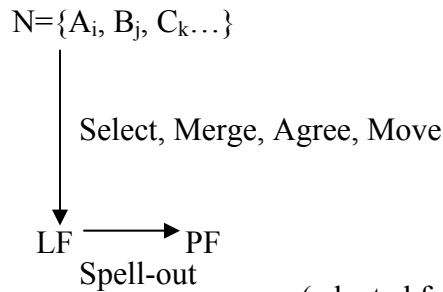
The central spirit of Minimalist Program is to eliminate from the theory any element that does not have a natural and independent justification. One such candidate for elimination is covert movement, whose existence has raised some issues for the generative grammar, and some of the core issues include (a) why can some movements be done covertly if we said Move is to check EPP feature of some head? and (b) what exactly is the nature of covert movements? The Agree-based approach would be able to, first of all, capture covert relations without resorting to the stipulation that covert movements take place after Spell-Out⁷, as assumed in the traditional Y-Model in (29a); instead, the computational system will proceed with the operations of Select, Merge, Agree, and Move as shown in (29b). Second, the Agree-based approach also strengthens the proposal that the syntactic operation Agree is independent of the operation Move (Chomsky 2008; Bobaljik and Wurmbrand 2003).

⁷ However see Koopman (2006) for the opposite proposal that Agree must include Move, and Cecchetto (2004) for maintaining covert movements in case of Quantifier Raising.

(29) a. The Y-Model in GB



b. The computational system under the Agree approach



(adapted from Hornstein, Nunes, and Grohmann 2005: 328)

To see how Agree can eliminate covert movement, let's consider the following English example:

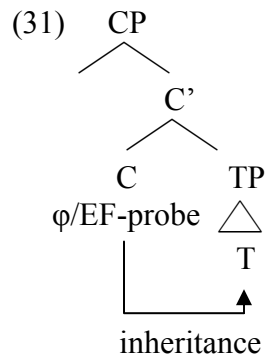
(30) [There T_{*T: 3rd, plural; ~~EPP~~} [_{VP} are [[three men]_{ø: 3rd, plural} in the room]]]

To explain the agreement morphology on T in an expletive construction like (30), proposals have been made that the subject has to be raised covertly at LF to [Spec, TP] to form a chain with the expletive *there* (Chomsky 1995). In an Agree system, the uninterpretable Φ features are checked and deleted against T via Agree with *three men*; the edge feature (EF) of T is satisfied by merging with *there*; there is simply no movement involved in the sentence (Chomsky 2000).

(II) The second consequence of a computational model assuming Agree and phases is that we need to assume some kind of feature lowering to account for the phase-like properties of T, i.e., the obligatorily filled Spec.

This lowering mechanism has been concretized as Feature Inheritance, which states that grammatical features, such as Φ features, tense, and EF, are derivative from C, not inherent to T (Chomsky 2008: 143). Hence, T inherits EF and Agree features from C via

feature inheritance, and then derivationally serves as a probe at the phase level of CP. The following syntactic representation illustrates feature inheritance of T from C.



Miyagawa (2010) further claims that the grammatical features inherent in C need not descend to T, and in discourse-configurational languages like Chinese and Japanese (Kiss 1995), those features might be transmitted to a functional projection higher than T. Along this line of thinking, I propose that first, transmission of the Agree feature and EF should not be just a property of C, since v^* , as a phase head, also has EF and Agree features. If we take the relation of v^* -V to be equivalent to that of C-T, it suggests that the formal features of v^* can be inherited by V or a functional projection above V. Second, I argue that the formal features of C can appear at v^* , if they are licensed by an corresponding feature present in the C/T domain.

We will see that the low functional categories examined in this dissertation are the result of feature lowering from v^* to some functional projections below it; they involve the grammatical features that are typically considered to be in C, and must be licensed by a corresponding functional category in the C/T domain. This restriction is due to the Principle of Full Interpretation (Chomsky 1986, 1995, 2000), which “requires that every element of PF and LF, taken to be the interface of syntax (in the broad sense) with system of language use, must receive an appropriate interpretation- licensed in the sense indicated” (1986: 98). As will be shown in the thesis, the formal features of the low functional categories must assign their values to their counterparts in the C/IP domain via Agree to provide a meaningful input to LF.

To summarise, the purpose of agreement (in terms of Agree) is to establish a functional relation, which occurs at a distance because the functional head must reach

down into the argument structure of the language (Miyagawa 2010). An unvalued feature F , be it interpretable or uninterpretable, probes for another instance of F and enters an Agree relation with a matching goal. Based on the nature of Agree, it will be argued that Agree is not restricted to A-related features, but as will be shown clear in this dissertation, A' relations involving Aspect, Modal, and Focus can be captured by Agree as well. Employment of the syntactic operation Agree in generative grammar makes it possible to dispense with all sorts of syntactic operations at LF. All operations, including Agree, are initiated by the phase heads (C, and v^*), which are specified with at least two types of grammatical features- Agree features, and an edge feature. Non-phase heads like T, which has been observed to possess Agree features and an edge feature, can inherit these features from a phase head via Feature Inheritance.

1.2. Proposals

As discussed at the beginning of this chapter, this dissertation addresses the issue of “low” occurrences of grammatical expressions which encode information of aspect, modality, negation, and focus, which are considered to be located in the C domain. In the thesis, it will be shown that such low grammatical expressions exist in the constructions of the Mandarin temporal adverbial, Mandarin excessive *tā*, the Mandarin modal *dé/bù*, the Turkish question particle *-mI*, and Armenian auxiliaries. With the theoretical tools and the assumptions spelled out in Section 1.1 in hand, the following hypotheses are proposed to account for the existence of these low grammatical elements and their grammatical properties in the examined constructions:

- (i) There is parallelism between CP and vP in terms of how formal features are organised in the structure: a) the two phase heads, C and v^* , both have EF and Agree features which need to be valued and/or checked at a functional projection lower than the two phase heads via Feature Inheritance; b) the formal features of C can appear low at v^* if they are licensed by an associate feature present in the C/T domain.
- (ii) The grammatical elements involved in the constructions of concern head a functional projection inside the domain of vP. The vP-internal functional projections

introduced by those grammatical elements must be licensed by a corresponding functional head in the C/IP domain for the purpose of Full Interpretation (Chomsky 1986, 1995, 2000).

(iii) The licensing relationship between the low and the high functional projections is achieved by the syntactic operation of Agree, and is subject to structural conditions discussed in Section 1.1.

1.3. Roadmap of dissertation

This dissertation will take up the issues and the research inquiries laid out in section 1.1. I start with an investigation of inner aspect in Mandarin Chinese. It will be shown that the placement of temporal adverbials, and the word order variability exhibited by the object nominals with respect to temporal adverbials, are related to the viewpoint and lexical aspect of the sentence. Following Borer (2005) and Travis (2010), I will argue that first while duratives (*for*-PPs) are situated at the Inner Aspect, where telicity is encoded, frame adverbials (*in*-PPs) are located in a higher functional projection above vP, namely, Outer Aspect, to modify perfectivity. As for the object nominals, it is shown that they must be in a specific syntactic configuration to value the telicity feature on the Inner Aspect. Lastly, to capture the interactions between frame adverbials, and the two Aspect phrases, it is argued that first, long-distance Agree must take place between Inner Aspect and Outer Aspect; second, multiple Agree applies to Outer Aspect and Inner Aspect, and results in the interpretation of completive or terminative at LF. At the end of Chapter 2, we will see that the establishment of two layers of Aspect in syntax is supported by cross-linguistic evidence from Inuktitut and Malagasy. In Chapter 3 and 4, I continue the investigation on Modal and Focus. In Chapter 3, I examine two constructions involving occurrences of vP-internal modality elements: the excessive *tā* construction, which contains a pronoun that seems to lack referentiality but expresses a meaning of excessiveness, and the *dé/bù* construction, in which two modals appear inside a resultative verbal compound. To account for the low modality elements in Mandarin Chinese, I propose that these grammatical constituents are hosted by a vP internal functional projection, and are licensed by a corresponding functional element in the

domain of C/TP via Agree, which can be blocked by interveners. The analysis of Agree is extended to internal focus in Chapter 4. I start the discussion with two case studies from Turkish and Eastern Armenian. In this chapter, we concern ourselves with the distribution of the Turkish Q- particle and the auxiliary in Armenian. At first glance, the positions of the two grammatical elements in question seems to be determined by sentential focus; however I will show that a prosody-based account, particularly, the one proposed by Kabak and Vogel (2001), fails to explain a few important aspects of the phenomenon, including their sensitivity to syntactic constituency and the interactions with certain syntactic objects. Instead, I pursue a syntactic account and postulate two focus projections in the Turkish *-mI* and the Armenian Auxiliary constructions: the Outer Focus above IP and the Inner Focus below vP, which relates to each other via Agree. This internal focus analysis enables us to accommodate examples that involve multiple foci as well as to explain intervention effects triggered by the presence of intervening focus expressions in the constructions. Chapter 5 concludes this dissertation.

Chapter 2

Inner Aspect

2.0. Introduction

In this chapter, I focus on the Aspect projections that are distributed above the peripheries of vP and VP, by which I mean Outer Aspect between T and v, and Inner Aspect below v, following the terminology in Travis (2010). I will show that these two Aspect projections must enter an Agree relation to achieve the semantic interpretation of completeness in Mandarin.

The projection of Inner Aspect in English was proposed by Borer (2005) to account for the interactions between nominal complement and eventuality: it is shown that definiteness and the quantificational status of the nominal complement can affect the interpretation of the telicity of the predicate. Borer (2005) claims that lexical aspect is computed at a vP-internal functional projection, i.e., Inner Aspect, and a syntactic object must be located at this projection to be able to influence the telicity of the predicate.

Along the lines of the Inner Aspect analysis in Borer (2005), I show that the existence of an Inner Aspect projection in Mandarin can also be evidenced by the interactions between two grammatical elements and the eventuality of the predicate-temporal adverbials, and nominal complement. I claim that frequentatives and duratives are adjoined to an Aspect Phrase below vP, which encodes the information of telicity, and that the positions of the nominal complement can also be derived from this Aspect Phrase and a functional projection that hosts DP objects. It will be shown that, first of all, while frame PPs, located pre-verbally, are sensitive to viewpoint aspect and lexical aspect, duratives, occurring post-verbally, display a co-occurrence restriction with predicates with respect to their telicity. I claim that the interactions between temporal adverbials and different types of Aspect can be explained if we postulate an Agree relation between the Outer and the Inner Aspect.

Second, the nominal complement demonstrates various word orders with post-verbal temporal adverbials based on the semantics of the nominals: it is shown that while

nominals that occur before adverbials seem to have no effect on the telicity of the predicate, the post-adverbial nominals affect telicity. I suggest that nominal complement bears a telicity feature and thus can affect inner aspect. More specifically, I argue that bare nouns are lexically specified with either [+telic] or [-telic], DPs are marked with [+/-telic], and sentences with a numeral expression are obligatorily telic.

This chapter is organized as follows. I start by examining the syntactic properties of post-verbal and pre-verbal temporal adverbials, and proceed in two directions. First, I consider temporal adverbials with respect to their compatibility with different classes of predicates, as well as their interaction with the nominal complement in terms of word order. Second, I conduct a study on the nominal complements. It is shown that nominals that appear before the post-verbal adverbial are specific/definite and seem to play little role in determining the telicity of the predicate; in contrast, nominals occurring after the adverbial have special semantic properties and are in a syntactic position to influence the eventuality of the predicate. In Section 2.2, I present the framework, which utilizes two different aspect tiers: lexical aspect is articulated by an internal vP shell (Inner Aspect), and viewpoint aspect heads a functional projection outside vP (Outer Aspect). A schematized representation is provided below:

$$(1) \quad [_{\text{OAspP}} (\textit{in-PP}) [_{\text{OAspP}} \text{OAsp}^0 [_{\text{vP}} \text{v} [_{\text{IAspP}} (\textit{for-PP}) [_{\text{IAspP}} \textit{obj} [_{\text{IAsp}'} \text{IAsp}^0 \text{VP}]]]]]]$$

I argue that frequency expressions and duratives are situated at the Inner Aspect, and the nominal complement, which takes part in the computation of telicity, must be in a specific syntactic configuration to value the telicity feature of the Inner Aspect. On the other hand, frame PPs are in a local domain with the Outer Aspect to modify it, but their interaction with telicity can be achieved by the syntactic mechanism Agree established between the Outer and the Inner Aspect. Finally, while Mandarin Chinese provides overt evidence for two separate tiers of Aspect in syntax, Section 2.3 further provides a cross-linguistic perspective on the Inner Aspect. Section 2.4 concludes the chapter.

2.1. Grammatical properties of post-verbal constituents

In this section, I explore the syntactic and semantic properties of the temporal adverbials, durative PPs. i.e., *for*-PPs, and frame PPs. i.e., *in*-PPs, and their interactions with the eventuality of the predicate. Syntactically, Mandarin durative and frame PPs occupy different positions in the structure: duratives surface at a low position, whereas frame PPs occur pre-verbally. Semantically, durative PPs are compatible only with atelic predicates, while frame PPs co-occur with perfective telic predicates. These properties motivate us to propose a fine-grained system with two hierarchical aspectual tiers, corresponding to lexical aspect and viewpoint aspect in Mandarin.

2.1.1. Aspect in Mandarin and the dependency of temporal adverbials

It has been pointed out that Mandarin differs from English in that accomplishment predicates do not entail their inherent endpoints. For instance, in English, an accomplishment situation followed by an assertion that the event is not complete is a contradiction, whereas in Mandarin, the endpoint of an accomplishment predicate is merely an implicature, and thus can be cancelled. The following examples demonstrate this difference between English and Chinese.

- (2) I wrote a letter yesterday, #but I didn't finish writing it.

(Smith 1994: 107)

- (3) wǒ xiě-le yī-fēng xìn, kěshǐ méi xiě-wán.
I write-PRF one-CL letter, but not write-finish
'I wrote a letter, #but I didn't finish it.'

Tai (1984) claims that there are no simple monosyllabic accomplishment verbs in Mandarin, and to derive an accomplishment verb with the attainment of goal, a resultative V-V compound must be formed, as in (4).¹ Notice that (4) cannot be followed by an assertion that the event is not complete.

- (4) wǒ xiě-**wán**-le yī-fēng xìn, #kěshǐ méi xiě-wán.
 I write-**finish**-PRF one-CL letter, but not write-finish
 ‘I finished writing a letter, #but I didn’t finish it.’

Smith (1994) suggests that the contrast between English and Mandarin lies in the perfective marker *-le*. She argues that while in English, the perfective viewpoint interacts consistently with all situation types², conveying completion of the event, in Mandarin, the situation is somewhat more complicated. The perfective marker *-le* indicates the termination of the event, not its completion, when it co-occurs with activity and accomplishment predicates, but the perfective marker *-le* with achievement predicates, such as *sǐ* ‘to die’, necessarily entails completion of the event. That is, an event with a perfective accomplishment may be terminated without having reached the final endpoint.

3

¹ Lin (2004:66) notes that the necessity of employing verbal compounds to express completion is not a property unique to Mandarin; Japanese, Hindi, and Thai exhibit a similar phenomenon whereby the incremental theme, i.e., the objects of consumption/creation verbs, can be interpreted as not having been completely affected.

² However, she later noticed that stative and habitual sentences may not necessarily have the perfective reading, i.e., the reading that a situation is presented in its entirety, including its initial and final endpoint. The situations conveyed in the first conjunct in (i) and (ii) are allowed to be followed by the second conjunct which expresses that the situation may continue into the present.

- (i) John lived in London, and he may still live there. (stative)
 (ii) Prue always swam in the pond, and I am told that she still does. (habitual)

(Smith 2009: 20)

³ Mandarin accomplishment verbs require a verbal resultative compound to denote a telic event; nonetheless, they still share semantic features of both activities and achievements: they are like activities in

Soh and Kuo (2004) show further that a perfective accomplishment predicate is forced to have the completion reading when a numeral object is used in the sentence.

- (5) tā kàn-le liǎng-běn shū, #kěshǐ méi kàn-wán.
 he read-PRF two-CL book but not read-finish
 ‘He read two books, #but he did not finish reading them.’

Compare (5) with (3): when *liǎng-běn shū* ‘two books’ is used, we get the contradictory reading as shown in (5). In (3), *yī* ‘a/one’ in Mandarin is ambiguous between an indefinite determiner and the numeral one. However, the sentence in (3) is only acceptable when *yī* ‘one/a’ is interpreted as an indefinite determiner, rather than as ‘one’ (Soh and Kuo 2004: 6).

I follow Smith's analysis that the perfective aspect *-le* indicates completion in a telic/bounded event, but termination in an atelic/non-bounded event, and assume with Soh and Kuo (2004) that perfective accomplishment verbs in Mandarin entail completion in the context of V-V compounding and numeral objects.⁴

With all the pieces of information on perfectivity and lexical aspect in Mandarin in place, I now show that temporal adverbials in Mandarin interact with aspect in a very interesting way: while duration adverbials (*for*-PPs), which appear post-verbally, are compatible only with atelic events, pre-verbal frame adverbials (*in*-PPs) cannot appear in a sentence that entails an incomplete event.

- (6) a. tā xǐ-le [sān tiān] zǎo. (atelic/terminative⁵)
 he wash-PRF three day bath
 ‘He showered for three days.’

that an extended agentive action is involved, and they are like achievements in that a change of state occurs as a result of the action (Lin 2004: 67).

⁴ Soh (2008) terms the accomplishments without the entailment of completion “atelic accomplishments” and those carrying the entailment that the event is complete “telic accomplishments.”

⁵ In this chapter, the (a)telicity of a predicate as well as the completion/termination of an event will be indicated beside the examples.

- b. *tā [sān tiān nèi] xǐ-le zǎo. (atelic/terminative)
 he [three day in] wash-PRF bath
 Intended, ‘He showered within three days.’
- c. tā [sān tiān nèi] xǐ-**wán**-le zǎo. (telic/completive)
 he [three day in] wash-**finish**-PRF bath
 ‘He finished taking a bath in three days.’
- d. *tā xǐ-**wán**-le [sān tiān] zǎo. (telic/completive)
 he wash-**finish**-PRF three day bath
 ‘He finished taking a bath for three days.’⁶
- e. tā xǐ-guò [sān tiān] zǎo.⁷ (atelic/completive)
 he wash-EXP three day bath
 ‘He has experience of showering for three days.’

The examples in (6a, b) show that the activity predicate *xǐ-zǎo* ‘take a bath’ can co-occur with the durative *sān tiān* ‘three days’, but disallows the presence of the frame adverbial *sān tiān nèi* ‘in three days’. To allow the presence of the *in*-PP, a completive morpheme *wán* ‘finish’ must be added, as shown in (6c). (6c) expresses the completion of the event of taking a bath, and the contrast between (6c) and (6d) suggests that duratives cannot appear in a telic environment. Notice that it is not true that duratives are incompatible with a sentence with a completive reading. In (6e), the experiential marker *guò* is

⁶ Susana Béjar (p.c.) pointed out that *He finished taking a bath for three days* is ambiguous; in one reading, the durative modifies the predicate ‘finished taking a bath’, and in the other reading, it modifies the event of taking a bath. The Mandarin sentence in (6d) can only denote the impossible reading, that is, the duration of taking a bath is three days.

⁷ One might expect frame PPs to be compatible with the experiential aspect marker *-guò*, since the presence of *-guò* indicates that the situation is an experience on the part of the subject, and therefore it must take place in the past; as (i) shows, this predication is indeed borne out.

- (i) tā [nà yī nián nèi] qù-guò běijīng, yīc dào-goù bālí.
 He that one year in go-EXP Beijing also arrive-EXP Paris
 ‘He had been to Beijing and Paris within that year.’ (atelic/completive)

employed to signal that the event of taking a bath is a bygone fact, and the durative phrase is legitimate in this case.

If these observations are right, then we would expect that duratives cannot appear with achievements and accomplishments, while frame adverbials may co-occur with these two types of predicates as long as the sentence conveys completion. This prediction is borne out.

- (7) a. **tāmen jiàn-le [sān tiān] miàn.* (telic/completive)
 they see-PRF three day face
 *‘They met up with each other for three days.’
- b. *tāmen [sān tiān nèi] jiàn-le miàn.* (telic/completive)
 they [three day in] see-PRF face
 ‘They met within three days.’
- c. **tāmen [sān tiān nèi] zài jiàn miàn.* (telic/progressive)
 they [three day in] PROG see face
 *‘They are (in the process of) meeting within three days.’

In (7a, b), the achievement predicate *jiàn-miàn* ‘to meet’ bars the presence of *sān tiān* ‘three days’, but allows the *in*-PP when the perfective marker *le* is used. *In*-PPs require a complete event, and therefore, *in*-PPs can never appear with the progress marker *zài*, even if the predicate is telic, as shown in (7c).

Next, as mentioned above, a perfective accomplishment verb with a numeral object would entail the completion of the event. In such contexts, the durative incurs ungrammaticality in (8a), and, in contrast, (8b) is acceptable with the *in*-PP.

- (8) a. **tāmen xiě-le [sān fēnzhōng] [sān-ge zǐ].*
 they write-PRF three minute three-CL word
 *‘They wrote three words for three minutes.’ (telic/completive)

- b. tāmen [sān fēnzhōng nèi] xiě-le [sān-ge zǐ].
 they [three minute in] write-PRF three-CL word
 ‘They wrote three words in three minutes.’ (telic/completive)

To sum up, while durative adverbials are compatible with only atelic predicates, frame adverbials can appear in a sentence that conveys a complete event. A completive reading can be induced by a perfective telic predicate with the morpheme *-wán* ‘finish’, or with a numeral object, and this strongly suggests that the notion of completeness/termination is compositional and can be derived from different combinations of viewpoint aspect and lexical aspect in Mandarin Chinese. If this compositional view on completeness/termination is correct, it appears to us that frame adverbials interact with both viewpoint aspect and lexical aspect, while durative adverbials are sensitive only to lexical aspect. In terms of word order, frame adverbials appear pre-verbally, and duratives occur post-verbally. The grammatical properties of temporal adverbials in Mandarin strongly favour the theory that employs two separate Aspect tiers for viewpoint aspect and lexical aspect, and in Section 2.2, I will capture these properties in a framework with two different functional projections encoding the information of aspect. In the next section, the focus is shifted to post-verbal nominals, which exhibit various word orders with respect to frequentatives and duratives according to the semantics they convey. I will show that post-adverbial bare nominals are in the same syntactic domain as duratives and frequentatives, and thus can affect the telicity of the event and can optionally form a constituent with duratives and frequentatives.

2.1.2. Order variability between post-verbal adverbials and nominals

As briefly mentioned in Chapter 1, duratives differentiate themselves from other adverbials such as time and manner adverbs in their post-verbal position; it has been observed that frequency expressions must also appear post-verbally, as shown in (9).

- (9) a. tā xiào-le [liǎng cǐ].
 he laugh-PRF two time
 ‘He laughed twice.’
 b. *tā [liǎng cǐ] xiào-le .
 he two time laugh-PRF

However, a less-discussed phenomenon is that duratives and frequentatives exhibit different word orders relative to the object. Frequentatives and duratives must follow the object if the object is specific/definite, and must precede the object otherwise.

Bare nouns in examples like (12) are ambiguous between a property-denoting interpretation and a definite interpretation when they appear with a perfective predicate. The notion of property-denoting will be discussed in the next section, as will the issue of whether these bare nominals are generic. At this point, I would simply point out that property-denoting nominals do not have referents; for instance, in the reading of ‘he read’ in (12a), *shu* denotes something like “reading,” and the meaning ‘read’ is completed with the verb *kan* ‘to see’. As shown in (12b, c), the bare nominal *shū* can follow or precede the frequentative *liǎng cǐ* ‘two times’, but the observed ambiguity in (12a) cannot be retained: when it is post-‘adverbial’, it can only receive the property-denoting reading, and when it is pre-‘adverbial’, the bare nominal has to be definite.

- (12) a. tā kàn-le shū.
 he see-PRF book
 ‘He read/He read the book(s).’
 b. tā kàn-le [liǎng cǐ] shū.
 he see-PRF two time book
 ‘He read twice/*He read the book(s) twice.’
 c. tā kàn-le shū [liǎng cǐ], háishǐ zǎo-bú-dào dǎn.
 he see-PRF book two time yet find-NEG answer
 ‘He read the book(s) twice, but cannot find the answer(s) yet.’
 *‘He read twice, but cannot find the answer(s) yet.’

The interpretations of bare nominals varies with their syntactic position when they co-occur with duratives. The bare noun *diànyǐng* ‘movie’ together with the verb *kàn* ‘to see’ expresses the meaning ‘to movie-watch’. The bare noun *diànyǐng* ‘movie’ has a property-denoting reading when it follows the durative, but a definite reading when it precedes the durative, as shown in (13a, b).

- (13) a. *tā kàn-le [liǎng tiān] (de) diànyǐng.*
 he see-PRF two day MOD movie
 ‘The event of his movie-watching lasted for two days.’
 *‘He has watched the movie(s) for two days.’
- b. *tā kàn-le diànyǐng [liǎng tiān] le,*
 he see-PRF movie two day INCH
 háishǐ bù zhīdào shēi shì zhǔjiǎo.
 yet not know who is leading.role
 ‘He watched the movie(s) for two days, but still doesn’t know who the main character is.’
 *‘The event of his movie-watching lasted for two days, but he still doesn’t know who the main character is.’

When it comes to DPs with overt demonstratives, the native speakers I have consulted show a preference for the sentences in (14a, c) in an out-of-the-blue context, where the definite phrase precedes the adverbials *liǎng cì* ‘two times’ and *liǎng tiān* ‘two days’, but report oddity for the sentences in (14b, d), where the reverse order obtains:⁸

⁸ Though (14b & d) are not totally unacceptable, it should be noticed that they are most felicitous when the adverbials *liǎng cì* ‘two times’ and *liǎng tiān* ‘two days’ are focused, that is, in a context that the speaker intends to foreground the information conveyed by the adverbials.

- (14) a. Zhāngsān kàn-le [nà-běn shū] [liǎng cǐ].
 Zhangsan see-PRF that-CL book two time
 ‘He read that book twice.’
- b.? Zhāngsān kàn-le [liǎng cǐ] [nà-běn shū].
 Zhangsan see-PRF two time that-CL book
- c. Zhāngsān kàn-le [nà-bù diànyǐng] [liǎng tiān].
 Zhangsan see-PRF that-CL movie two day
 ‘He watched that movie for two days’
- d.? Zhāngsān kàn-le [liǎng tiān] [nà-bù diànyǐng].
 Zhangsan see-PRF two day that-CL movie

Finally, an NP object introduced by *yī* ‘a/one’ exhibits two word orders with respect to adverbials. As mentioned earlier, *yī* ‘a/one’ is ambiguous between an indefinite determiner and the numeral *one*.⁹ As shown in (15a, b) and (16a), *yī běn shū* ‘a/one book’ and *yī bù diànyǐng* ‘a/one movie’ must be specific when they appear before *shí cǐ* ‘ten times’ and *shí tiān* ‘ten days’; they have the numeral reading when they are preceded by frequentatives. This intuition is confirmed when we replace *yī* with *wǔ* ‘five’, which can only have the numeral reading. As shown in (15c, d), the NP *wǔ běn shū* ‘five books’ only displays a post-adverbial position. Notice further that in (15b), it is required that ten books are involved in the ten reading event; this conforms to Aoun and Li’s Scope Principle (1993), which states that in Mandarin, the surface word order determines the scope relation. One last point about (16) is that numeral nominals do not co-occur with duratives as shown in (16b), and the ungrammaticality of this sentence is attributed to the incompatibility of duratives and telic events, as mentioned in 2.1.1.

⁹ Recall that in Section 2.1.1, an NP object introduced by *yī* ‘a/one’ brings out the completion reading in a perfective sentence when it is interpreted as the numeral *one*.

(15) a. tā kàn-le [yī-běn shū] [shí cǐ],
 he see-PRF one-CL book ten time
 zùihòu hái shǐ jiè húijiā le.
 finally still be borrow home INCHO
 ‘He read a specific book ten times; in the end, he borrowed it home.’

b. tā kàn-le [shí cǐ] [yī-běn shū].
 he see-PRF ten time one-CL book
 ‘He read one book ten times.’

c. ?? tā kàn-le [wǔ-běn shū] [liǎng cǐ]
 he see-PRF five-CL book two time

d. tā kàn-le [liǎng cǐ] [wǔ-běn shū]
 he see-PRF two time five-CL book
 ‘He read five books twice.’

(16) a. tā kàn-le [yī-bù diànyǐng] [shí tiān] le,
 he see-PRF one-CL movie ten day INCH
 táicí dōu yǐjīng kěyǐ dàobèirúliú.
 lines all already can memorize.well
 ‘He watched a specific movie for ten days, and he already memorized all the lines (of the movie) very well.’

b. *tā kàn-le [shí tiān] [wǔ-bù diànyǐng].
 he see-PRF ten day five-CL movie
 Intended, ‘He watched five movies for ten days.’

The following table summarizes the observed order varieties for these three types of nominals (the ? indicates a questionable judgment):

(17) Table 2.1.2. The distributions of Mandarin nominals

	appear pre-adverbially?	appear post-adverbially?
bare noun	√ (definite)	√ (property-denoting)
numeral NP	X (except for specific <i>yi</i> -NP)	√
DP	√	? (√ if the preceding adverbial is focused)

Based on the patterns shown above, it seems that specificity plays a role in determining the relative word order of the object and the adverbial. That is, when the object is specific, it precedes frequentatives/duratives; otherwise, it follows the adverbials. I will show that a nominal must be located in the same syntactic domain as the temporal adverbial to affect the aktionsart of the predicate, and therefore, the syntactic position is linked to the ability to affect the telicity of the event. Before I explicate this connection, I will explore more syntactic properties of post-adverbial nominals in the next section.

2.1.3. The structural affinity between post-adverbial nominals and frequentatives/duratives

In this section, I examine the syntactic relation between post-adverbial nominals and frequentatives/duratives. The first point to be made here is that frequentatives and duratives have a tight structural relation with the following bare noun: the fact that the [frequentative/durative + bare N] string can be a target for movement shows that these adverbials and bare nouns may form a syntactic constituent. In the topicalization examples (18), the bare nouns *fàn* ‘rice’ and *diànyǐng* ‘movie’ can move along with the frequency expression *nà liǎng cì* ‘those two times’ and the durative phrase *nà liǎng tiān* ‘those two days’, respectively, to the front of the sentence.

Topicalization

- (18) a. [nà liǎng cǐ fàn], tā dōu méi qù.¹⁰

that two time rice he all not go

Literally: ‘As for the two events of having meals, he did not attend.’

- b. [nà liǎng tiān (de) diànyǐng], tā dōu méi kàn.

that two day MOD movie he all not watch

Literally: ‘As for the two days of movie-showing, he did not watch (any movies).’

Similarly, the combination of *liǎng cǐ* ‘two times’ and *fàn* ‘wine’ can be scrambled to the pre-verbal position, as shown in (19a). The same behaviour can be observed with the durative *liǎng nián* ‘two years’ and *shū* ‘book’ in (19b).

Scrambling:

- (19) a. tā [liǎng cǐ jiǔ] dōu méi hē.

he two time wine all not drink

Literally: ‘As for the two drinking events, he did not attend (either time).’

- b. tā [liǎng nián (de) shū] (zhōngyú) dú-wán le.

he two year MOD book finally read-finish PRF

Literally: ‘As for the two years of studying, he (finally) finished it.’

However, when we consider NumPs and DPs, the following examples indicate that they cannot move along with the adverbials. The definite object *nà tái chē* ‘that car’ in (20a) and the numeral object *liǎng tái chē* ‘two cars’ in (20b) cannot be topicalized with the frequentative *nà liǎng cǐ* ‘those two times’.

¹⁰ Since the topicalized expression is specific, the demonstrative *nà* ‘that’ is required.

- (20) a. *[nà liǎng cǐ nà-tái chē], tā dōu xiū-le.
that two time that-CL car he all fix-PRF
Intended, ‘As for the two times of fixing that car, he did it (both times).’
b. *[nà liǎng cǐ liǎng-tái chē], tā dōu xiū-le.
that two time two-CL car he all fix-PRF
Intended, ‘As for the two times of fixing two cars, he did it (both times).’

(21) shows that the durative *liǎng tiān* ‘two days’ cannot undergo scrambling with the object, *nà běn shū* ‘that book’ in (21a) and *liǎng běn shū* ‘two books’ in (21b)¹¹.

- (21) a. *tā [liǎng tiān nà-běn shū] dōu kàn-le.
he two day that-CL book all read-PRF
Intended, ‘As for the two days of reading that book, he did it.’
b. *tā [liǎng tiān liǎng-běn shū] dōu kàn-le.
he two day two-CL book all read-PRF
Intended, ‘As for the two days of reading two books, he did it.’

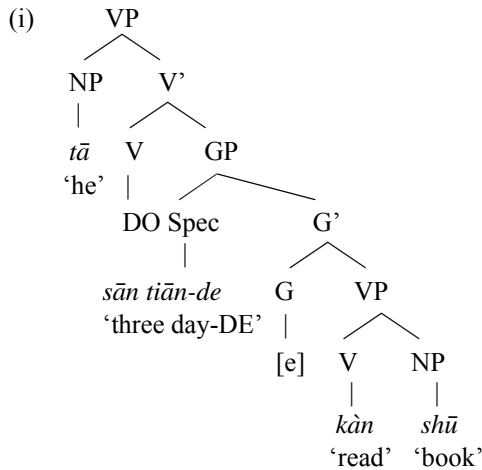
Based on these observations, I conclude that a bare noun can form a constituent with the preceding adverbial, but nominals headed by numerals and demonstratives cannot.¹²

¹¹ It can be suggested that the ungrammaticality of (20) and (21) may be due to the fact that the order of DP+Freq/Dur is not preserved, when the string is topicalized/scrambled. However, if we reverse the order between the adverbial and the object in (20) and (21) and keep the order of DP+Freq/Dur, we will still obtain ungrammatical sentences, as shown in (i):

- (i) a. *[nà-tái chē nà liǎng cǐ], tā dōu xiū-le.
that-CL car that two time he all fix-PRF
Intended, ‘As for the two times of fixing that car, he did it (both times).’
b. *tā [nà-běn shū liǎng tiān] dōu kàn-le.
he that-CL book two day all read-PRF
Intended, ‘As for the two days of reading that book, he did it.’

Notice that the modification marker *de* can optionally be inserted between the bare noun and the durative to make the sentence sound more natural.¹³ The existence of the bound

¹² Susana Béjar (p.c.) suggests that (18) and (19) may involve a remnant movement of VP, that is, after the main verb is raised to *v*, the remaining VP moves to a higher position. A similar idea can be found in C. -T. Huang (1997, 2008), in which a gerundive structure is assumed, and the quantity expression such as *sān tiān* ‘three days’ is said to modify the gerund meaning ‘reading book’, as shown in (i).



(Huang 2008: 240)

In (i), after the verb *kàn* ‘read’ undergoes a sequence of head movement to the higher V, GP can be a target for A’ movement such as topicalization or scrambling. As for the DP object, it can be argued that the DP object moves to some functional projection above GP before the remnant movement applies to GP, and therefore, it does not undergo scrambling or topicalization with the frequentative/durative. Although this alternative approach can capture the topicalization and scrambling cases in (18) - (21), it fails to derive the right word order and to recognize the tight structural relation between bare nouns and frequentatives/duratives, which is marked by the optional modification marker *de*; see the next paragraph for the discussion of the modification marker *de*.

¹³ Unlike duratives, frequentatives resist the application of *de*-insertion. The failure to employ the *de*-insertion between the bare noun and the frequentative can be explained, if we think of the semantic differences between frequentatives and duratives. As suggested by Sybesma (1999) and Zhang (2002), when a frequency expression is used, the event is viewed as individual and thus countable, and in contrast, when a durative is used to measure out an event, the event is viewed as mass, an entity with continuity. It is possible to insert *de* in the latter case, but not the former. This generalization is also carried over to the nominal domain. Cheng and Sybesma (1999, 2005) notice that the morpheme *de* cannot be inserted between a classifier and a noun, but it can appear optionally between a measure word and a noun. The

morpheme *de* in Mandarin indicates constituency between the expressions it connects with (Li 1990). In (22), the adjective *měilì* ‘pretty’ is cliticized by *de*, and the whole phrase can be a target for movement such as topicalization, as shown in (22b).

- (22) a. [_{AP} měilì de [_{NP} nǚhái]]
 pretty MOD girl
 ‘(a) beautiful girl(s)’
 b. [měilì de nǚhái] rén rén dōu ài.
 pretty MOD girl people all love
 ‘As for pretty girls, everyone loves them.’

The tight structural relation exhibited by bare nouns and post-verbal adverbials has been noticed by many linguists; in C. -T. Huang (1982), Sybesma (1992) and Yang (2001), it is claimed that a frequentative/durative can be reanalyzed or base generated as a classifier, and forms a single constituent with the following bare noun. Two issues immediately arise: (1) Why can only bare nouns have this special restructuring mechanism with the preceding adverbial? (2) If we analyse the frequentative/durative as a nominal classifier, we would encounter a semantic type mismatch problem, since the

following examples demonstrate this point:

- (i) a. liǎng běn (*de) shū
 two CL MOD book
 ‘two books’
 b. liǎng bēi (de) shuǐ
 two cup (MOD) water
 ‘two cups of water’

Classifiers and measure words are used to count nouns in Mandarin. Classifiers are used when the following noun is a count noun, and a measure word is used to count mass nouns. It is unclear why the *de*-insertion is prohibited in the contexts of frequentatives and classifiers, but along the line of discussion above, we would like to suggest that the failure of the *de*-insertion in the frequentative construction can presumably receive the same explanation as classifiers in the nominal domain.

function of a frequentative/durative is to count/measure out the whole event, not to count/measure out the bare noun object. We need to take a closer look at the semantics of these bare nouns before we can proceed to solve the issues.

2.1.4. Bare nouns as property-denoting elements

It was noted by Cheng and Sybesma (1998) that almost all English intransitive verbs are transitive in Mandarin; for instance, ‘to read’ corresponds to Mandarin *kan-shu* ‘see-book’. More examples are listed in (23). The bare, non-referential objects in (23) must be used with the verb to convey an act in Mandarin, while in English, a simple activity verb can express an act without a dummy object.

(23) Some examples of Mandarin transitive verbs

chī-fàn ‘eat-rice’= ‘eat’

kàn-shū ‘see-book’= ‘read’

chàng-ge ‘sing-song’= ‘sing’

shuō-huà ‘speak-speech’= ‘speak’

pǎo-bù ‘run-step’= ‘run’

liū-bīng ‘slide-ice’= ‘skate’

zǒu-lù ‘walk-road’= ‘walk’

Here I would like to argue against the traditional analysis, which treats the dummy bare nouns in (23) as generic; I believe that these bare nouns are better analyzed as property-denoting expressions for the following reasons. First of all, semantically, the bare nouns in (23) do not denote kinds. For instance, *shū* ‘book’ in *kànshū* ‘to read’ does not refer to a book kind; the activity of *kànshū* can involve reading novels or magazines. Moreover, *jiào* ‘sleep_N’ in *shuì-jiào* ‘sleep-sleep_N’ (= ‘to sleep’) is not a generic way of sleeping, and in *tā zhài chī-fàn* ‘he is eating’, rice is not necessarily involved in the eating event. Second, generic nominals are usually found in the context of individual-level

predicates, as shown in (24a), but the predicates listed in (23) are stage-level, and can be used in an episodic context. This is shown in (24b).

- (24) a. gǒu yǒu yǐba.
 dog have tail
 ‘Dogs have tails.’
 b. tā zhèng zài shuì-jào
 he now PROG sleep-sleep_N
 ‘He is sleeping now.’

The third difference between generic bare nouns and property-denoting bare nouns is that the former can be replaced by a pronoun, while this is not the case for the latter. In the following examples, the pronoun *tā*¹⁴ ‘it’ can refer back to the generic bare noun *shū* ‘book’ in (26a), whereas (26b) is judged odd, when *tā* ‘it’ is co-referential to property-denoting noun *shū* ‘book’ in the preceding sentence.

- (26) a. měi gè rén dōu ài shū; tā shì zhīshì de lái yuán.
 everyone all love book it be knowledge MOD source
 ‘Everyone loves books; they are the source of knowledge.’
 b. měi gè rén dōu kàn shū; #tā shì zhīshì de lái yuán.
 everyone all see book it be knowledge MOD source
 ‘Everyone reads; #they are the source of knowledge.’

The last point is that if the bare noun *shū* in the reply to the question in (27) denotes a book kind, it is unclear to us why it cannot be used as an appropriate, informative reply

¹⁴ Mandarin 3rd person singular pronoun *tā* refers primarily to persons; however, as pointed out by Li and Thompson (1981), *tā* can be co-referential to an inanimate nominal expression “only when the absence of a pronoun or other noun phrase would render the construction ungrammatical” (p. 134). In (26), both subject pronouns of the copular sentences are required, and it is possible to use *tā* to refer to the inanimate noun phrase *shū* ‘book’.

to the question in (27).¹⁵ Notice that if *shū* in (27) is stressed, then the reply is valid; the sentence would then mean that I am reading BOOKS/A BOOK.

- (27) Mary: *nǐ zài kàn shémé*¹⁶? (seeing John reading from distance)
you PROG see what
'What are you reading?'
John: *#wǒ zài kàn shū*.
I PROG see book
'I am reading.'

Based on the arguments presented above, I claim that the bare nouns in (23) are not generic and semantically they are of type $\langle e, t \rangle$: they contribute to the verbal meaning with the activity verb, or to put it another way, they restrict the predicate. Take the verb *kàn* as an example. The meaning of the verb *kàn* is vague; it expresses activities in which eyes are engaged, and not until it combines with a bare noun or a resultative morpheme can the meaning of the predicate become substantial. Therefore, with the bare noun *shū* 'book', *kàn-shū* means 'to read', and with the resultative morpheme *jiàn* 'see', *kàn-jiàn* means 'to see'. In this sense, property-denoting bare nouns are like incorporated objects

¹⁵ Simona Herdan (p.c.) suggested that the pragmatic oddness of (27) may possibly still be contributed to by the generic interpretation of the bare noun *shū*, since a person cannot read a book kind. However, if we replace *shū* with another bare noun *zázhì* 'magazine', as shown in (i), (i) is an effective reply to the question in (27). Chierchia (1998) claims that bare nouns in Mandarin are kind-denoting. Therefore, if we accept the proposal that *shū* is a book kind in *kàn-shū* 'to read', we would leave the contrast between (i) and (27) unaccounted for.

- (i) *wǒ zài kàn zázhì*.
I PROG see magazine
'I am reading magazines/a magazine.'

¹⁶ It should be noticed that the sentence *nǐ zài kàn shémé* means 'what are you looking at?', but in a given context such as the one in (27), it must convey the meaning of 'what are you reading?'.

in Noun-Incorporation cases (Chung and Ladusaw 2004).^{17,18} Although we cannot go into details about what the semantic computation would look like when the bare noun forms a constituent with the preceding frequentative/durative, I would like to point out that as bare nouns are property-denoting elements of type $\langle e, t \rangle$, they can combine with duratives and frequentatives, which are predicates of events as argued in Parson (1990), without inducing a semantic mismatch problem. In contrast, if we assume that bare nouns are generic, and hence of type e , the computation cannot continue since duratives and frequentatives do not take non-predicative/eventive constituents as their arguments (**one day of book, *two times of apple*).¹⁹

In the proposal to be presented in the next section, I claim that frequency expressions and durative adverbials occupy a functional projection, labelled as Inner Aspect, scoping over VP. Therefore, they are still event modifiers but not the modifiers of the bare noun. I suggest that the configuration for restructuring frequentatives/duratives with the following bare noun would require both of the constituents to stay in a local domain, that is, the Inner Aspect phrase. This claim will be further strengthened by the fact that bare nouns can contribute to telicity. Again, we would not expect a generic nominal be able to play a role in determining the eventuality of the predicate.

¹⁷ Historically, these bare nouns were used as verbs. For instance, *fan* meant ‘to eat’ in the phrase *fàn dào gēng yú* ‘eat rice drink fish’= ‘eat rice and drink fish soup’ (*shījī*, 109 BC to 91 BC). It may be considered as indirect evidence for the claim that the bare nouns in question are property-denoting but not individual-denoting, since they evolved from verbs.

¹⁸ There are two main proposals in the literature concerning the semantics of bare nouns- in one approach, bare nouns are names for kinds (Carlson 1977, Chierchia 1998, among others), and the other approach treats bare nouns as properties (Chung and Ladusaw 2004). If the analysis of Mandarin bare nouns we pursue in this paper is on the right track, i.e., both property-denoting and kind-denoting bare nouns exist in Mandarin, we might need to call for a hybrid approach.

¹⁹ Yang (2001) proposes that the semantics of the frequency expression with the numeral denotes a function that maps a set of events onto a set of plural events with the designated atomic parts, that is, they are of type $\langle \langle e^e t \rangle, \langle e^e t \rangle \rangle$, in which e^e stands for the type of event. Based on this account, the [numeral+frequentative] complex requires a *property* argument rather than a *kind* argument (Yang 2001:146).

In the beginning of this section, I showed that frame adverbials, i.e., *in*-PPs, interact with both viewpoint and lexical aspect and structurally appear high, whereas durative adverbials, *for*-PPs, which are structurally low, are sensitive only to lexical aspect.

Next, I showed that frequentatives and duratives interact with nominal complements in word order: they intervene between the verb and the object if the object is non-specific, but follow the object if the object is definite/specific. I further argued that bare nominals, but not Num(eral)Ps or DPs, can form constituents with frequentatives and duratives when they appear post-adverbially. I followed this up with an investigation of the semantics of bare nominals. I showed that bare nominals are not generic quantifiers, but property-denoting elements, and I believe that due to this semantic property, it is possible for bare nominals to form a constituent with the preceding adverbial.

2.2. Establishing Inner and Outer Aspect in Mandarin

In this section, I consider the following issues which arose in the previous sections.

- 1) How do we represent structurally the differences between frame adverbials and durative adverbials with respect to their interaction with aspect?
- 2) How can a structure reflect the varieties of word order exhibited by nominals and adverbials?
- 3) What role do bare nouns play in aspect, assuming that frequentatives/duratives are associated with lexical aspect, and the mechanism of restructuring can only take place locally?

The third question regarding bare nouns will be taken up in Section 2.2.2 following a brief review of the literature on aspect, and the first two questions will be resolved in Section 2.2.3.

2.2.1. Inner Aspect and eventuality

Vendler (1967) proposed a four-way classification of events into states, activities, accomplishments and achievements based on the aspectual properties of verbs. Examples of the four event types are given below:

- (24) states: know, believe, love
activity: run, swim, sleep
accomplishment: climb a mountain, draw a circle, write a letter
achievement: win, die, notice, forget

These four types of verbs are referred to as *aktionsart* or lexical/situational aspect, and this is distinguished from viewpoint aspect, which comprises perfective and imperfective. According to Vendler (1967), activities and states are unbounded/atelic events since they do not entail an end point, whereas both accomplishments and achievements express a change of state and hence are telic. Furthermore, states can be separated from the other three classes in that they do not denote dynamic situations; achievements can be paired with states, and activities with accomplishments, based on their compatibility with the progressive tense, and the meaning differences when they occur with the progressive tense.²⁰ To capture the properties above, a semantic decomposition can be employed:

²⁰ The progressive aspect is incompatible with a stative verb like *know* (see (i)). As for the achievement verbs that allow the progressive form such as *arriving* in (iii), the interpretation is such that the progressive describes a situation or process prior to the culmination of that situation, and it cannot modify the point event denoted by the achievement verb. In (iv) and (v), the progressive aspect modifies the process denoted by the predicate, and indicates that the event is ongoing at the speech time.

- | | | |
|-------|------------------------------|------------------|
| (i) | *John is knowing the answer. | (stative) |
| (ii) | *John is finding his key. | (achievement) |
| (iii) | The train is arriving. | (achievement) |
| (iv) | John is swimming. | (activity) |
| (v) | John is walking to school. | (accomplishment) |

- (25) States: [-dynamic, -telic, -durative]
 Activities: [+dynamic, -telic, +durative]
 Accomplishments: [+dynamic, +telic, +durative]
 Achievements: [+dynamic, +telic, -durative]

Research on aspect has investigated whether Vendler's verb classes are based on ontological, extra-linguistic knowledge without grammatical correspondents. If the grammar does pay attention to distinctions of verb type, which part of the grammar reflects the differences? Cowper (1999, 2003) claims that in English, Aspect is encoded at the Inflectional level with the dependent feature [Interval], which is spelled out as *-ing*. The following examples support her point. In (26), the predicate 'wear a school uniform' can be stative or eventive when the clause is non-progressive, but in the context of the progressive tense, both sentences in (27) can only receive an eventive interpretation.

- (26) a. Fritz wore a school uniform as a child. (stative)
 b. Fritz wore a school uniform twice this week (eventive).

(Cowper 2003:3)

- (27) a. The children were playing in the yard.
 b. The heckler was being rude.

(Cowper 2003:4)

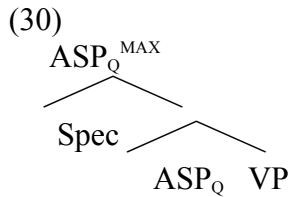
On the other hand, Borer (2005) proposes an Aspect Phrase in the domain of vP, which articulates lexical aspect and whose telicity value is determined by the constituent in its specifier. The following examples show that definiteness and quantification affect the interpretation of the eventuality of the predicate.

- (28) a. Mary ate cake *in three hours/for three hours. (activity)
 b. Mary ate the cake in three hours/*for three hours. (accomplishment)

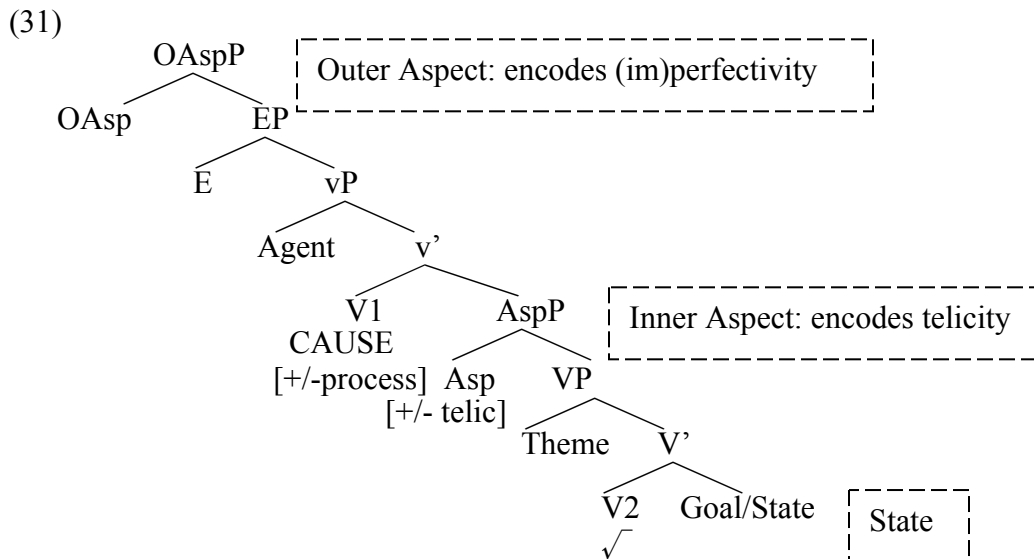
- (29) a. Mary built three cars in three hours/*for three hours. (accomplishment)

b. Mary built carts *in three hours/for three hours. (activity)

(28) shows that the interpretive differences between the objects, i.e., the definiteness, plays a role in determining the telicity of the predicate. The contrast in (29) indicates that the measurability of the object can also have an impact on the telicity of the construction; the quantitized object *three cars* turns the activity predicate into an accomplishment one in (29). Borer (2005) contends that atelicity is an unspecified default aspectual feature, and locates it at Aspect Phrase, in which lexical aspect is computed. This is illustrated in the diagram below.



In the same vein, Travis (2010) proposes that aktionsart is computed at AspP inside vP, while viewpoint aspect is represented at the outer aspect, OAspP, which has scope over E(vent)P, as shown in (31).



Vendler's four aspectual classes are also captured in (31): V1 encodes Process, and possesses the feature [+/-process] and thus distinguishes achievements and states on one hand, and activities and accomplishments on the other hand; the head Asp encodes telicity and distinguishes accomplishments and achievements from activities and states. In line with Borer's analysis of quantificational objects, Travis claims that for an object to be able to measure out a predicate, it must move to [SPEC, Asp] to Agree with Asp⁰.

Recall that a pre-verbal frame PP in Mandarin interacts with the perfective morpheme *-le* and telic predicate, whereas a post-verbal durative PP only concerns telicity. The analysis suggested in Travis (2010) teases apart the two types of aspect in structure, and would be a suitable framework to work with, if we assume that the linear order of temporal adverbials is a reflex of structural hierarchy. Before I present the structure for Mandarin post-verbal adverbials, I will examine bare nominals, which will be shown to participate in the computation of telicity.

2.2.2. Bare nouns revisited

In Section 2.1.4, we observed that verbs that require a bare noun to express a complete meaning are activity verbs, such as *chī* 'to eat' in *chī-fàn* 'eat rice=to eat' and *kàn* 'to see' in *kàn-shū* 'see book=to read'. Cheng and Sybesma (1998) argue that the presence of the bare nouns is due to the unavailability of generic *pro* in Mandarin. Cheng and Sybesma claim that when an activity verb such as *chī* 'to eat' is used without a bare noun object, the interpretation involves a definite object interpretation, that is, a *pro* reading is detected when the dummy object is missing from the sentence. According to Cheng and Sybesma (1998), (32) can't mean that Zhangsan had a meal; "instead, it conveys that there was something specific, known from context and that is what he ate" (*ibid*: 83).

- (32) Zhāngsān chī-le.
 Zhangsan eat-PRF
 'Zhangsan ate it.'

Cheng and Sybesma (1998) further attribute the absence of the non-referential reading in (32) to the unavailability of generic *pro* in Mandarin, and propose the following generalization:

(33) If an object position allows for *pro*, then that position cannot be occupied by non-referential empty objects. Such non-referential objects are expressed by an overt dummy nominal.

However, if we provide a proper context for (32), the reading of “have a meal” can actually be induced, as illustrated in (34). In (34), the predicate in the second conjunct receives the same interpretation as the preceding predicate, and as indicated in the translations, it is possible that the covert object contained in the second predicate can express a non-referential reading, in addition to a definite one.

(34) Lǐsǐ chī-le fàn le, Zhāngsān yě chī-le Ø.
Lisi eat-PRFrice INCH Zhangsan also eat-PRF.
‘Lisi had a meal, and so did Zhangsan.’
‘Lisi ate the rice, and so did Zhangsan’

Another counterexample to Cheng and Sybesma’s (1998) claim of the unavailability of generic *pro* in Mandarin can be found in (35): the fact that the covert nominal can be generic in the example shows again that a generic *pro* does exist in Mandarin.

(35) tā ài gǒu, wǒ yě ài Ø.²¹

He love dog I also love

‘He loves dogs and so do I.’

In her experimental study, Tieu (2007) also shows that Chinese speakers can use *pro* with a generic interpretation. Following the transitivity theory of Cummins and Roberge (2005), Tieu (2007) claims that bare nouns such *shū* ‘book’ in *kàn-shū* ‘to read’ are indispensable since structurally the object is always projected regardless of the lexical choice of verb. However, based on the evidence of single constituency with post-verbal adverbials and the evidence presented below, I provide another way of looking at these bare nominals. I suggest that bare nominals can take part in determining the telicity of predicates in Mandarin.

Take *pǎo-bù* ‘run-step’, for example. In an out of the blue context, when the verb *pǎo* ‘run’ appears alone without the following bare noun, the sentence can only mean ‘Zhangsan ran away/escaped’ as shown in (36a). Hoekstra (1992) suggests that in the case of verbs of movement, such as *pǎo*, if it is not followed by any overt element, usually there is a covert predicate, typically meaning ‘away’. Therefore, the predicate in (36a) is shifted to achievement because of the empty constituent ‘away’, which contributes to the telicity. (36b) shows that the verb *pǎo* ‘run’ cannot stand alone and must take the bare noun *bù* ‘step’ to convey an action event, as illustrated in (36e). Crucially, (36c) shows that even with the help of the progressive marker *zài*, the meaning

²¹ Huang (1991b) discusses the status of the null object in (i):

- (i) Zhāngsān xǐhuān zhèběn shū, Lǐsǐ bù xǐhuān.
Zhangsan like this book Lisi not like
‘Zhangsan likes this book, but Lisi doesn’t.’

(Huang 1991b: 63)

Huang (1991b) argues that what is missing in the second clause is not just a null object, but a VP, and the second occurrence of the verb is in fact an instance of “do-support”. His VP-ellipsis analysis can be extended to (34) and (35); however, we will still need to account for the interpretations of the null objects in those cases.

of atelicity cannot be obtained with the predicate alone; the goal phrase *dào xuéxiào* ‘to school’ in (36d) provides an end point to the predicate, and thus the event is interpreted as telic. To express atelicity, the bare noun *bù* ‘step’ in (36e) is used.

(36) a. Zhāngsān pǎo-le.

Zhangsan run-PRF

‘Zhangsan ran away.’ = ‘Zhangsan escaped.’ / *‘Zhangsan ran.’

b. *tā pǎo.

he run

c. *tā zài pǎo

he PROG run

Intended, ‘He is running.’²²

d. tā pǎo dào xuéxiào.

he run to school

‘He ran to school.’

²² Interestingly, (36c) can’t mean ‘He is running away’, and even with an overt predicate *diào* ‘away’, the sentence is still ungrammatical.

(i) *tā zài pǎo-diào.

he PROG run-away

Intended, ‘He is running away.’

It seems that telic predicates such as *pǎo-diào* ‘run away’ and *xiě liǎng fēng xìn* ‘write two letters’ in (ii) can’t be modified by the imperfective marker *zài*.

(ii) *tā zài xiě liǎng fēng xìn

he PROG writing two CL letter

‘He is writing two letters.’

e. tā zài pǎo-bù.

he PROG run-step

‘He is running.’

There are also cases in which the bare noun contributes the feature [+telic] to the predicate. (37a) and (37b) are such examples.²³

²³ An earlier version of this chapter was submitted to the International Conference on Modern Chinese Grammar, 2009, Hong Kong, and as one of the reviewers pointed out, *jié-hūn* ‘to get married’, and *jiàn-miàn* ‘to meet’ are considered VN compounds in the literature, and therefore, the issue of how these predicates are interpreted as telic should be handled in the context of morphology, instead of syntax. However, the sub-portion of these VN compounds, i.e., the N part, is active in syntax, as it can be separated by a frequency expression and the event classifier *ge* from the V part, as shown in (i), and (ii), and can even undergo topicalization, as shown in (iii). Therefore, the bare nouns in *jié-hūn* ‘to get married’, and *jiàn-miàn* ‘to meet’ can participate in a syntactic computation like their non-compounding counterpart. The issue of the event classifier *ge* will be taken up in detail in Chapter 3.

(i) a. tā jié-guò [sān cǐ] hūn.

He tie-EXP three time marriage

‘He married three times.’

b. wǒmén jiàn-guò [sān cǐ] miàn.

We see-EXP three time face

‘We met three times.’

(ii) a. jié ge hūn xūyào zhèyàng dàfèizhōuzhāng ma?

tie CL marriage require this excessive.work Q

‘Why would getting married require so much work?’

b. gāi shǐ shíhòu lái jiàn ge miàn le ba!

should cop time come meet CL face INCH PAR

‘It is about time to meet up!’

(iii) hūn jié-bù-chéng jiù suàn-le.

marriage tie-not-succeed then forget-ASP

Literally, ‘Leave it, if one cannot get married.’

- (37) a. tā jié-le hūn.
 he tie-PRF marriage
 ‘He got married.’
 b. tāmén jiàn-gùo miàn.
 they see-EXP face
 ‘They met with each other before.’

The predicates in (37) with the bare nouns, *jié-hūn* ‘to get married’ and *jiàn-miàn* ‘to meet’, are telic, and thus are not compatible with the durative *sān tiān* ‘three days’, as shown in (38).

- (38) a. *tā jié-le [sān tiān] hūn.
 he tie-PRF three day marriage
 *‘He was in the process of getting married for three days.’
 b. *tāmén jiàn-le [sān tiān] miàn .
 they see-PRF three day face
 *‘They were in the process of meeting with each other for three days.’

As suggested in Krifka (1992), verbs are inherently atelic in the sense that they don’t specify a culmination point but only a path. I would like to claim that verbs are semantically atelic, but to compute telicity of an event, a specific structural configuration, i.e., an agreement relation between the specifier and Asp^0 , must be established.²⁴ To achieve that effect, I propose that at least in Mandarin, verbs resort to compounding a resultative morpheme, nominals or adding a goal argument. Bare nominals in Mandarin thus participate in the computation of telicity when they appear in [SPEC, AspP]. In the next section, I will show that duratives and frequentatives are situated in AspP. Since

²⁴ Goal phrases and resultative morphemes bring culmination to the predicate, and thus delimit the event, though they are not in the configuration of [_{ASPP} XP Asp]. See Borer (2005) for details on how the assignment of the value of telicity is implemented to the event, and also see Ritter and Rosen (1998) for the treatment of secondary predicates in the event structure.

bare nominals can form a constituent with duratives/frequentatives, they must be located inside AspP as well and hence have an effect on the telicity of the predicate.

Take a look at the cases of (37) again. The bare noun contributes the meaning of telicity to the event: *hūn* ‘marriage’ in *jié-hūn* ‘to get married’ specifies the endpoint of the activity; that is, marriage is the result of the activity of marrying, and *miàn* ‘face’ in *jiàng-miàn* ‘to meet’ designates a goal to the action since essentially the goal of meeting a new person is to “see his face”. Notice that with the same bare nouns, telic predicates can be created, as shown in (39a-c). Interestingly, if the bare noun appears to the left of the verb, such as *miàn* ‘face’ in (39d), it does not contribute to the telicity of the predicate anymore, since it is not in the right structural position to do so.²⁵ (40a,b) shows that the pre-verbal bare nominal *miàn* ‘face’ cannot form a constituent with the frequentative *sān cì* ‘three times’, nor can it be adjacent to the adverbial.

- (39) a. *lǐ-hūn* ‘leave-marriage’= ‘to get divorced’ (achievement)
 b. *dīng-hūn* ‘book-marriage’= ‘to get engaged’ (achievement)
 c. *zhào-miàn* ‘shine-face’= ‘to meet’ (achievement)
 d. *miàn-tán* ‘face-talk’= ‘to discuss with someone face to face’ (activity)

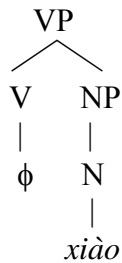
- (40) a. *tāmén* (*[*sān cǐ*]) *miàn* (*[*sān cǐ*]) *tán-le* [*sān cǐ*].
 they three time face three time talk-PRF three time
 ‘They talked face to face three times.’
 b. *[*sān cǐ miàn*] *tāmén dōu tán le*.
 three time face they all talk PRF

Before we move on to the syntactic representation of post-verbal adverbials in Mandarin in the next section, I would like to clarify a few points. As argued above,

²⁵ Notice that the noun *miàn* ‘face’ modifies the event of talking by providing the way the event takes place and it is not an argument of the verb *tán* ‘talk’; it can be argued that *miàn* ‘face’ adjoins to vP just like other manner adverbs.

Mandarin verbs require external help to value the telicity of the predicate; however, a handful of verbs seem to be able to perform the task by themselves, such as *sǐ* ‘to die’, *yīng* ‘to win’, and *shū* ‘to lose’. There are also some verbs in Mandarin that do not require a bare noun to convey an action event, such as *kū* ‘to cry’, and *xiào* ‘to laugh’. For the first set of the verbs (*sǐ* ‘to die’, *yīng* ‘to win’, and *shū* ‘to lose’), I assume with Lin (2004) and others that they might possess [+telic] as a lexical feature; as for the second set of verbs (*kū* ‘to cry’, and *xiào* ‘to laugh’), I follow Cheng and Sybesma’s (1998) analysis that they involve conflation, a mechanism in which a noun is incorporated into the verb position, as illustrated in the diagram in (41). It thus can be assumed that the telicity information is transmitted to the verb with the application of conflation.

(41) *xiào* ‘laugh’ (Cheng and Sybesma 1998: 85)



In short, we have seen that Mandarin bare nouns participate in the computation of telicity, and furthermore, it was suggested that bare nouns must be located in a specific configuration, that is, the specifier of AspP, to have an effect on the telicity of the predicate. The very same position that bare nouns occupy enables the restructuring process to take place between a bare noun at [SPEC, AspP], and a frequentative/durative which adjoins to AspP, and therefore, bare nominals can optionally form a constituent with the preceding adverbial in the domain of AspP.²⁶

²⁶ This reanalysis is optional since the adverbials can sometimes be preposed without the bare nominal. In (i), the frequency expression *liǎng cì* ‘two times’ undergoes scrambling to the medial position without the bare noun *fàn* ‘rice’.

2.2.3. Inner Aspect Analysis of event structure in Mandarin

After tackling the question of Mandarin bare nouns, we return to the remaining research questions:

- 1) How do we represent structurally the differences of frame adverbials and durative adverbials with respect to their interaction with aspect?
- 2) How can the structure reflect the varieties of word order exhibited by nominals and adverbials?

Let's start with the second question about the word order variability between different types of nominals and temporal adverbials. Recall that definite/specific nominals appear before the temporal adverbials, whereas property-denoting bare nouns and NumPs (except for specific *yi*-NP) follow the adverbials. The following table from Section 2.1.2 is repeated below (the ? indicates a questionable judgment):

(42) Table 2.2.3. The distributions of Mandarin nominals

	appear pre-adverbially?	appear post-adverbially?
bare noun	√ (definite)	√ (property-denoting)
numeral NP	X (except for specific <i>yi</i> -NP)	√
DP	√	? (√ if the preceding adverbial is focused)

I spell out the aforementioned contrasts by arguing that while all nominal objects are raised to AspP to mark the telicity of the predicate, DPs move farther to a functional projection above AspP, possibly for case-checking.

-
- (i) tā [liǎng cǐ] dōu méi chī fàn.
 he two time all not eat rice
 ‘As for those two times, he did not eat.’

As claimed by Soh and Kuo (2004), definiteness and specificity in Mandarin have no correlation with telicity. When co-occurring with a perfective achievement, definite and specific objects do not induce a contradiction, as shown in (43). In contrast, the numeral NP object *liǎng běn shū* ‘two books’ in (44) marks the predicate as telic, and makes unacceptable the following assertion that denies the completion of the event.

- (43) tā kàn-le nà/yī-běn shū, kěshǐ méi kàn-wán.
 he read-PRF that/one-CL book but not read-finish
 ‘He read that/a specific book, #but he did not finish reading it.’

- (44) tā kàn-le liǎng-běn shū, #kěshǐ méi kàn-wán.
 he read-PRF two-CL book but not read-finish
 ‘He read two books, #but he did not finish reading them.’

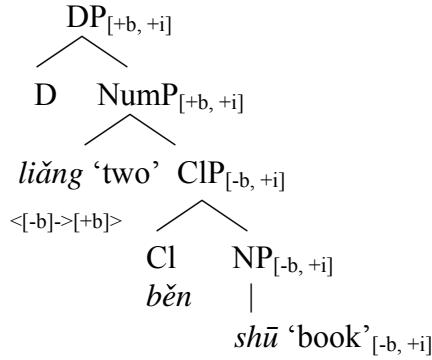
To account for the contrast observed above, Soh and Kuo (2004) associate the telicity feature with the numeral projection in the nominal domain. Following Jackendoff (1991), they assume that nominal arguments bear the conceptual features [\pm b(ounded)]²⁷ and [\pm i(nternal structure)]. The boundedness feature indicates whether the boundaries of an entity are in view or are of concern, and the internal structure feature indicates whether the entity has inherent division into discrete members (Soh and Kuo 2007: 7). The feature specification of different types of nominals is provided below.

- (45)
- | | | |
|----------|-------------|------------------|
| [+b, -i] | individuals | e.g. a pig |
| [-b, -i] | substances | e.g. water |
| [+b, +i] | groups | e.g. a committee |
| [-b, +i] | aggregates | e.g. furniture |

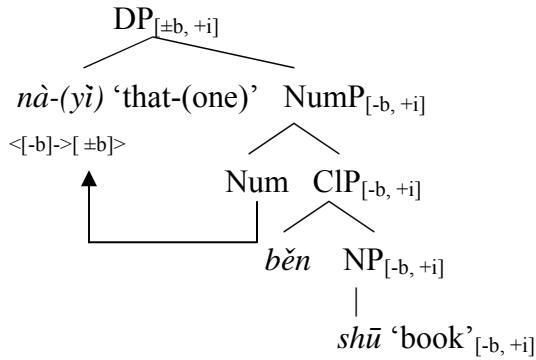
²⁷ In this dissertation, the term *telicity* is used when the end point of an event is of concern, and *boundedness* is used when the boundaries of an entity are in discussion, although the boundedness feature of a nominal does affect the telicity of an event.

Soh and Kuo adopt the view that Mandarin nouns are mass, and assume that nouns such as *shu* ‘book’ bear [-b, +i]. They propose that, first of all, a numeral changes the value of the boundedness feature of its selected constituent from [-b] to [+b]. Second, D-elements change the [-b] feature of the complement to [\pm b], which means that the nominal has the option of being either [+b] or [-b]. The applications of the feature changing rules are demonstrated below.

(46) a. Numeral expressions [+b, +i]



b. Demonstrative noun phrases [\pm b, +i]²⁸



In (46), the derivation starts with a noun specified as [-b, +i]. The feature percolates up to the ClP level; classifiers do not change the value of the boundedness feature or the value of the internal structure feature of the NP. In (46a), the numeral head changes the feature of [-b] to [+b], and as a result, the constituent is specified as [+b, +i]. On the other hand,

²⁸ The structure in (46) involves a Num to D movement. It has been argued that a numeral with a referential interpretation adjoins to D, regardless of whether D is lexically filled by a demonstrative or not (Tang 1990, Li 1997).

in (46b), the demonstrative head changes the boundedness value of the constituent from [-b] to [±b]. The resulting feature specification, [±b, +i], percolates up to the DP level. Based on the derivations in (46), numeral constituents, such as *liǎng běn shū* ‘two books’, bear [+b, +i], and delimit the event, while demonstrative/indefinite noun phrases, specified with [±b, +i], leave the event ambiguous between telic and atelic. The difference between the feature specifications of numeral expressions and those of definite/specific nominals explains the contrast shown in (43) and (44), that is, numeral objects, but not definite/specific objects, are able to delimit the event.

Following Soh and Kuo’s (2004) analysis of Mandarin nominals, I propose further that the telicity feature of a nominal object must be located at [SPEC, AspP] to affect the telicity of the predicate. The definite/specific object moves from the object position to a position above the Inner Aspect, with a stop-over in [SPEC, AspP] to assign its telicity value to Asp⁰. The final position in which the definite/specific object lands is labelled as FP in (47) below.²⁹ On the other hand, NumPs and bare NPs are only raised to [SPEC, AspP], valuing the telicity feature against Asp⁰. The object movements proposed above are illustrated in detail in (47). Ritter and Rosen (2005) claim that the telicity feature on Asp⁰ is not deleted during the computation, and I assume that the telicity

²⁹ It may be suggested that DP must be raised to FP to check its uninterpretable structural case, i.e., accusative case, as in many languages, definiteness is related to case alternation. For instance, in Hebrew, a definite object must be marked by the accusative case *et*, whereas indefinite objects must not be preceded by *et*.

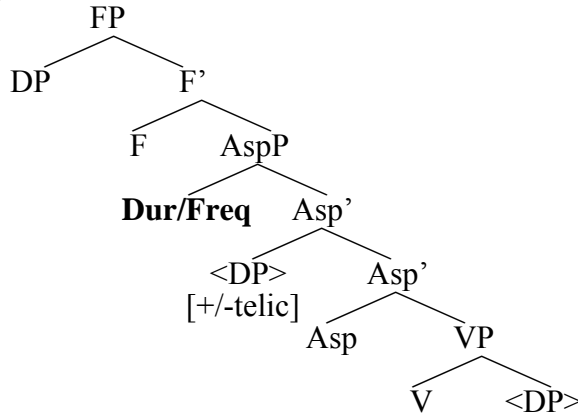
- (i) a. raʔiti *(et) ha-yeled.
 saw.1SG *(et) the-boy
 ‘I saw the boy.’
 b. raʔiti (*et) yeled.
 saw.1SG (*et) boy
 ‘I saw a boy.’

(Danon 2001: 1074)

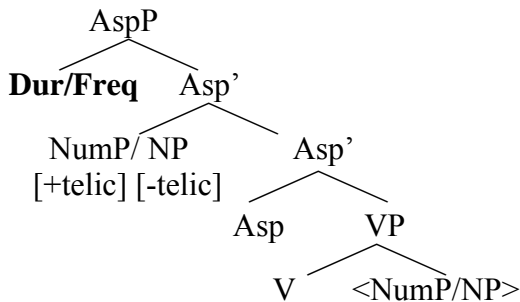
To account for the contrast in (i), Danon (2001) proposes that [+def] is a sub-feature of a [+case] feature, and must be checked in a Spec-Head configuration with *et*, whereas an indefinite object can be assigned an inherent case by the verb, and therefore, doesn’t co-occur with *et*.

feature on Asp^0 is interpretable yet unvalued, and has an interpretive effect at LF as indicating that the predicate denotes a telic or atelic event.

(47) a.

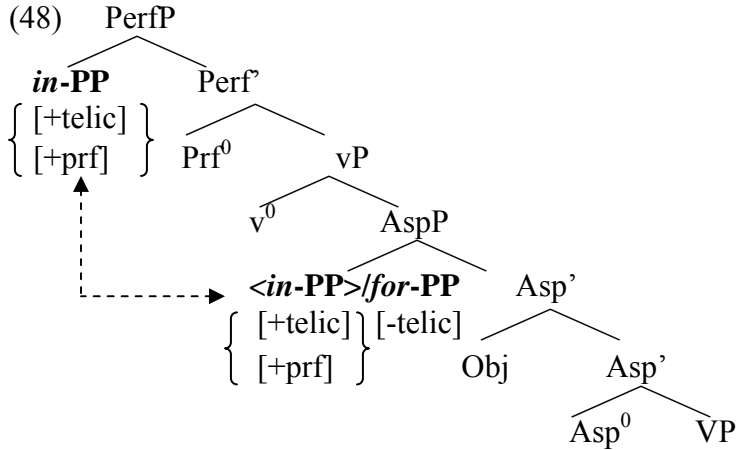


b.



The additional object movement from [SPEC, Asp] to [SPEC, FP] in (47a) would result in the word order of DP+temporal adverbial, while the order of temporal adverbial+NumP/NP is derived in (47b).

Now we return to the first question: how does syntax reflect the differences between frame adverbials and durative adverbials? Following Travis' Inner Aspect approach, I suggested in Su (2009) that there are two syntactic components that locate lexical aspect and viewpoint aspect in Mandarin: Inner Aspect is the locus of lexical aspect, and the perfective morpheme *-le* heads a functional project PerfectiveP(PrfP), which corresponds to Travis' Outer Aspect. This approach will be reviewed and evaluated below. Ignoring the irrelevant projections and the verb movements, (48) sketches the hierarchy of the two layers of Aspect in Su (2009).



According to (48), temporal adverbials, durative (*for*-PP) and frame PPs (*in*-PP), are base-generated at AspP, while frame PPs move further up to PrfP for feature checking. Durative PPs are specified with [-telic], and are only compatible with atelic predicates. An object associated with [+telic] will lead to a crash at LF when co-occurring with a durative in AspP. Frame PPs bear the feature of [+prf], and are present with perfective telic predicates: they start at AspP, licensed by [+telic] on Asp⁰, and end at [SPEC, PrfP] to check off [+prf] against Prf⁰, which is spelled out as *-le*. Then it is assumed that at LF, the feature bundle { [+prf], [+telic] } gives rise to a completive reading, and indicates that the natural endpoint of the event is reached. The string { ... PrfP [+prf] ... Asp[-telic] } gives rise to a terminative reading, and indicates that the arbitrary end point of the event is reached.

- (49) a. { [+prf], [+telic] } = completive reading
 b. { [+prf], [-telic] } = terminative reading

The structure in (48) attempts to reflect the dependency of *in/for* temporal adverbials and Aspect; by postulating Inner/Outer Aspect, with which *in/for* PPs are associated, we can account for the co-occurrence restrictions on the temporal adverbials with Aspect:

- (50) a. *For*-PPs (durative PPs) are only compatible with atelic events.

b. *In*-PPs (frame PPs) are only compatible with complete events which might be composed by a perfective telic predicate with the resultative morpheme *wán* ‘finish’, or a with a NumP object.

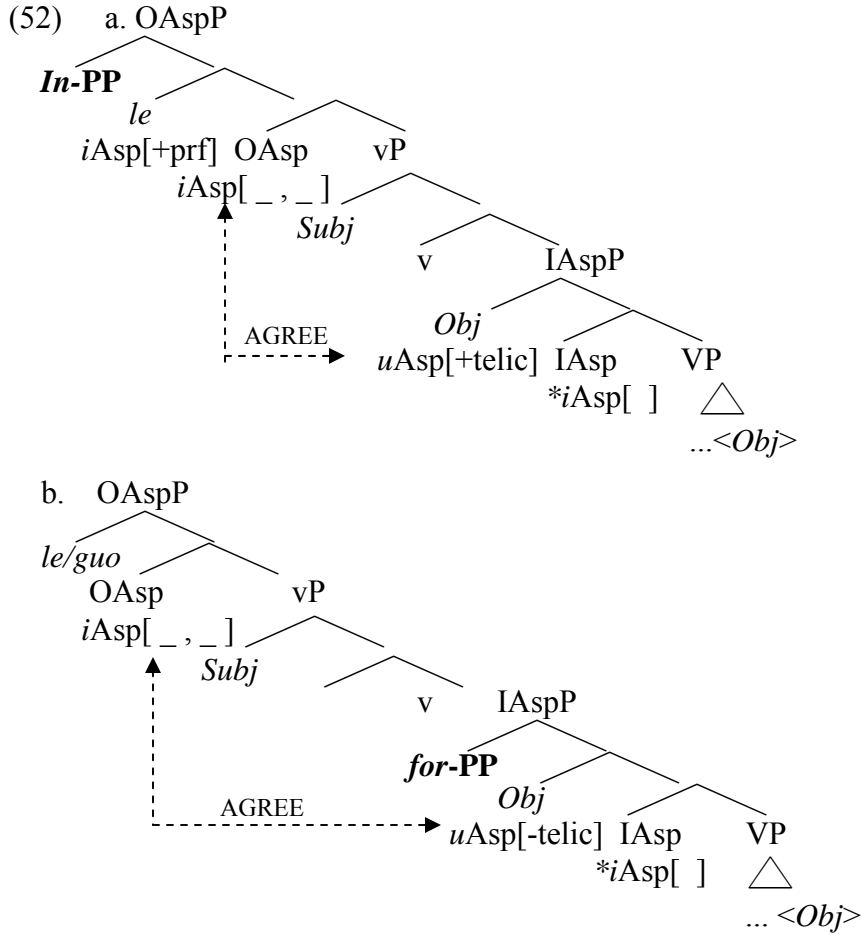
However, there are a few problems with the proposal made above. First of all, it is not entirely clear how the postulated Aspect features on the temporal adverbials can explain (50b): since temporal adverbials are adjuncts, the optionality of temporal adverbials can cause empirical as well as theoretical problems as to how a perfective sentence can be formed and how the uninterpretable feature of Prf^0 is valued and checked, if an *in*-PP is missing from the structure. On a similar note, the presence of an *in*-PP alone cannot mark the predicate [+telic], as shown in (51a), and a numeral object (*sān-ge zǐ* ‘three words’ in (51b)), or a resultative morpheme (*wán* ‘finish’ in (51c)) is required to achieve the task:

- (51) a. **tāmén* [sān fēnzhōng nèi] xiě -le.
 they [three minute in] write-PRF
 *‘They wrote in three minutes.’
- b. *tāmén* [sān fēnzhōng nèi] xiě -le [sān-ge zǐ].
 they [three minute in] write-PRF three-CL word
 ‘They wrote three words in three minutes.’
- c. *tāmén* [sān fēnzhōng nèi] xiě-wán-le.
 they [three minute in] write-finish-PRF
 ‘They finished writing in three minutes.’

Secondly, even if there is an *in*-PP movement, as suggested in the structure of (48), it is also not clear what the underlying feature-checking mechanism is to drive the movement; since Prf^0 never requires its specifier to be filled unless there is an *in*-PP in the sentence, it seems theoretically ad hoc to assume that PrfP is a phase, and is endowed

with an edge feature. All the points discussed above imply that temporal adverbials might not carry any aspect features, an idea which is also proposed in Thompson (2006).³⁰

In view of the shortcomings of the account in Su (2009), I revise the proposal in Su (2009), and a new structure is given below:



(52a) is a syntactic representation for an *in*-PP sentence, and the structure for a *for*-PP sentence is illustrated in (52b). Following Thompson (2006), I suggest that *in/for*-

³⁰ Thompson (2006) further argues that events with a definite end point involve a bounded direct object or a bounded PP in the checking domain of Asp(ect)P, whereas unbounded events involve interpretation in a projection lower in the clause, i.e. VP. Based on the evidence from English temporal adverbial sentences, Thompson (2006) claims that since duratives modify an unbounded event, they are said to adjoin to VP, while frame adverbials, which modify a bounded event, are adjoined to AspP. However, we have seen that Mandarin frame adverbials interact with both telicity and perfectivity, and therefore, it is natural to assume that they are adjoined to a projection encoding completion (OAspP in (52)), as they modify a completive event, and enter an Agree relation with the projection encoding telicity (IAspP in (52)).

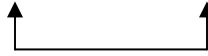
PPs do not possess any formal features, and the placement of *in/for*-PPs in the structure depends on the feature makeup of the associated Asp heads; that is, *in*-PPs adjoin to the phrase whose head is marked with completion, and *for*-PPs adjoin to the phrase whose head is marked with telicity. On this assumption, we would explain why *in*-PPs alone cannot mark the telicity on the predicate in a sentence. The second difference between the proposal made in Su (2009) and here is that $OAsp^0$ encodes completion which is derived from the combination of perfectivity and telicity; to translate this relation in terms of feature theory, the interpretable feature of $OAsp^0$ in (52) has dual slots and hence needs to be valued twice: assuming that Agree can proceed in a Spec-Head configuration, $OAsp^0$ Agrees with the object, and with the aspectual marker situated at its specifier. (53) shows how feature-valuing proceeds in (52a) (irrelevant features are omitted):

(53) a. Merge $IAsp^0$ with VP:

$*iAsp[] \dots uAsp[+telic]$

b. Agree applies:

$*iAsp_2[+telic] \dots uAsp_2[+telic]$



c. Re-Merge the object with $IAsp'$:

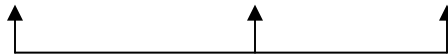
$uAsp_2[+telic] \dots *iAsp_2[+telic]$

d. Merge $OAsp^0$ with vP:

$iAsp[_ , _] \dots uAsp_2[+telic] \dots iAsp_2[+telic]$

e. Agree applies:

$iAsp_2[+telic, _] \dots uAsp_2[+telic] \dots iAsp_2[+telic]$

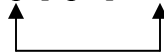


f. Merge *le* with $OAsp$:

$iAsp[+prf] \dots iAsp_2[+telic, _] \dots uAsp_2[+telic] \dots iAsp_2[+telic]$

g. Agree applies:

$iAsp_2[+prf] \dots iAsp_2[+telic, +prf] \dots uAsp_2[+telic] \dots iAsp_2[+telic]$



Assuming that Inner and Outer Asp⁰ carry interpretable features, which have semantic input at LF after the sentence is converged. In (53a), when IAsp⁰ merges with VP, the Asp feature on the object enters an Agree relation with IAsp⁰, and as a result, the Asp feature on IAsp⁰ is valued, and the two distinct Aspect features are turned into one occurrence of the same feature as indicated by the index 2 (Pesetsky and Torrego 2007). The object raises to [spec, IAsp] due to the EPP requirement. In (53d), OAsp⁰ merges with vP, the Asp feature on OAsp⁰ probes the valued Asp feature on IAspP, and Agree results in one occurrence of Aspect features in three different locations, as shown in (53e). In (53f), perfective marker *le* merges with OAsp, and values the second slot of the Asp feature on OAsp⁰. The duo values on OAsp⁰, in this case, [+telic, +prf], indicate that the event is complete; if the duo values are [-telic, +prf], the event is terminate.

The Agree approach proposed above eliminates the need to speculate some formal features for the trigger of in- PP movement as well as maintains the close syntactic relationship between in-PPs and telicity and perfectivity.

2.3. Summary

In this chapter, I addressed two issues: the various syntactic positions of the temporal adverbials and different types of nominal objects, and the restriction on the co-occurrence of the temporal adverbials with different aspectual verb classes of predicates. It was shown that *for*- and *in*-PPs in Mandarin differ in terms of their syntactic distributions and their compatibility with Aspect; while *for*-PPs display a co-occurrence restriction with the predicate with respect to their telicity, *in*-PPs interact with both viewpoint aspect and lexical aspect. Based on the syntactic and semantic behaviours of the temporal adverbials, I proposed that aspectual information is encoded by two functional projections in Mandarin: the Outer Aspect presents viewpoint aspect (perfectivity) and the Inner Aspect is the locus of lexical aspect (telicity). With an analysis that assumes a more fine-grained structure for Aspect at hand, we are able to explain the word order patterns of the temporal adverbials and the semantic differences that result from the distributions of these adjuncts.

As for the word order variation exemplified by nominal objects and temporal adverbials, it is achieved by two types of object movement: movement which involves moving a DP object to a functional projection above AspP, possibly for case-assigning purpose, and also movement that raises a nominal object to [SPEC, AspP] to value the telicity feature on Asp⁰. I claimed that property-denoting bare nouns and NumPs are crucial to the telicity of a predicate. Moreover, the feature [-telic] must be syntactically marked just like their [+telic] counterpart in Mandarin, contra to what is generally assumed (cf. Krifka 1992). In the course of arguing that post-adverbial bare nouns are property-denoting rather than kind-denoting, I also suggested that the semantic properties and the syntactic position of these bare nouns enable them to undergo reanalysis with temporal adverbials and form a constituent with them.

At the end of this chapter, I revised the Inner Aspect approach proposed in Su (2009), solving the theoretical and empirical problems raised by the old analysis. Specifically, I re-formulated the structure in terms of Agree to eliminate the need to postulate some formal features for the trigger of *in*-PP movement while capturing the close syntactic relationship between the Outer Aspect and the Inner Aspect.

Before I close this chapter, I would like to present two pieces of evidence from Inuktitut and Malagasy to support the establishment of the two layers of Aspect in syntax. Mandarin is not the only case which requires a more articulated structure for Aspect. Clarke (2009) notices that some languages utilize overt verbal morphology to mark eventuality. For instance, in Inuktitut, the inceptive morpheme *-liq* and the habitual morpheme *-gak* only appear with non-stative verbs.

- (53) a. *pisu-liq-tuq*
 walk-liq-PART.3S
 ‘He/She is going for a walk.’
 b. **arna-u-li-junga.*
 woman-be-liq-PART.1S
 Intended, ‘I’m starting to be a woman.’

(Clarke 2009: 311)

- (54) a. *tilli-ga-juk*
 steal-gak-PART.3S
 ‘He always steals; he keeps stealing.’

(Smith 1978:30 in Clarke 2009: 311)

- b. **anna-u-ga-juk*
 woman-be-gak-PART.3S
 ‘She is always a woman.’

(Clarke 2009: 311)

(53) shows that the morpheme *-liq* can co-occur with the activity verb *pisu-* ‘walk’, but not with the copular verb *-u-*. The morpheme *-gak* behaves the same way. In (54), *-gak* cannot appear with the stative predicate *-u-*, but it can with the activity verb *tilli* ‘to steal’.

In view of the contrasts between Inuktitut and English, she proposes that while English verbs are underspecified for eventiveness at the VP level, and are fully specified only at the IP level, Inuktitut eventiveness is determined within the VP.³¹

Similarly, in Malagasy, as reported in Travis (2010: 308), there are two morphemes which bear the telicity information: *aha-* carries the feature [+telic] and *an-/i-*, the feature [-telic], and pairs can be created by alternating between these two forms, for example, *m-i-tsapa/m-aha-tsapa* ‘to inspect/to notice’. Travis takes this as evidence that the information of telicity is encoded vP-internally in Malagasy.

In sum, while Inuktitut and Malagasy employ overt verbal morphology to mark the telicity of the predicate, the manifestation of eventuality in Mandarin Chinese can be shown by the co-occurrence restrictions observed in the temporal adverbial constructions with different event types of predicates. Evidence from these three languages has shed some light on the research on Aspect, as the findings suggest that lexical aspect is not just an ontological notion or taxonomy, but a linguistic signal that is manifested in human languages.

³¹ The proposals on the syntactic nature of Inuit words can also be found in Compton and Pittman (2010) in which Inuit words are claimed to be syntactic phases, and the order of morphemes within a word is correspondent to the hierarchy in the syntactic structure.

Chapter 3

Inner Modality

3.0. Introduction

In Chapter 2, we have seen the existence of the low Aspect in the vP domain, and how the high and low Aspect phrases work together via Agree to derive the interpretation of completeness. In the following two chapters, I will argue that modal elements and focus expressions can also be projected inside the vP domain, and an Agree relation must be established between the high and low functional projections to fulfill the requirement of Full Interpretation (Chomsky 1986, 1995, 2000). Furthermore, the presence of those “low” functional elements strengthens one of the main claims in this thesis that in addition to A projections, A’ functional projections can merge low at the vP periphery.

In this chapter, I will present two pieces of evidence from Mandarin Chinese to support the Inner Modality proposal. These two case studies concern constructions that involve occurrences of modal elements vP-internally: the excessive *tā* construction, which contains a pronoun that seems to lack referentiality, yet expresses a meaning of excessiveness, and the *dě/bù* construction, in which a modal is able to appear inside a resultative verbal compound. To account for the appearance of the low modal elements in Mandarin Chinese, I propose that there is a vP-internal functional projection that hosts these grammatical constituents; these marked forms must be licensed by a corresponding functional element in the domain of C/TP, and an Agree relation is established between the two syntactic objects. I begin with the excessive *tā* construction in Section 3.1, followed by a short discussion of a related issue regarding the classifier *ge* in some excessive *tā* sentences, which has been suggested to contribute modality to the sentence. I claim that the excessive pronoun *tā* must be licensed by a modal, and the meaning of excessiveness can be derived compositionally from the structure. Section 3.3 focuses on the *dě/bù* construction and its close relative in South Min (Taiwanese), and concludes that

the occurrences of the low modal elements cross languages necessitates functional projections within the vP periphery.

3.1 Excessive *tā* construction: Grammatical properties of the non-referential pronoun *tā*

In this section, I examine the grammatical properties of the non-referential pronoun *tā*. I begin with the semantics of the *tā* sentences, followed by a discussion of distributional facts with respect to mood and modality.

3.1.1. Semantic properties and the function of *tā*

3.1.1.1. Excessive *tā*

As mentioned in the Introduction, Mandarin Chinese exhibits a construction in which a pronoun *tā*, related to modality but lacking referentiality, surfaces low in the structure. A sentence with non-referential *tā* is provided below:

- (1) *hē tā ge bú-zuǐ-bù-guē!*
 drink it CL not-drunk-not-return
 ‘Let’s drink such that we won’t go home until we are drunk!’

In (1), the 3rd person singular person *tā* appears post-verbally, and is followed by the classifier *ge* and the adverbial complement *bú-zuǐ-bù-guē* ‘not-drunk-not-return’. It has been noticed that the absence of *tā* does not affect the grammaticality of the sentence, although the “lively” flavour disappears with the absence of *tā*. Recently, more work has been done on what exactly the meaning of “liveliness” is, and also what function the non-referential pronoun *tā* plays in the sentence. From a discourse point of view, F.-C. Wu (2003) considers non-referential *tā* to be a metalinguistic expression in the sense that the

speaker tries to claim a role of a third person remote from his/her normal state of self. Yeh (2006) follows up F.-C. Wu's view and suggests that the detachment created by the use of *tā* mentioned above may be triggered by the "extreme" situation described by the sentence, for instance, *bú-zuì-bù-guē* 'not go home until drunk' in (1), which in turn explains why the complement of *tā* is typically associated with quantity that is excessive. Based on this line of reasoning, Biq (2004) and Yeh (2006) further claim that the utterance containing *tā* expresses excessive quantities and the sense of 'above an implicit norm' is implied in the construction (Yeh 2006: 92).

To show that *tā* sentences possess the meaning of excessiveness, Yeh (2006) utilizes two evaluative verbs, *cái* and *jiù*. These two evaluative adverbs are both translated as 'only', but they differ from each other in that while the adverb *jiù* implies that the preceding action requires little effort, *cái*, on the other hand, implies the preceding action is perceived as necessary and is associated with a more demanding situation (Shu 2007). If *tā* sentences denote excessiveness, we would expect *cái* but not *jiù* to co-occur with *tā*. This prediction is borne out as shown in (2).

- (2) a. zài hē tā liǎng-bēi píjiǔ hǎo le!
 again drink it two-glass beer good PAR
 'Drinking two more glasses of beer is good= please drink two more glasses of beer!'
- b. *zài hē tā liǎng-bēi píjiǔ jiù hǎo le!
 again drink it two-glass beer only good PAR
 'Drinking two more glasses of beer is good enough!'
- c. zhè shū yào mǎi tā yī-bǎi-běn *jiù/cái gòu.
 this book want buy it one-hundred-CL only enough
 '(We) have to have one hundred copies of this book. (Only by doing so, it'll then be enough.)'¹

¹ Yeh (2006) compares the excessive *tā* construction with the diminutive V *ge* N construction. To distinguish these two meanings, Yeh shows that *cái* is compatible with the excessive *tā* sentence as

While (2a) and (2b) clearly show that the adverb *jiù* cannot co-occur with the excessive pronoun *tā*, the contrast in (2c) can be explained if we assume that *cái* requires a more demanding situation described in the antecedent clause, and is thus compatible with the excessive reading contributed by *tā*, whereas *jiù* is associated with a less-demanding interpretation and thus is strongly dis-preferred in the *tā* sentence.

A second way to show that the non-referential pronoun *tā* contributes to the excessive reading is that the omission of *tā* would result in the absence of the excessiveness:

- (3) a. hē tā (ge) liǎng-bēi píjiǔ ba!
 drink it CL two-glass beer PAR
 ‘Let’s drink two glasses of beer!’ (excessive)
- b. hē ge liǎng-bēi píjiǔ ba!
 drink CL two-glass beer PAR
 ‘(Just) drink two glasses of beer.’ (diminutive)
- c. hē liǎng-bēi píjiǔ ba!
 drink two-glass beer PAR
 ‘Drink two glasses of beer!’ (regular imperative)

(3a) expresses excessiveness with the non-referential pronoun *tā*; when *tā* is missing from the sentence, as shown in (3b), the sentence receives a diminutive reading, in which the request of drinking two glasses of beer is perceived as less urgent and imperative.

exemplified in (2), whereas *jiù* which is associated with a “less-demanding” interpretation can appear in the diminutive V *ge* N construction.

- (i) wǒ hē ge chá jiù/*cái hǎo le.
 I drink GE tea only fine PRF
 ‘I’ll just drink tea. (It’s) fine (with me).’

The issue of the diminutive construction and its relation to the excessive *tā* will be addressed in Section 3.1.2.

Contrastively, (3c) is a regular imperative without the extra “excessiveness” or “diminutiveness” flavour added to the semantics of the sentence. We will investigate the issue of the classifier *ge* and its grammatical properties and its correlation to the non-referential pronoun *tā* in Section 3.2.

3.1.1.2. Licensing the excessive *tā*

A property that has gone unnoticed in the literature is that the appearance of the excessive *tā* is restricted to the context of imperative and root modals (deontic and dynamic), such as *kěyǐ* ‘can’, *xiǎng(yào)* ‘want’, and *yīnggāi* ‘should’. The point is demonstrated by the following sentences.²

- (4) a. *wǒ mǎi tā jǐ-bǎi-běn shū gùo.
 I buy it several-hundred-CL book EXP
 ‘I bought several hundreds of books.’
- b. mǎi tā jǐ-bǎi-běn shū ba!
 buy it several-hundred-CL book PAR
 ‘Let’s buy several hundreds of books!’
- c. wǒ xiǎng/yīnggāi/kěyǐ mǎi tā jǐ-bǎi-běn shū.
 I want/should/can buy it several-hundred-CL book
 ‘I want to/should/can buy several hundreds of books.’
- d. ??Zhāngsān kěnéng/yěxǔ mǎi tā jǐ-bǎi-běn shū.
 Zhāngsān possibly/maybe buy it several-hundred-CL book
 Intended, ‘Zhangsan possibly bought/maybe buy several hundreds of books.’

tā is not allowed in an indicative declarative sentence like (4a), and to render this sentence acceptable, an imperative mood indicated by the sentential particle *ba* in (4b) or

² The existence of a modal/imperative mood in the excessive *tā* construction echoes the long observed semantic characteristic that the excessive construction typically appears in irrealis contexts (Kojima 2006).

a root modal such as those in (4c) is required. The examples in (4d) show that epistemic modals can't be the licenser for excessive *tā*.

The need for a root modal to license excessive *tā* can be further emphasized with the following example. It is often claimed that the excessive *tā* does not appear in an interrogative context (Iljic 1987); however, this restriction can be lifted if a root modal is added to the sentence.

- (5) a. **nǐ mǎi tā jǐ-bǎi-běn shū ma?*
 you buy it several-hundred-CL book Q
 Intended, 'Do you buy several hundreds of books?'
 b. *nǐ xiǎng mǎi tā jǐ-bǎi-běn shū ma?*
 you want buy it several-hundred-CL book Q
 'Do you want to buy several hundreds of books?'

Both (5a) and (5b) are yes-no questions marked with the question particle *ma*, and the contrast between the grammaticality of these two sentences indicates that the excessive *tā* can appear in an interrogative sentence with the help of the modal.

In her work on imperatives, Han (1999) argues that the imperative mood has the semantics of deontic modality. This claim is made based on the observation that imperative sentences and deontic modal sentences both contribute as an essential part of their meanings that an obligation or a permission is issued by the speaker; these two construals only differ in that the existence of an obligation or a permission is part of the assertion for deontic modal sentences, but it is part of the presupposition that cannot be contradicted or canceled for imperatives (Han 1999: 479). Adopting Han's proposal, I suggest that the crucial element to license the presence of the excessive *tā* is the root modal and the relation between *tā* and the imperative mood is mediated by the deontic modal contained in the imperative sentence, and thus is indirect.

To sum up, in this section, I probed into the semantics of the non-referential *tā*, and showed that first of all, non-referential *tā* carries the meaning of excessiveness, and second, this marked construction is only possible with a root modal. In the next section, I

shift the focus to the syntactic properties of excessive *tā*, so as to gain a full understanding of the construction in question.

3.1.2. Syntactic properties of *tā*

3.1.2.1. What can follow *tā*?

The most salient and most discussed grammatical feature of the excessive *tā* construction is that *tā* must take a quantity-denoting nominal complement. The sentences in (6a, b) illustrate the fact that the object following *tā* must be quantity-denoting, and hence it cannot be bare, nor can it be definite. The object can be headed by words like *jǐ* ‘several, a few’ and numerals such as *liǎng* ‘two’. An interesting phenomenon is that while the quantifier *jǐ* ‘several, a few’ can appear in an excessive *tā* sentence, other quantifiers such as *měi* ‘every’, *sūoyǒude* ‘all’, *dàbùfēn* ‘most’ and *hěndōu* ‘many’ cannot co-occur with *tā*. This is shown in (6c).

- (6) a. *hē tā (ge) jǐ/liǎng/*nà -bēi píjiǔ ba!*
 drink it CL several/two/*that -glass beer PAR
 ‘Let’s drink several/two/that glass of beer!’
- b. **hē tā píjiǔ ba!*
 drink it beer PAR
 ‘Let’s drink beer!’
- c. **dú tā měi-běn /sūoyǒude/dàbùfēnde/hěnduo xiǎoshūo ba!*
 read it every-CL/all/most/ many novel PAR
 ‘Let’s read every/most/all/many the novels!’

(J.-W. Lin and Zhang 2006: 804)

Moreover, the nominal that follows *tā* need not be an argument of the verb. Oblique constituents are allowed with *tā*, such as temporal expressions (*liǎng tiān* ‘two days’),

frequentative phrases (*liǎng cì* ‘twice’), and nominalized resultative complements (*ge tònkkuài* ‘CL thorough.satisfaction’). (7) involves a frequency expression *liǎng cì* ‘twice’, and (8) a resultative phrase *tòngkuài* ‘heartily’, which is nominalized by the preceding general classifier *ge*.³

- (7) chī tā liǎng cì kǎo-yā
 eat it two times roasted-duck
 ‘Let’s eat roasted duck twice!’

(J.-W. Lin and Zhang 2006: 802)

- (8) jīnwǎn wán tā ge tòngkuài ba!
 tonight play it CL heartily PAR
 ‘Let’s play heartily’

Lastly, it has been observed that *tā* cannot appear in a ditransitive construction, as shown in (9); this restriction has led Zhu (1982) and Ma (1983) to treat the excessive *tā* constructions on par with ditransitive constructions.

- (9) a. shúshú yào sòng (*tā) wǒ yī-zhī shǒubiǎo.
 Uncle want give it I one-CL watch
 b. shúshú yào sòng wǒ (*tā) yī-zhī shǒubiǎo.
 Uncle want give I it one-CL watch
 Both ‘The uncle wants to give me a watch.’

Instead of attributing the ungrammaticality of (9) to *tā* being an “extra” thus unlicensed argument in the ditransitive sentence, J.-W. Lin and Zhang (2006) propose that the unacceptability of *tā* in (9) can be explained as follows. In (9a), *tā* is not followed by a quantity-denoting nominal, and in (9b) *tā* is not adjacent to the verb. However, while

³ Please see Wu (2002) and Section 3.1.2 for the nominalizer analysis of the general classifier *ge*.

their explanation is sufficient to account for the ungrammaticality in (9), it does not tell us much about the contrast between (10a) and (10b):

- (10) a. wǒ yào sòng (*tā) sān-ge hái-zǐ sān-běn shū.
 I want give it three-CL child three-CL book
 ‘I want to give three children (a quantity of) three books.’
 b. wǒ yào sòng tā sān-běn shū ??(gěi sān-ge hái-zǐ).
 I want give it three-CL book to three-CL child
 ‘I want to give three books (to three children).’

(10a) shows again that the non-referential *tā* cannot appear in a ditransitive sentence, even though the adjacency problem that could potentially cause unacceptability is removed. On the contrary, in a prepositional dative construction like (10b), it is possible to have the non-referential *tā* in the sentence, although it is best without the presence of the indirect object.

However, if we accept the analysis of *tā* as an argument of the verb as proposed in Zhu (1982) and Ma (1983), we will be forced to conclude that the transitive verbs in the excessive *tā* sentences are in fact ditransitive. Moreover, this analysis also predicts that intransitive verbs shouldn’t co-occur with *tā*, and it should be possible to question excessive *tā*, contrary to the facts demonstrated below:

- (11) pǎo/kū tā ge tòngquài ba!
 run/cry it CL heartily PAR
 ‘Run/Cry heartily!’

- (12) *nǐ xiǎng mǎi shēi/shéme ge jǐ-bǎi-běn shū?
 you want buy who/what CL several-hundred-CL book
 ‘Who/What do you want to buy several hundreds of books for?’

(11) involves two unergative verbs, *pǎo* ‘run’ and *kū* ‘cry’, and the acceptability of (11) strongly suggests that excessive *tā* can’t be analyzed as the argument of the verb. (12) shows that excessive *tā* cannot be replaced by the question words *shēi* ‘who’ and *shéme* ‘what’, and this again doesn’t support the argument analysis of *tā*. As will be argued in Section 3.1.3, the contrast we have seen in (10) is better understood as an incompatibility problem between *tā* and an indirect object.

3.1.2.2. What must precede *tā*?

Let us now turn to the element that precedes non-referential *tā*. As we saw briefly in the last section, *tā* obligatorily follows a verb, and what I will show below is that the verb can be transitive or intransitive, and either eventive or stative. In (13), the non-referential *tā* cannot occur in a preverbal position, such as the position before the predicate *jìng-yí-jìng* ‘be alone’. (14a,b) illustrate that *hē* ‘drink’ (transitive and eventive) and *shuì* ‘sleep’ (intransitive and eventive) are permitted in the excessive *tā* construction. (14c) is particularly interesting since it indicates that the subject of the *tā* sentence does not have to be animate or agentive (contra Yeh 2006).

- (13) wǒ xiǎng yí-ge rén (*tā) jìng-yí-jìng.
 I want one-CL person it be.quiet-one-be.quiet
 ‘I want to be alone for a while.’

- (14) a. hǎohǎo hē tā yì-bēi ba!
 to.one’s.satisfaction drink it one-glass PAR
 ‘Let’s drink a glass to our satisfaction!’
 b. shuì tā sān tiān sān yè ba!
 sleep it three day three night PAR
 ‘Let’s sleep for three days and three nights!’

- c. zhè-zhāng yǐzi kěyǐ zuò tā wǔ-ge rén.
 this-CL chair can sit it five-CL person
 ‘This chair can seat five people.’

Many linguists have noticed that not only does the excessive *tā* have to follow a verb, but it also has to be adjacent to the verb without any intervening constituent, including aspect particles *le*, *zhe*, and *gùo* in (15).

- (15) *Zhāngsān hē-le/gùo/zhe tā yī-bēi jiǔ.
 Zhangsan drink-PRF/EXP/PROG it one-glass wine
 ‘Zhangsan drank/has an experience of drinking/is drinking one glass of wine.’

Based on the distribution shown above, J.-W. Lin and Zhang (2006) conclude that *tā* is an enclitic and must be cliticized onto the preceding verb without any intervening morpheme. However, as we see in (16), it is unexpected under the clitic account that the aspect marker *zài*, which doesn’t block the cliticization of pronominal *tā*, is also incompatible with the excessive *tā*.

- (16) tā zài chī (*tā) liǎng ge hànǎo.
 He PROG eat it two CL burger
 ‘He is eating two burgers.’

I propose that the prohibition of the co-occurrence of *tā* with the aspect markers *le/gùo/zhe/zài* is better understood as a constraint on the co-occurrence of a modal with those aspectual markers. It is well-known that in English, modals take a bare infinitive complement (He must *took/take a pen from you.), and in Mandarin, the complement of a modal cannot carry an aspectual marker as well. For example, the modal *yào* ‘want’ in (17a,b), which licenses the excessive *tā*, does not appear with *le/gùo/zhe/zài*. On the other hand, in (18a), the sentence-final inchoative marker *le*, which scopes over the modal, is

licit with the modal *yào*.⁴ It is, therefore, to be expected that the sentence-final inchoative marker *le* is accepted in an excessive sentence, as shown in (18b).

- (17) a. Wǒ yào hē-*le/*gùo/*zhe yī-bēi jiǔ.
 I want drink-PRF/EXP/PROG one-glass wine
 b. Wǒ yào (*zài) hē yī-bēi jiǔ.
 I want PROG drink one-glass wine
 ‘I want to drink one glass of wine.’

- (18) a. Wǒ yào hē yī-bēi jiǔ le.
 I want drink one-glass wine INCH
 ‘I wanted to drink one glass of wine now.’
 b. Wǒ yào hē tā yī-bēi jiǔ le.
 I want drink it one-glass wine INCH
 ‘I wanted to drink one glass of wine now.’

3.1.2.3. Locality in *tā*-licensing

As mentioned in Section 3.1.1, excessive *tā* is licensed by a modal in the sentence. Importantly, *tā* licensing requires to be local, i.e., it cannot be across a clause boundary, or an island boundary:

- (19) a. John xiǎng mǎi tā jǐ-bǎi-běn shū.
 John want buy it several-hundred-CL book
 ‘John wants to buy several hundreds of books.’

⁴ The issues are still unsettled as to whether sentence-final *le* (sentential *le*) and verbal *le* are the same and where in the structure they are represented; however, there is some consensus on that sentence-final *le* has a wider scope than verbal *le*, as it expresses the meaning of ‘change of state’, and serves as a discourse-final particle, marking the end of a discourse unit (Chao 1968).

- b. John xiǎng zhīdào tā mǎi (*tā) jǐ-bǎi-běn shū le ma.
 John want know he buy it several-hundred-CL book PRF Q
 ‘John wants to know if he bought several hundreds of books.’

In (19a), the modal *xiǎng* ‘want’ and the pronoun *tā* are located in the same clause, and licensing holds between these two elements. However, when the modal is separated from excessive *tā* by the boundary of a finite clause, *tā*-licensing is blocked and the result is ungrammatical, as shown in (19b). (20) below shows again that licensing between a modal and *tā* must respect locality:

- (20) a. wǒ rènshǐ [xiǎng hē tā liǎng-bēi de] rén.
 I know want drink it two-glass DE person
 ‘I knew the person who wants to drink two glasses (of wine).’
 b. * wǒ xiǎng rènshǐ [hē tā liǎng-bēi de] rén.
 I want know drink it two--glass DE person
 Intended, ‘I want to meet the people who drank two glasses (of wine).’

(20a) is acceptable since the modal *xiǎng* ‘want’ and the non-referential pronoun *tā* are both in the relative clause, an island for extraction; however, licensing is blocked when the modal is outside the island that contains the pronoun *tā*, as (20b) shows. Note that as claimed by J.-W. Lin and Tang (1995), the modal *xiǎng* takes an infinitive clause as its complement. It is therefore not the clause boundary that causes the problem in (20b); instead, the ungrammaticality of (20b) is attributed to the violation of an island condition. In sum, the relation between *tā* and its licensor observes locality constraints.

In the next section, I show that the syntactic operation Agree is responsible for the establishment of the relation between *tā* and the modal. The following table summarizes the grammatical properties of excessive *tā* that were introduced in Section 3.1.2.1- 3.1.2.3.

(21) Table 3.1.2.3. Semantic and syntactic properties of the non-referential *tā*

Semantic properties	Syntactic properties
■ <i>tā</i> expresses excessiveness	■ <i>tā</i> must take a quantity-denoting nominal complement
■ <i>tā</i> must be licensed by a modal	■ <i>tā</i> must be adjacent to its complement
■ the subject can be inanimate, non-agentive	■ <i>tā</i> must be adjacent to the preceding verb
	■ <i>tā</i> cannot appear in double object constructions
	■ <i>tā</i> and its licenser must obey locality

3.1.3. An Agreement approach

I start this section by answering the questions in (22) one by one, and the explanations provided for each question will capture the properties of the excessive *tā* construction listed in Table 3.1.

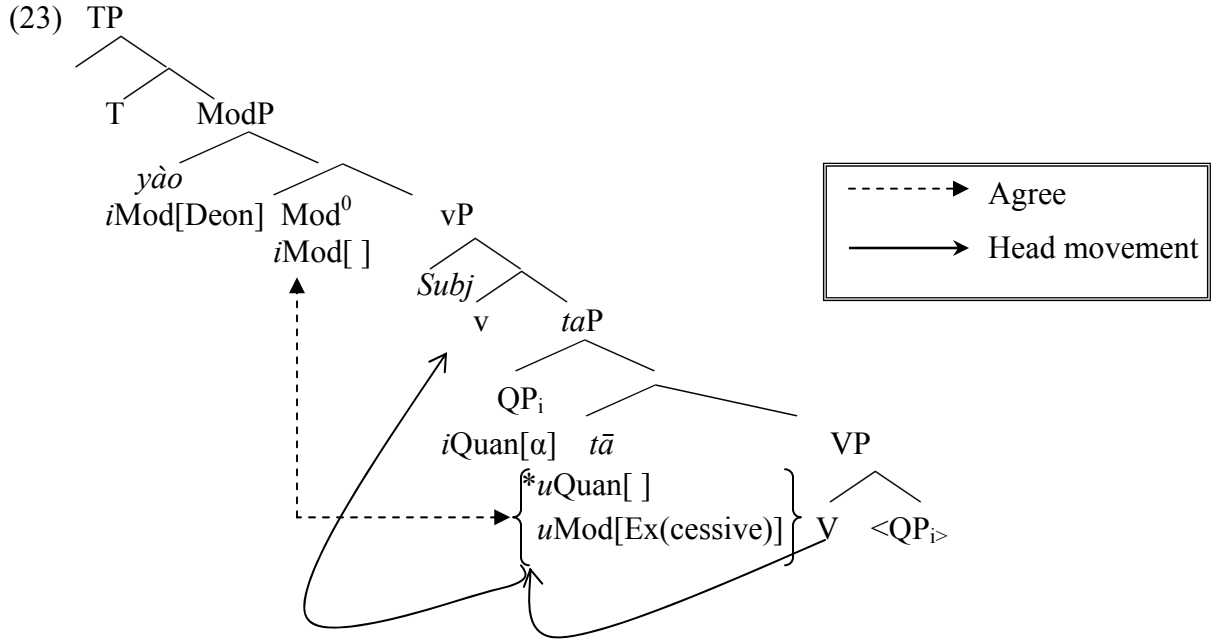
(22) Questions:

- a. Why must excessive *tā* be licensed by a modal?
- b. Why must *tā* be immediately followed by a quantity-denoting nominal?
- c. Why can objects headed by certain quantifiers and demonstratives not co-occur with *tā*?
- d. Why is *tā* barred from double object constructions?

Following Cinque (1999), Butler (2003), Tsai and Portner (2008), I assume that root modals are generated between TP and vP.⁵ This modal projection is headed by Mod^0 with an interpretable yet unvalued feature, which probes another instance of modal feature with which to agree in its c-command domain. In the *tā* excessive construction, Mod^0 establishes an Agree relation with *tā*, which heads a functional projection inside the vP

⁵ The syntactic positions of epistemic and root modals will be discussed in detail in Section 3.3.

domain. The licensing relation held between the modal and the excessive *tā* can be best characterized by syntactic agreement between these two elements; this agreement occurs to establish a formal relation between the modal and the excessive *tā* (Miyagawa 2009). The functional relation in the excessive *tā* construction can be represented in the following tree diagram (irrelevant details are ignored):



Let's start from the top of the tree representation in (23). First, the interpretable and unvalued modality feature of Mod^0 is valued by the modal feature on *tā*, as stated above. A deontic modal is merged at the specifier of Mod^0 , and values Mod^0 if it can't otherwise find a matching goal in its c-command domain.⁶ Second, I assume that *tā* possesses some uninterpretable features, $*u\text{Quan}$ and $u\text{Mod}$; the former attracts a quantity-denoting phrase to its specifier, while the latter is checked by agreeing with an interpretable modal

⁶ The syntactic status of Chinese modals is still in much debate. While J.-W. Lin and Tang (1995) argue for a 'modals as verbs' approach, Tsai (2009) and X. -Y. Huang (2009) adopt the universal hierarchy proposed by Cinque (1999), and claim that there is an adverb-auxiliary distinction among Chinese modal elements, which form spec-head pairs in a Cinquian style. Since both root modal adverbs (*yīnggāi* 'should', *kěiyǐ* 'can'), and root modal auxiliaries (*yào* 'want', *néng* 'can') can license excessive *tā*, I assume that they are operators and are base-generated at [SPEC, Mod].

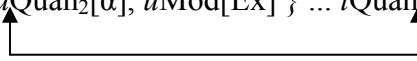
feature. As will be discussed in details below, the excessive $t\bar{a}$ takes the quantity-denoting expression as its specifier, and this configuration derives the meaning of excessiveness. Lastly, head movement takes place in a snow ball fashion from V to $t\bar{a}$ to v, and thus the order V $t\bar{a}$ QP is derived.⁷ The following notations demonstrate how the features are valued in (23) (irrelevant features are omitted):

(24) a. Merge taP with VP:

$\{ *u\text{Quan}[\] , u\text{Mod}[\text{Ex}] \} \dots i\text{Quan}[\alpha]$

b. Agree applies:

$\{ *u\text{Quan}_2[\alpha] , u\text{Mod}[\text{Ex}] \} \dots i\text{Quan}_2[\alpha] \dots$



c. Re-Merge QP with taP :

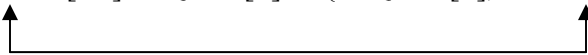
$i\text{Quan}[\alpha] \dots \{ *u\text{Quan}_2[\alpha] , u\text{Mod}[\text{Ex}] \}$

d. Merge Mod^0 with vP:

$i\text{Mod}[\] \dots i\text{Quan}_2[\alpha] \dots \{ *u\text{Quan}_2[\alpha] , u\text{Mod}[\text{Ex}] \}$

e. Agree applies:

$i\text{Mod}_3[\text{Ex}] \dots i\text{Quan}_2[\alpha] \dots \{ *u\text{Quan}_2[\alpha] , u\text{Mod}_3[\text{Ex}] \}$



f. Merge deontic modal with Mod' :

$i\text{Mod}[\text{Deon}] \dots i\text{Mod}_3[\text{Ex}] \dots i\text{Quan}_2[\alpha] \dots \{ *u\text{Quan}_2[\alpha] , u\text{Mod}_3[\text{Ex}] \}$

As mentioned above, excessive $t\bar{a}$ is assumed to possess some uninterpretable features, $*u\text{Quan}$ and $u\text{Mod}$; as shown in (24a-b), when $t\bar{a}$ merges with VP, $*u\text{Quan}$ on $t\bar{a}$ probes the matching feature on the object and attracts it to $[\text{SPEC}, taP]$. As the computation proceeds to the point when Mod^0 is merged with vP in (24e), Agree applies to the two modal features on Mod^0 and $t\bar{a}$, and values the modal feature on Mod^0 , which further

⁷ J.-W. Lin and Zhang (2006) among others suggest that $t\bar{a}$ is phonologically deficient, and it might undergo affixation to the preceding verb. Shu (2007) also analyzes $t\bar{a}$ as a verbal clitic which forms a constituent with the verb.

takes a deontic modal expression at its specifier. The interpretation of excessiveness is thus achieved by the agreement between Mod^0 and $t\bar{a}$.

One of the merits of this agreement approach is that the locality conditions on $t\bar{a}$ licensing observed in Section 3.1.2 fall out naturally if there is agreement between the modal and $t\bar{a}$ in the excessive $t\bar{a}$ construction; relevant examples are repeated below:

- (25) a. John xiǎng mǎi tā jǐ-bǎi-běn shū.
 John want buy it several-hundred-CL book
 ‘John wants to buy several hundreds of books.’
 b. John xiǎng zhīdào tā mǎi (*tā) jǐ-bǎi-běn shū le ma.
 John want know he buy it several-hundred-CL book PRF Q
 ‘John wants to know if he bought several hundreds of books.’
- (26) a. wǒ rènshǐ [xiǎng hē tā liǎng-bēi de] rén.
 I know want drink it two-glass DE person
 ‘I knew the person who wants to drink two glasses (of wine).’
 b. * wǒ xiǎng rènshǐ [hē tā liǎng-bēi de] rén.
 I want know drink it two--glass DE person
 Intended, ‘I want to meet the people who drank two glasses (of wine).’

(25) and (26) demonstrate a locality violation. In the (a) examples, the agreement relation is able to maintain between the modal *xiǎng* ‘want’ and $t\bar{a}$, since they are both in the same clause, whereas, in the (b) examples, the agreement between these two constituents cannot be established by crossing either the finite clause boundary or the *wh*-island created by the relative clause. The contrasts shown in (25) and (26) follow naturally if $t\bar{a}$ -licensing is understood as syntactic agreement in terms of Agree, which obeys the same syntactic conditions as $t\bar{a}$ licensing (Chomsky 2000, Rackowski and Richards 2005).

To answer the second question of why $t\bar{a}$ must be immediately followed by a quantity-denoting nominal, we need to first understand the semantic role $t\bar{a}$ plays in the

structure. Yeh (2006) argues that the constructional meaning of the excessive *tā* construction is postulated as ‘above an implicit norm’. Rather than pursuing a construction-based analysis, I claim that the meaning of the excessive *tā* construction can be derived in a compositional way. I propose that the non-referential *tā* establishes a comparison between the degree denoted by the QP in its specifier and the contextual standard/norm. This treatment assimilates the excessive *tā* with the null positive morpheme assumed in sentences like ‘Sally is tall’ (Kennedy 1999).

- (27) a. Sally is tall.
 b. $[[\text{tall}]] = \lambda d \lambda x. \text{tall}(x) \geq d$
 c. $[[g_{<d, \text{et}}(x)(d)]] = 1$ iff $\delta_g(x) \geq d$

In a standard analysis of (27a), the gradable predicate *tall*, which takes a degree *d* and an individual *x* as its arguments, denotes a function of type $\langle d, \text{et} \rangle$. However, because of the unsaturated degree argument, a gradable predicate cannot combine directly with an individual-denoting expression. As a consequence, a gradable predicate is argued to combine with a null positive morpheme, which may be overtly realized by a *for*-phrase (*Sally is tall for a third grader*), and results in a function of a type that allows it to combine with an individual (Kennedy and McNally 2005). The denotation of the null positive (POS) is given below:

- (28) a. $[[\text{POS}]] = \lambda G \lambda x. \exists d [\text{standard}(d)(G)(C) \wedge G(d)(x)]$
 b. $[[\text{POS}]][[\text{tall}]] = \lambda x. \exists d [\text{standard}(d)([[\text{tall}]])(C) \wedge \text{tall}(x) \geq d]$
 c. = ‘True if and only if there is some degree *d* that counts as **tall** in context **C**, and *x* is at least *d*-tall.’

(28a) expresses that the function of the null positive morpheme is to restrict the degree argument *d* to values no less than a contextual standard of comparison. (28c) shows that after *tall* combines with the null positive morpheme in (28b), the computation takes in an individual *x* and returns the value TRUE if and only if there is some degree *d* that counts as “positive” in the discourse context *C* and *x* is at least *d*-tall (Kennedy and McNally 2005).

I suggest that the excessive *tā* performs the same semantic function as the null positive morpheme in the sense that an implied context-sensitive degree *d* is compared with/related to a degree denoted by the quantity-denoting phrase by a partial ordering relation \geq ; a *tā* sentence is true if and only if the degree *d* denoted by the quantity-denoting phrase no less than the quantity implied in the context *C*, and thus the meaning of excessiveness is derived.⁸

So far I have answered the first two questions listed in the beginning of the section, that is, the licensing conditions on *tā* and the obligatoriness of the presence of the quantity-denoting complement.

Recall that the excessive *tā* doesn't take objects headed by the quantifier *měi* 'every', *sūoyǒude* 'all', *dàbùfēn* 'most' and *hěndōu* 'many', but *jǐ* 'several'. J.-W. Lin (1994) notices that the quantifiers that can appear with the non-referential *tā* are those that can be preceded by demonstratives. In (29a), *jǐ* 'several, a few' is licit with the demonstrative *zhè* 'this/these', whereas it is not possible to have *měi* 'every', *sūoyǒude* 'all', *dàbùfēn* 'most' and *hěndōu* 'many' in the same context, as shown in (29b).

- (29) a. *zhè* *jǐ-běn* *shū*
 these several-CL book
 'these several books'

⁸ The "no less" relation in *tā* sentences can be seen in the following context: John is a drinker, and he drinks one glass of wine every day. Today, he got a promotion and decides to celebrate it with his friends tonight. In the context constructed above, it is appropriate for John to utter (i), but not (ii).

- (i) *jīnwǎn* *ràng* *wǒmén* *hē* *tā* *ge* *yī-bēi* *ba!*
 tonight let us drink it CL one-glass PAR
 'Let's drink a glass of wine tonight!'
- (i) *jīnwǎn* *ràng* *wǒmén* *hē* *tā* *ge* *bàn-bēi* *ba!*
 tonight let us drink it CL half-glass PAR
 'Let's drink half a glass of wine tonight!'

- b. *zhè měi/sǒuyǒu/dàbùfēn/hěnduō-běn shū
 these every/all/most/many-CL book
 ‘these *every/*all/*most/many books’

On the basis of the data above, J.-W. Lin and Zhang (2006) claim that the quantifiers which do not occur with demonstratives are themselves D-elements. Therefore, the issue of why the excessive *tā* is incompatible with certain quantifiers and demonstratives now can be revised to the question of why *tā* cannot take DP as its argument. I propose that the co-occurrence restriction on the excessive *tā* with D-elements should be re-interpreted as a co-occurrence restriction between the D-elements and the classifier *ge*, which seems to optionally appear in the excessive *tā* construction. In the next section, I will show that the classifier *ge*, as an indefinite determiner, occupies a D position, and thus excludes other D-like quantifiers and demonstratives in the excessive *tā* construction.

Now I turn to the last question: why is *tā* barred from double object constructions? The relevant example is repeated below:

- (30) wǒ yào sòng (*tā) [_{IDO} sān-ge hái-zǐ] [_{DO} sān-běn shū].
 I want give it three-CL child three-CL book
 ‘I want to give three children (a quantity of) three books.’

In Section 3.1.2, I have argued that the argument analysis of *tā* cannot be correct, and the example below further shows that it is possible to have excessive *tā* in a prepositional dative sentence without an indirect object:

- (31) wǒ yào sòng tā (ge)[_{DO} sān-běn shū] ?([_{IDO} gěi sān-ge hái-zǐ]).
 I want give it CL three-CL book to three-CL child
 ‘I want to give three books (to three children).’

As (31) indicates, *tā* can appear in a prepositional dative sentence when the indirect object is absent (*gěi sān-ge hái-zi* ‘to three children’). Based on the fact in (31), I suggest that the prohibition of excessive *tā* in double object constructions is due to incompatibility between excessive *tā* and the indirect object, which may be linked to the ditransitive usage of excessive *tā* at an earlier stage. The incompatibility between an ethical dative pronoun and an indirect object is also observed in English personal datives (PDs):

(32) He_i needs him_i a little more sense.

(Horn 2008: 172)

(32) illustrates an English PD sentence, in which “an optional occurrence of a non-subcategorized personal datives pronominal in transitive clauses which obligatorily coindexes the subject” (Horn 2008: 169). Some of the grammatical properties of English PDs which Horn (2008) gives are listed in (33):

(33) Some of Horn’s (2008: 172-173) characteristics of English PDs:

- a. PD constructions always co-occur with a quantified (patient/theme) direct object.
- b. PDs can’t be separated from the verb that precedes them.
- c. PDs are weak pronouns or clitics.
- d. PD pronominals are not objects of their verbs; they are non-arguments.
- e. PDs have no full NP counterpart.
- f. There’s no consistent thematic role for PD nominals, although they sometimes resemble non-subcategorized benefactives; they receive no theta-role, and do not represent true datives/recipients/goals.

As can be seen in (33), English PDs have many properties in common with excessive *tā* in terms of their grammatical behaviours. Rotschy McLachlan and Queller (2010) claim that English personal datives evolved from the ditransitive construction; it “begins as a

recipient/beneficiary reflexive dative pronoun marking the third argument in the construction and is later reanalyzed as an affect-marking ethical dative” (Rotschy McLachlan 2011). It is possible that Mandarin excessive *tā* construction has undergone a similar process of grammaticalization as English PDs, and the ditransitive usage of the excessive *tā* construction at an earlier stage may impose a restriction on the co-occurrence of *tā* and the indirect object, as *tā* was used as an indirect object. As (31) shows, the presence of an indirect object in the excessive *tā* construction is marginally accepted, which suggests that since excessive *tā* has taken on a new structure, and doesn’t bear the recipient role, the restriction on the co-occurrence of *tā* and the indirect object is not as strict. However, more diachronic research on the development of the excessive *tā* constructions and cross-linguistic studies on personal datives/ethical datives needs to be done.

Before I conclude this subsection, I would like to review the grammatical properties of the excessive *tā* construction and see how many are accounted for by our proposal:

(34) Table 3.1.3. Semantic and syntactic properties of the non-referential *tā*

Semantic properties	Syntactic properties
✓ <i>a.</i> <i>tā</i> expresses excessiveness	✓ <i>d.</i> <i>tā</i> must take a quantity-denoting nominal
✓ <i>b.</i> <i>tā</i> must be licensed by a modal	✓ <i>e.</i> <i>tā</i> must be adjacent to its complement
<i>c.</i> the subject can be inanimate, non-agentive	✓ <i>f.</i> <i>tā</i> must be adjacent to the preceding verb
	<i>g.</i> <i>tā</i> cannot be associated with an indirect object
	✓ <i>h.</i> <i>tā</i> and its licensor obeys locality

Properties a, d, and e can be explained if *tā* is a null positive morpheme, which evaluates and compares two degrees in the construction; one is denoted by the quantity-denoting phrase, and the other one is implied in the context. Properties b and h are understood as an Agree relation between *tā* and the modal. Property c states that there is

no semantic requirement on the animacy/agentivity of the subject, and the analysis pursued here does not impose such requirement on the subject either. Property f follows naturally under the Head-movement account in which *tā* forms a constituent with the verb. Property g can be understood if we assume the excessive *tā* constructions evolved out of the ditransitive construction just like their English counterpart, and the restriction on the co-occurrence of *tā* and an indirect object can be accounted for, if *tā* was an indirect object at an earlier stage of grammaticalization.

3.2. Event classifier *ge* revisited

In the last section, we have seen that the non-referential pronoun *tā* expresses the meaning of excessiveness, and the absence of *tā* may lead to the reading of diminutiveness. In this section, we will see later that some *tā*-free sentences denote a “maximum” reading, instead of diminutiveness. It has been suggested that the classifier *ge* which appears before the nominal complement contributes to the two distinct meanings (Biq 2004, T.-H. Lin 2001, Shu 2007), and thus questions arise as to how the classifier *ge* can be associated with both maximality and diminutiveness and how it interacts with the excessive *tā*. In this section, I will review the sentences with the readings of maximality and diminutiveness and examine the grammatical properties of the classifier *ge*. I will show that while certain syntactic configurations derive the two readings in question, pragmatic properties of the sentence could also play an important role in determining which interpretation the *ge* sentence receives. More specifically, I claim that first of all, the classifier *ge*, occupying a D position, forms a constituent with the following quantifier phrase; second, the constituent *ge*+QP acts like a polarity item, whose interpretation, maximality or diminutiveness, relies on the pragmatic setting in the context, a proposal that is in line with Larson’s reply to Shu (2007). The analysis proposed above not only accounts for the ambiguous cases, but also provides a natural answer to the question from the previous section, namely, why can’t the excessive *ta* take a DP as its argument?

3.2.1. Nominal classifier and event classifier *ge*

The function of classifiers is to individuate nouns for the purpose of counting. As (35a) shows, a numeral, such as *liǎng* ‘two’, cannot be used without the presence of *běn*, a classifier which individuates count nouns that denote print matter. The general classifier *ge* serves as a classifier for nouns “whose referents usually do not have great volume and have to be a separable entity in the physical world” (Z. Wu 2002: 164), like *lǐwù* ‘gift’ in (35b).

- (35) a. *liǎng* *(*běn*) *shū*
 two CL book
 ‘two books’
 b. *liǎng* *(*ge*) *lǐwù*
 two CL gift
 ‘two gifts’

It has been reported in the literature that the general classifier *ge* can also function as a “verbal” or “event” classifier that individuates the events denoted by the predicate (Zhang 2002). In this section, I will use the term “event classifier” to refer to *ge*. The distribution of the event classifier *ge* is different from that of the nominal classifier *ge* in that the constituent following the event classifier *ge* can be a full DP with [numeral + classifier] projected, a bare noun whose referent does not agree with *ge*, and expressions that are “usually non-classifiable, such as mass nouns, adverbials, and clausal idioms” (Shu 2007: 2), while nominal classifier *ge* appears between a numeral and a countable noun. In (36), the nominal classifier *ge* occurs between the numeral *liǎng* ‘two’ and the head noun *lǐwù* ‘gift’, and the event classifier *ge* appears between the verb *mǎi* ‘to buy’ and the quantified noun phrase *liǎng ge lǐwù* ‘two gifts’; the sentence conveys a single event of “buying two gifts”.

- (36) wǒ mǎi-le ge [liǎng ge lǐwù].
 I buy-PRF CL two CL gift
 ‘I did a single event of buying two gifts.’

The fact that the event associated with the event classifier *ge* must be bounded can be seen clearly in the following example:

- (37) tā zài dú (*ge) shū
 he PROG read CL book
 ‘He is reading.’

In Chapter 2, we learned that imperfective aspect is not compatible with telic predicates.⁹ (37), which contains a verb with a cognate object, denotes a generic/atelic activity of “reading”, and thus is compatible with the progressive aspect marker *zài*; however, as we can see, the event classifier *ge* cannot appear in such a context.

In addition to the aspectuality property mentioned above, it is noted that the event classifier *ge* also carries the meaning of so-called “under-evaluation” (T.-H. Lin 2001), or “diminutiveness” (Shu 2007), in which the event denoted by the predicate is considered insignificant or not important.

- (38) dǒng ge fǎlǜ yǒu shéme liǎobùqǐ?
 understand CL law have what big.deal
 ‘Is it a big deal to know law?’

(modified from T.-H. Lin 2001)

(38) is a rhetorical question in which the event “knowing law” is considered as “not a big deal” and therefore, not significant or important for the speaker. However, we will show that not every instance of the event classifier *ge* conveys the meaning of under-evaluation or diminutiveness, and in some cases, the sentences receive the interpretation of

⁹ See Footnote 18 in Section 2.2.2.

“unusualness” (Biq 2004) or expresses the “maximum degree” (Shu 2007). In the next section, we will see how the apparently opposite meanings associated with the event classifier *ge* can be accounted for.

3.2.2. Deriving diminutiveness and maximality

To begin our investigation on maximality and diminutiveness, reconsider the following sentences from Section 3.1.1:

- (39) a. *hē tā (ge) liǎng-bēi píjiǔ ba!*
 drink it CL two-glass beer PAR
 ‘Let’s drink two glasses of beer!’ (excessive)
- b. *hē ge liǎng-bēi píjiǔ ba!*
 drink CL two-glass beer PAR
 ‘(Just) drink two glasses of beer.’ (diminutive)
- c. *hē liǎng-bēi píjiǔ ba!*
 drink two-glass beer PAR
 ‘Drink two glasses of beer!’ (regular imperative)

(39a) is an excessive sentence with the optional event classifier *ge* before the quantified nominal *liǎng-bēi píjiǔ* ‘two glasses of beer’. Without the non-referential pronoun *tā* in (39b), the sentence receives a diminutive reading, and hence the request of drinking two glasses of beer is perceived as less urgent and imperative than (39a) and (39c).

However, notice that *ge*+QP need not be interpreted as diminutive when the sequence appears without the excessive pronoun *tā*. In (40) below, the event of “assisting the election for a few months” is perceived as necessary and important to carry out the second event “running the presidential election”, as implied by the adverb *zhōngyú* ‘finally’ and the modal *déyǐ* ‘be.allowed’ in the second clause, and thus (40) does not denote diminutiveness.

- (40) zài tā fǔxuǎn-le ge bǎ yuè hòu,
 in he assist.election-PRF CL handful month after
 tā zhōngyú déyǐ jīngxuǎn zǒngtǒng.
 he finally be.allowed elect president
 ‘After he had helped with the election for a few months, he was finally able to
 run the presidential election.’

Recall that the difference between the evaluative adverb *cái* ‘only’ and *jiù* ‘only’ in Section 3.1.1: the former, not the latter, can appear in a non-diminutive context. (41) shows that a sequence of *ge*+QP can appear with both evaluative adverbs, and this again suggests that the sentences with *ge*+QP do not have to be interpreted as diminutive, and that the context determines which reading is appropriate for the sentence.

- (41) nǐ gēn wǒ mǎi ge liǎng-zhāng cǎijiàn cái/jiù néng zǒu.
 you with me buy CL two-CL lottery only can go
 i. ‘You can only leave after you buy two lottery tickets from me’ (with *cái*)
 ii. ‘You can just buy two lottery tickets from me, and I will let you leave.’ (with *jiù*)

Now consider the cases with a descriptive complement in (42).

- (42) a. jīnwǎn hē tā *(ge) tòngkuài ba!
 tonight drink it CL heartily PAR
 ‘Let’s drink heartily tonight!’ (excessive)
 b. jīnwǎn hē *(ge) tòngkuài ba!
 tonight drink CL heartily PAR
 ‘Let’s drink heartily tonight!’ (maximum)

(42a), with the non-referential *tā*, implies that the amount of joyfulness from drinking tonight will exceed the normal amount, and again, this excessive reading is absent in the

tā-free example in (42b). According to Biq (2004), sentences like (42b) with *ge*⁺ a descriptive clause, specify the “maximum” point that the preceding action can reach. Thus (42b) expresses that the participants of the event propose to drink to a maximum of joyfulness, which may or may not exceed the normal amount.

So far, we have seen that the event classifier *ge* can appear in contexts that allow the excessive pronoun *tā*, and it induces the reading of diminutiveness or maximality when it co-occurs with QP, and maximality when it appears with a descriptive expression without the excessive pronoun *tā*. In what follows, we will see that the event classifier *ge* exhibit a wider syntactic distribution than the excessive pronoun *tā* as it can also appear in contexts that do not allow the occurrence of *tā*.

First of all, recall that the non-referential pronoun *tā* cannot be followed by a bare noun; a relevant example is repeated in (43a). However, the co-occurrence restriction with bare nouns is not observed with the event classifier *ge*, and the sentence in (43b) expresses only diminutiveness.

- (43) a. *jiē tā ge bǐ ba!
 Lend it CL pen PAR
 Intended, ‘Lend a pen!’ (excessive)
- b. jiē ge bǐ, hǎo ma?
 lend CL pen good Q
 ‘(Just) lend me a pen, will you?’ (diminutive/*maximam)

Secondly, unlike the excessive *tā*, the event classifier *ge* does not require a modal, and therefore, if we remove the deontic modal *xiǎng* ‘want’, the sentence would still be acceptable as illustrated in (44). Moreover, since *ge* does not need to be licensed by a modal element, *ge* is predicted to be able to co-occur with the perfective marker *-le*. This prediction is borne out as shown in (44).

- (44) wǒ mǎi-le ge [liǎng ge lǐwù].
 I buy-PRF CL two CL gift
 ‘I bought two gifts.’

Table 3.2.2 summarizes the syntactic distributions of the event classifier *ge* and the non-referential pronoun *tā* and the meanings associated with each context:

(45) Table 3.2.2. Syntactic distributions of *tā* and *ge*

		Quantified phrase	Descriptive phrase	Bare N	Resultative phrase
Non-referential <i>tā</i>	Excessive	✓	✓	✗	✓
Event classifier <i>ge</i>	Diminutive	✓	✗	✓	✗
	Maximum	✓	✓	✗	✓

3.2.3. *Ge* as an unselective determiner

To account for the postverbal position of *ge*, Shu (2007) argues that the event classifier *ge* is a phrasal affix/endoclititic placed between a verb and a nominal complement. He further proposes the following morphological template for *ge*:

- (46) The phrasal morphological template of *ge*
 [_{VP} v₀ *ge* NP...]

He distinguishes three *ges* based on their semantic contribution to the sentence: the diminutive *ge*, the maximum *ge* and the excessive *ge*. Furthermore, he suggests that the three *ges* are constrained by the same template as (46), and the distinct meanings that they have can be achieved by an agreement established between *ge* and a modal.

While I agree with Shu (2007) that the reading of excessiveness should arise from the agreement relation between two functional elements, I don't adopt his analysis for the event classifier *ge* for the following reasons:

First of all, we have seen in the last section that the non-referential pronoun *tā*, not the event classifier *ge*, plays an essential role in the reading of excessiveness: although the absence of *tā* does not affect the grammaticality of the sentence, the excessiveness interpretation disappears when *tā* is not present whether or not the event classifier *ge* appears. This point is shown in (47).

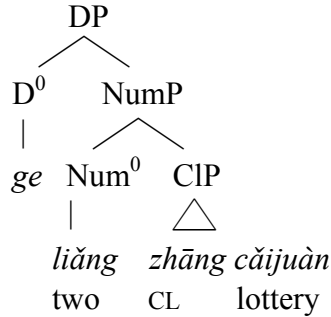
- (47) a. *hē tā (ge) liǎng-bēi píjiǔ ba!*
 drink it CL two-glass beer PAR
 ‘Let’s drink two glasses of beer!’ (excessive)
- b. *hē ge liǎng-bēi píjiǔ ba!*
 drink CL two-glass beer PAR
 ‘Let’s drink two glasses of beer!’ (maximum)

Second, as mentioned in the last section, while the non-referential pronoun *tā* needs to be licensed by a modal, this restriction is not observed with the event classifier *ge*; I have argued that there is an Agree relation between the non-referential *tā* and a modal in Section 3.1.3, but this relation does not exist in the sentences with the event classifier *ge*. Lastly, the morphological template proposed in (46) only explains the surface description, but does not show how the event classifier *ge* can be associated with the different meanings when it appears in different syntactic contexts.

In view of the shortcomings of Shu’s morphological template analysis and the syntactic distributions of the event classifier *ge*, I adopt Z. Wu’s (2002) claim that the event classifier *ge* is an unselective indefinite determiner, which takes a nominal or an adjective phrase as its complement and structurally occupies a D^0 position, as shown in (48). Below, I will show how this determiner analysis of the event classifier *ge* can help us gain some understanding of the meanings of diminutiveness and maximality in various syntactic contexts.¹⁰

¹⁰ While it will be shown later how the meanings of diminutiveness and maximality are derived in different syntactic contexts discussed in Section 3.2.2, I will not examine the structures involved in those contexts, but leave the issue for future research.

- (48) nǐ gēn wǒ mǎi ge liǎng-zhāng cǎijiùncái/jiù néng zǒu.
 you with me buy CL two-CL lottery only can go
 ‘You can leave only if you buy two lotteries from me.’ (diminutive/maximum)



First of all, based on Z. Wu’s indefinite determiner analysis of *ge*, I claim that when the event classifier *ge* is followed by a quantified phrase, *ge*+QP behaves like a polarity item in the sense that the interpretation of the sequence *ge*+QP- maximality or diminutiveness- depends on the context that licenses it:

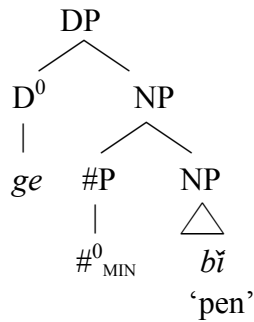
- (49) a. He didn’t lift a finger to help me. (minimum)
 b. I will never want to see him in a million years. (maximum)

In (49), both phrases *lift a finger* and *in million years* are (negative) polarity items, and while *lift a finger* denotes a minimal degree, *in million years* denotes a maximal degree (Levison 2006: 1). In the same vein, *ge*+QP can be analyzed as a polarity item which denotes either a minimal degree or a maximal degree (diminutiveness or maximality), and the appropriate reading assigned to *ge*+QP is determined by the discourse context.

Secondly, in the cases of *ge*+bare N, in which only the diminutive reading is available, I assume that a covert number element in *ge*+bare N invariably denotes a minimal amount, a proposal similar to that of Kayne’s (2007) on quantifiers *few* and *many*. In Kayne (2007), *few* and *many* are argued to modify an unpronounced NUMBER in a nominal phrase like *few/many books*, and are said to share a close link to overt phrases such as *a small number* and *a large number*, respectively. Here, I suggest that a

covert NUMBER phrase (#P) adjoined to the NP denotes a minimal quantity, as shown in (50).¹¹ This #P can be overtly realized as *hěn shǎo shù mù de* ‘very few number DE’.

- (50) jiē ge bǐ, hǎo ma?
 lend CL pen good Q
 ‘(Just) lend me a pen, will you?’ (diminutive)



Lastly, as for the fact that *ge*+ resultative/descriptive phrase is only possible with the maximum reading, I attribute this property to the semantics of degree modifiers contained in the resultative/descriptive phrases. It has been observed that resultative/descriptive phrases in the *ge* sentence tend to denote some extreme situation, and this can be shown by their frequent co-occurrence with degree modifiers (Z. Wu 2002). This point is illustrated by the following examples with the descriptive adverbial *kuài* ‘fast’.

¹¹ Notice that unlike NumP, #P doesn’t require the presence of the classifier projection, as the contrast between (ia) and (ib) shows:

- (i) a. liǎng *(běn) shū
 two CL book
 ‘two books’
 b. xiǎo shù mù de (*ge) lǐ wù
 little number MOD CL gift
 ‘a small number of gifts’

- (51) a. ??pǎo ge kuài
 run CL fast
 Intended, ‘do a fast run’
 b. pǎo ge fēi-kuài
 run CL fly-fast
 ‘do a fleet run’

(51) shows that in an event classifier *ge* sentence, the presence of a degree modifier such as *fēi* ‘fly’ with a descriptive/resultative is strongly preferred.

Now, let’s take a look at the resultative phrases in (52): *tòng-kuài* ‘fully-joyful’= ‘heartily’, and *bàn-sǐ* ‘half-dead’, contain the maximality modifier *tòng* ‘extremely’ and the propositional modifier *bàn* ‘half’, and both degree modifiers identify a “specific” point (a maximal point by *tòng* and a midway point by *bàn*) on the scale required by the degree modifiers. Thus when those resultative/descriptive phrases combine with the event classifier *ge*, the reading is derived that the amount singled out by the degree modifier is “maximally” reached by doing V, i.e., the maximum reading.

- (52) a. jīnwǎn hē *(ge) tòngkuài ba!
 tonight drink CL heartily PAR
 ‘Let’s drink heartily tonight!’ (maximum)
 b. xiǎoyù xiǎng bǎ xiǎotōu dǎ *(ge) bàn.sǐ.
 X. want BA thief beat-PRF CL half.dead
 ‘Xiaoyu wanted to beat the thief_i until he_i was half dead.’ (maximum)

Before we summarize the findings in this section, it is worth noticing that the event classifier *ge* is obligatory in the case of descriptive and resultative phrases (see (52) above), and it has been suggested by different authors that one of the functions of the event classifier *ge* is to nominalize the following resultative/descriptive phrase (Lü 1984, Z. Wu 2002, Shu 2007), a property that can also be explained by the indefinite determiner analysis of *ge* proposed here.

In this section, I have tried to clarify how the meanings of ‘diminutiveness’ and ‘maximality’ can be derived and whether those meanings are related to the excessive *tā* construction. We have seen that the event classifier *ge* can be associated with the two seemingly opposite readings of ‘diminutiveness’ and ‘maximality’, and we have also shown the distribution of the event classifier *ge* and the non-referential pronoun *tā*. These two points suggest that first of all, contra Shu (2007), the excessiveness construction must be dealt with separately from the event classifier *ge*, and the agreement approach proposed for the excessive *tā* cannot be carried to the event classifier *ge*. Second, while *ge*+bare N and *ge*+descriptive/resultative phrase can only be interpreted as diminutiveness and maximality, respectively, the ambiguity of sentences with *ge*+QP favours the polarity item analysis for *ge*+QP. Third, while it was proposed that a covert NUMBER element in *ge*+bare N contributes the reading of diminutiveness, the degree modifier contained in the descriptive/resultative phrase contributes the maximum reading.

3.3. The vP-internal modal projection in Mandarin *dé/bù* constructions

In Section 3.1, we have established an internal modal projection in the excessive *tā* constructions. A second piece of evidence for vP-internal modal projections comes from so-called *dé/bù* constructions, in which a modality element appears inside a resultative verbal compound (RVC):

- (53) a. Lǐsǐ kǎn-dǎo-le zhè-kē shù.
 Lisi chop-fall-PRF this-CL tree
 ‘Lisi chopped the tree down.’

(C.-H. Wu 2004: 272)

- b. *Lǐsǐ kǎn-màn-dǎo zhè-kē shù.
 Lisi chop-slow-fall this-CL tree
 Intended, ‘Lisi chopped the tree and the tree fell slowly.’

(53a) contains an RVC, *kǎn-dǎo* ‘chop-fall’, composed of two verbal elements, the second of which (*dǎo* ‘fall’) signals the result of the action conveyed by the first element *kǎn* ‘chop’. (53b) shows that the two elements of RVC in general cannot be separated by any constituent; however, the two modal elements *dé* ‘can’ and *bù* ‘not’ are exceptionally allowed to appear inside an RVC:

- (54) a. Lǐsǐ kǎn-dé-dǎo zhè-kē shù.
 Lisi chop-can-fall this-CL tree
 ‘Lisi can chop the tree down.’
 b. Lǐsǐ kǎn-bù-dǎo zhè-kē shù.
 Lisi chop-not-fall this-CL tree
 ‘Lisi cannot chop the tree down.’

As (54) shows, the presences of *dé* ‘can’ and *bù* ‘not’ do not cause ungrammaticality as does the adverb *màn* ‘slow’ in (53b), and the two sentences convey the meanings of epistemic and root modality that are absent in (53). Note that the modality meanings expressed by *dé/bù* take scope over the entire VP, not just the result, as shown in the English translations. I propose that the phenomenon of *dé/bù* can be viewed as the result of syntactic agreement between two modal projections, and this Agree approach is shown to be more adequate both explanatorily and descriptively than previous approaches. In the following sections, we will first examine the grammatical properties of the “low” modal elements *dé/bù*; we will see that the possibility of co-occurrence of “high” and “low” modals and the intervention effects induced by various quantificational elements would call for an Agree approach. At the same time, the properties of the *dé/bù* constructions disfavour other analyses which either attempt to maintain a single modal projection in the structure (Tsai 2001) or see the intervention effects as the result of blocking an LF Head movement (C.-H. Wu 2004). At the end of this section, similar constructions to Mandarin *dé/bù* found in other Chinese languages are shown to support the internal Modal analysis proposed in this section.

3.3.1. Grammatical properties of the potential modals *dé/bù* and previous accounts

3.3.1.1. Semantics of *dé/bù* and the mono-modal approach

The modal elements *dé/bù* have been called potential forms (Li and Thompson 1981) and it has been observed that these forms give the compound an affirmative/negative potential meaning which conveys that the result state is either achievable (with *dé*) or not (with *bù*) (Li and Thompson 1981). Relevant examples are given below:

- (55) a. Lǐsǐ kǎn-dé-dǎo zhè-kē shù.
Lisi chop-can-fall this-CL tree
‘Lisi can chop the tree down.’
b. Lǐsǐ kǎn-bù-dǎo zhè-kē shù.
Lisi chop-not-fall this-CL tree
‘Lisi cannot chop the tree down.’

Both sentences in (55) are ambiguous between a root and an epistemic reading: (55a, b) could mean either ‘Lisi is able/unable to chop the tree down’ or ‘it is possible/impossible for Lisi to chop the tree down’. The same modality meanings seen in (55) can also be expressed with the high modals *néng* ‘can’ and *bù-néng* ‘not-can’, as shown in (56):

- (56) Lǐsǐ néng/bù-néng kǎn-dǎo zhè-kē shù.
Lisi can/cannot chop-fall this-CL tree
‘Lisi can/cannot chop the tree down.’

Interestingly, it is possible for the low modal elements and the high modals to co-occur in a sentence as shown in (57).

- (57) a. Lǐsǐ néng kǎn-dé-dǎo zhè-kē shù.
 Lisi can chop-can-fall this-CL tree
 ‘Lisi can chop the tree down.’
- b. Lǐsǐ bù-néng kǎn-dé-dǎo zhè-kē shù.
 Lisi not-can chop-can-fall this-CL tree
 ‘Lisi cannot chop the tree down.’

When the high and low modal co-occurs, a double modality meaning can be detected in the sentence, for instance, C.-H. Wu (2004) observes that (57) denotes a three way ambiguity and each meaning is listed in (58):

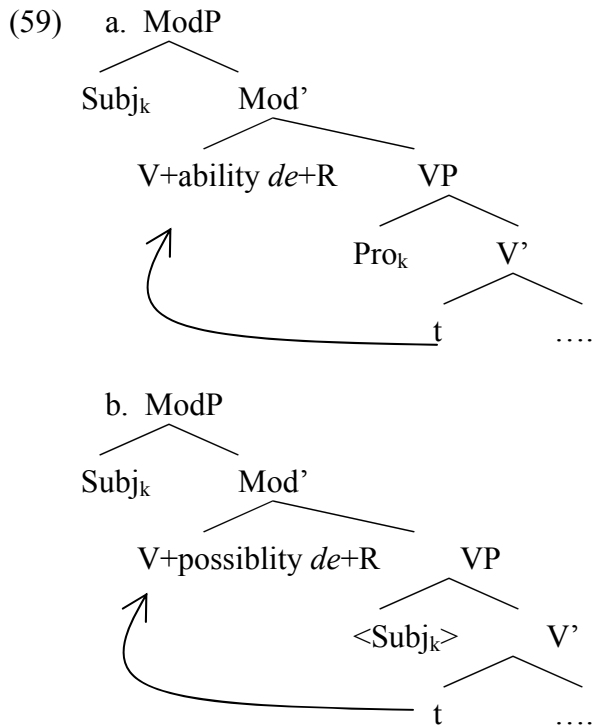
- (58) a. Lǐsǐ néng kǎn-dé-dǎo zhè-kē shù.
 Lisi can chop-can-fall this-CL tree
 ‘Lisi can chop the tree down.’
- b. Lǐsǐ bù-néng kǎn-dé-dǎo zhè-kē shù.
 Lisi not-can chop-can-fall this-CL tree
 ‘Lisi cannot chop the tree down.’
- (i) “It is possible/impossible for Lisi to chop the tree down.” (epstemic)
- (ii) “Lisi is able/unable to chop the tree down.” (dynamic¹²)
- (iii) “It is possible/impossible for Lisi to be able to chop the tree down.”
 (epistemic > dynamic)
- (iv)* “Lisi is able/unable to possibly/impossibly chop the tree down.”
 (*dynamic > epistemic)

(58) shows that the presences of high and low modals can express a mono-modality meaning as in (i) and (ii), or a double modality as in (iii), in which the epistemic takes a wide scope over the root modal. However, (iv) indicates that the reverse scope reading is

¹² C.-H. Wu (2004) attributes the ability reading to deontic modality; in this dissertation, we follow a more refined proposal on the types of modality (Palmer 1990), in which epistemic are distinguished from root modality, and the latter type further splits into deontic (permission, obligation) and dynamic (ability).

not available, which may be understood as a structural restriction that epistemic modals are generated higher than root modals (Cinque 1999, Butler 2003, among others).

To account for the interchangeability between *néng/bù-néng* and *dé/bù* sentences shown in (55) and (56), Tsai (2001) proposes that *dé/bù* is base-generated above VP, that is, in ModP in (59), and the verb along with the resultative morpheme moves up to this projection, wraps around *dé/bù*, and surfaces as the sequence of V+ *dé/bù* +V. The tree diagrams in (59) show the derivations of the V movements.



However, as pointed out by C.-H. Wu (2004), this mono-modal approach cannot account for the co-occurrence of the high and the low modal, which we saw in (58), and moreover, as we will see later, it also fails to explain the intervention effects induced by certain type of syntactic constituents, when the high and the low modal both appear in the structure.

3.3.1.2. Intervention effects revisited and the LF excorporation approach¹³

C.-H. Wu (2004) observes that *néng* sentences behave differently from their *dé/bù* counterpart in interactions with passive constructions, *bǎ*- constructions, and adverbs such as the focus adverb *zhǐ* ‘only’ and manner adverbs. In the examples below, the (a) sentences show that *néng* is compatible with the aforementioned syntactic objects, whereas the (b) sentences show that adding *dé/bù* to the sentences would result in ungrammaticality. Notice further that the intervention effect is observed even when the high modal is covert, as shown in the (c) sentences.

Passive:

- (60) a. zhè-kē shù néng bèi Lǐsǐ kǎn-dǎo.
 This-CL tree can BEI Lisi chop-down
 ‘This tree can be chopped down.’
 b. * zhè-kē shù néng bèi Lǐsǐ kǎn-dé-dǎo.
 this-cl tree can BEI Lisi chop-can-fall
 c. * zhè-kē shù bèi Lǐsǐ kǎn-dé-dǎo.
 this-cl tree BEI Lisi chop-can-fall

Bǎ-construction:

- (61) a. Lǐsǐ néng bǎ zhè-kē shù kǎn-dǎo.
 Lisi can BA this-CL tree chop-fall
 ‘Lisi can chop the tree down.’

¹³ It should be stressed that this dissertation will not attempt to explain the nature of Intervention effects and account for the issues pertaining to Intervention effects, such as the question that whether Intervention effects are homogeneous or heterogeneous cross-linguistically. Interested readers are referred to Beck (2006), Kim (2002), and Yang (2007) and the literature cited in these work.

- b. * Lǐsǐ néng bǎ zhè-kē shù kǎn-dé-dǎo.
 Lisi can BA this-CL tree chop-can-fall
- c. * Lǐsǐ bǎ zhè-kē shù kǎn-dé-dǎo.
 Lisi BA this-CL tree chop-can-fall

Adverbs:

-Manner Adverbs

- (62) a. Lǐsǐ néng mànmande kǎn-dǎo zhè-kē shù.
 Lisi can slowly chop-fall this-CL tree
 ‘Lisi can slowly chop the tree down.’
- b. *Lǐsǐ néng mànmande kǎn-dé-dǎo zhè-kē shù.
 Lisi can slowly chop-can-fall this-CL tree
- c. *Lǐsǐ mànmande kǎn-dé-dǎo zhè-kē shù.
 Lisi slowly chop-can-fall this-CL tree

-zhǐ ‘only’:

- (63) a. Lǐsǐ néng zhǐ kǎn-dǎo zhè-kē shù.
 Lisi can only chop-fall this-CL tree
 ‘Lisi can only chop the tree down.’
- b. *Lǐsǐ néng zhǐ kǎn-dé-dǎo zhè-kē shù.
 Lisi can only chop-can-fall this-CL tree
- c. *Lǐsǐ zhǐ kǎn-dé-dǎo zhè-kē shù.
 Lisi only chop-can-fall this-CL tree

However, some syntactic constituents can appear between the high and the low modal without incurring ungrammaticality:

Benefactive/locative PPs:

(64) Lǐsǐ néng [fǐ wǒ] [cóng xūexiào] [xiàng lǎoshi] jiè-dé-dào LGB.

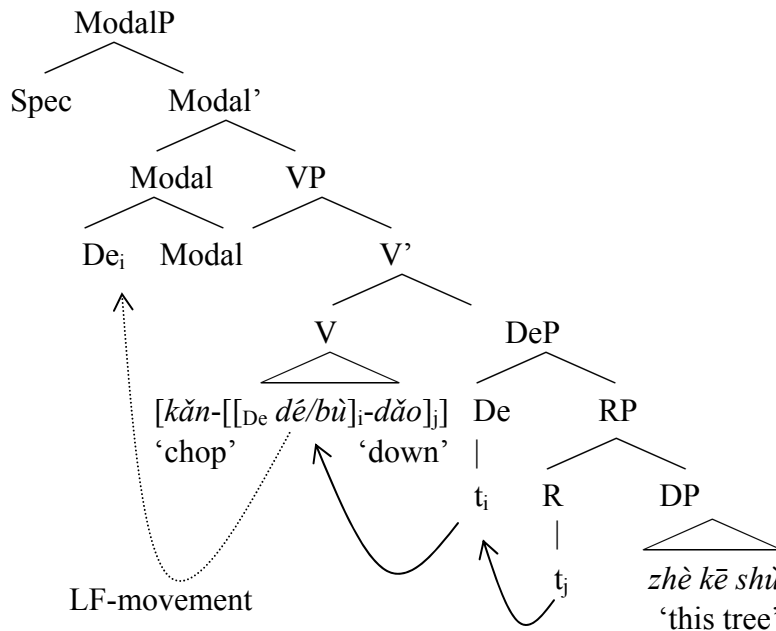
Lisi can for me from school to teacher borrow-can-arrive LGB

‘Lisi can borrow LGB from the teacher at school for me.’

(C.-H. Wu 2004: 312)

C.-H. Wu (2004) suggests that these observations can be captured if we assume that some relationships between a low modal and a high modal are blocked by the *bèi* passive phrase, *bǎ* phrase, manner adverbs and the focus adverb *zhǐ*, but not by the locative and benefactive PPs. She further characterizes this relation as LF head movement, and proposes that an internal modal is projected inside VP, between V and R, and undergoes LF movement to the IP-level modal. The syntactic representation in her analysis is provided in (65).

(65) LF exorporation approach:



(C.-H. Wu 2004: 302)

As (65) shows, *dé/bù* is base-generated in an inner modal projection De between V and R and is licensed by the Modal above VP. This configuration explains the possibility of the co-occurrence of the high and the low modal in (58). The example is repeated below:

- (66) Lǐsǐ néng/ bù-néng kǎn-dé-dǎo zhè-kē shù.
 Lisi can/ not-can chop-can-fall this-CL tree
 (i) “It is possible/impossible for Lisi to chop the tree down.”
 (ii) “Lisi is able/unable to chop the tree down.”
 (iii) “It is possible/impossible for Lisi to be able to chop the tree down.”
 (iv)* “Lisi is able/unable to possibly/impossibly chop the tree down.”

C.-H. Wu argues that De and Modal share the modality feature, which would account for the mono-modality interpretations we saw in (i) and (ii) corresponding to the derivations in (67a) and (67b) below. To account for the possibility of double modality reading in (iii), she further assumes that a dynamic modal is covertly generated at the high modal projection while the overt epistemic modal occupies a higher position c-commanding the dynamic modal, as illustrated in (67c); (67d) shows that a reading in (iv) is not possible because the licensing of De_{EPSTEMIC} by Modal_{EPSTEMIC} is blocked by a potential licenser, a dynamic modal.

- (67) a. [...Modal_{EPSTEMIC} [M]...[De_{EPSTEMIC} [M]]]
 b. [...Modal_{DYNAMIC} [M]...[De_{DYNAMIC} [M]]]
 c. [...Modal_{EPSTEMIC}...[Modal_{DYNAMIC} [M]... [De_{DYNAMIC} [M]]]]
 d. * [...Modal_{EPSTEMIC} [M]...[Modal_{DYNAMIC}... [De_{EPSTEMIC} [M]]]]

(modified from C.-H. Wu 2004: 287)

Next, C.-H. Wu argues that to fulfill the interpretation, the head De has to excorporate from the verb compound and moves to ModalP at LF to check the [M] feature. This head movement would be blocked by the heads that select *bèi* passive phrases, *bǎ* phrases, manner adverbs and the focus adverb *zhǐ*. Adverbials such as locatives and benefactives are adjuncts that do not head their own projection nor act as a specifier of some

functional head (cf. Cinque 1999), but adjoin to a verbal projection, and therefore they don't trigger the intervention effects.

The postulation of the internal modal projection explains the co-occurrence of the high and the low modal and the double modality interpretation; however, there are two problems with the LF-excorporation part of C.-H. Wu's analysis. The first comes from her claim that the relation between the high and the low modal is due to head-movement. Below we will see more clearly that the intervention effects described above are triggered by the quantificational nature of the intervening constituents rather than by their syntactic status as heads.¹⁴ This argument is supported by the fact that in addition to manner adverbs and the focus adverb *zhǐ*, quantificational adverbials such as *zài* 'again', *yìqǐ* 'together' and duration phrases also trigger the intervention effects. Also, non-quantificational heads do not trigger intervention effects, an unexpected result if we adopt C.-H. Wu's analysis. The second question has to do with the questionable nature of excorporation, which has some theoretically unwelcome consequences and also makes incorrect predictions.

In addition to manner adverbs and the focus adverb *zhǐ*, quantificational adverbials such as *zài* 'again', *yìqǐ* 'together' and duration phrases, also trigger the intervention effects, as the (b) examples in (68)- (70) show:

-*zài* 'again':

- (68) a. Lǐsǐ néng zài kǎn-dǎo jǐ-kē shù.
 Lisi can again chop-fall a few-CL tree
 'Lisi can chop a few more trees down.'

¹⁴ C.-H. Wu (2004) does recognize the possibility of quantificational force as the trigger for intervention effects observed in the cases of manner adverbs and *zhǐ* 'only'; however, in her paper she still maintains the proposal that LF movement from De^0 to Mod^0 is blocked by the head which hosts those quantificational expressions.

b. *Lǐsǐ néng zài kǎn-dé-dǎo jǐ-kē shù.

Lisi can again chop-can-fall a few-CL tree

c. *Lǐsǐ zài kǎn-dé-dǎo jǐ-kē shù.

Lisi again chop-can-fall a few-CL tree

- *yìqǐ* 'together':

(69) a. wǒmén néng yìqǐ kǎn-dǎo zhè-kē shù.

we can together chop-fall this-CL tree

'We can chop this tree down together.'

b. *wǒmén néng yìqǐ kǎn-dé-dǎo zhè-kē shù.

we can together chop-can-fall this-CL tree

b. *wǒmén yìqǐ kǎn-dé-dǎo zhè-kē shù.

we together chop-can-fall this-CL tree

- duration phrases:

(70) a. Lǐsǐ néng zài yì-xiǎoshí kǎn-dǎo zhè-kē shù.

Lisi can in one-hour chop-fall this-CL tree

'Lisi can chop this tree down in one hour.'

b. *Lǐsǐ néng zài yì-xiǎoshí kǎn-dé-dǎo zhè-kē shù.

Lisi can in one-hour chop-can-fall this-CL tree

c. *Lǐsǐ zài yì-xiǎoshí kǎn-dé-dǎo zhè-kē shù.

Lisi in one-hour chop-can-fall this-CL tree

The adverb *zài* 'again' in (68), and the duration phrase *zài yì-xiǎoshí* 'in an hour' in (70) quantify over the events 'chopping the tree down', and *yìqǐ* 'together' in (69) quantifies over the subject *wǒmén* 'we'. The (b) sentences above show that the quantificational phrases pattern like manner adverbs and *zhǐ* 'only' in that they also trigger the intervention effects in the *dé/bù* constructions. The (c) sentences show again that the intervention effects obtain when the high modal is covert. In what follows, we will see

that non-quantificational heads such as inchoative *-le* and comparative *bi* intervene between the high and low modals, yet do not exhibit intervention effects.

Inchoative *-le*:

- (71) a. Lǐsǐ néng kǎn-dé-dǎo zhè-kē shù-le.
 Lisi can chop-can-fall this-CL tree-INCH
 ‘Lisi can chop the tree down.’

Comparative *bǐ*:

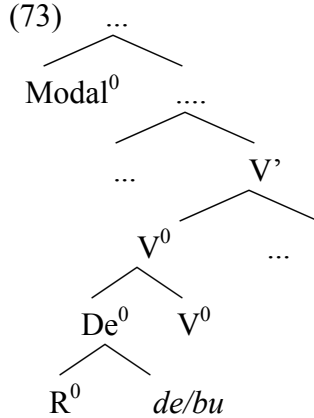
- (72) a. Lǐsǐ néng bǐ wǒ kǎn-dé-dǎo gèngdūo-kē shù.
 Lisi can than I chop-can-fall more-CL tree
 ‘Lisi can chop more trees down than me.’

The particle *-le* in (71) is argued to be an inchoative marker situated at a head position of some verbal projection above VP (AspP in Lin (2004), T in Tang (1990)). The comparative morpheme *bǐ* in (72) has also been analyzed as an element that heads either a degree phrase (Xiang 2003) or a verbal projection (Erlewine 2007) above VP. Contrary to what Wu would predict, these two heads, the inchoative particle *le* and the comparative morpheme *bǐ*, can occur with both the modal elements and do not exhibit intervention effects.

Based on the syntactic behaviour of the quantificational adverbials and the non-quantificational heads in *dé/bù* sentences, it can be suggested that what triggers the intervention effects in the *dé/bù* constructions is the quantificational nature of the intervening expressions rather than heads that occur in between the high and low modal projections.

Theoretically, the excorporation movement employed by C.-H. Wu’s analysis is also problematic. If we assume that head movement precedes by left-adjunction (cf. Baker

1988, Kayne 1991, 1994), the internal structure of the V head can be represented as below¹⁵:



Setting aside the fact that excorporation in general violates the Head Movement Constraint (Travis 1984), even if we assume that the successive-cyclic movement of a head is possible, *dé/bù*, as shown in (73), simply cannot be probed by the higher Modal, since it is not at the left edge of V¹⁶, and therefore its modality feature is not visible for the Modal.¹⁷

The excorporation approach also makes the wrong prediction about the sentences that involve an A-not-A form:

- (74) Lǐsǐ kǎn-bù-kǎn-dé-dǎo zhè-kē shù?
 Lisi chop-not-chop-can-fall this-CL tree
 ‘Can Lisi chop the tree down?’

¹⁵ Note that if we just read off the structure in (73), it won’t yield the correct word order as V-*dé*-R. I suggest that the order of the three morphemes in question can be regulated through a mechanism such as Morphological Merger in the framework of Distributed Morphology (Marantz 1984).

¹⁶ This possibility is ruled out based on the assumption that words are phases, proposed by Marantz (2001) and Roberts (2010).

¹⁷ While *dé/bù* cannot be the target for movement, De⁰ which incorporates R and *dé/bù* can be a potential goal for Modal⁰.

Mandarin A-not-A questions are a special form of yes-no question, in which the highest verbal element (modals, auxiliaries, verbs, and adjectives) is reduplicated and a negation is inserted between the base and the reduplicant, as shown in (75).

- (75) Lǐsǐ chī-bù-chī níuròu?
 Lisi eat-not-eat beef
 ‘Does Lisi eat beef?’

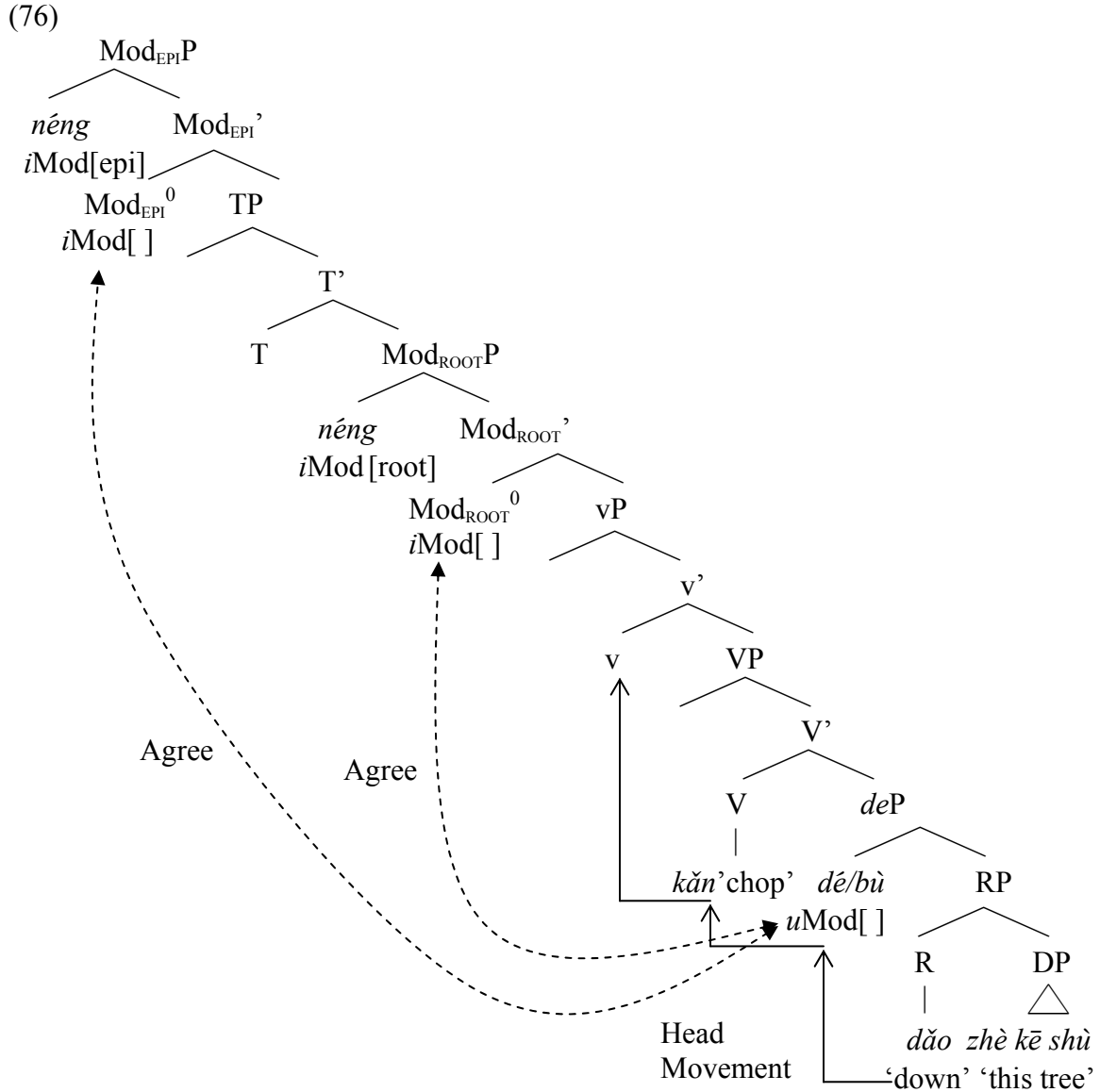
Huang (1991a) argues that “a question operator [+Qu] is generated on Infl and is realized by a reduplication rule, which copies a sequence that immediately follows Infl, and inserts the morpheme *bù* ‘not’ between the original and its copy” (Huang 1991a: 316). The constituent of A-not-A must raise at LF to be interpreted as a question. Ernst (1994) argues that [+Qu] is a head, “either a functional head immediately c-commanding V or a feature on V” (Ernst 1994: 256).

If De^0 moves to $Modal^0$ at LF, given Huang’s analysis of A-not-A questions, we should expect to generate the sequence of *dě-bù-dě* ‘can-not-can’ in which the copy of *dě* undergoes the reduplication as well as the *bù* insertion and takes on the A-not-A form. Even if we assume Ernst’s (1994) proposal, we would expect [+Qu] on some F^0 c-commanding V or on V to block the LF head movement of De^0 to $Modal^0$, giving an intervention effect. However, neither the form *dě-bù-dě* nor an intervention effect are observed in (74).

Instead of pursuing a head movement analysis for the *dě/bù* constructions, I suggest that while we should maintain the idea of the low modal projection for *dě/bù* to account for sentences with both high and low modals, the intervention effects should be re-interpreted as the interruption on the Agree relation between the high and the low modal. This relation is blocked by quantificational expressions as suggested in Beck (1996). In the next section, we will see how the Agree approach can avoid the problems inherent in the LF excorporation account.

3.3.2. Agreement between high and low modality in Mandarin and evidence from South Min (Taiwanese)

We have seen that C. -H. Wu's (2004) proposal is not desirable since it assumes an LF movement that excorporates *dě/bù* from the verbal compound. In the last section, we also saw a correlation between *dě/bù* and the structurally higher modal *néng*: *dě/bù* is licensed by a high modal (either a covert one or an overt *néng*), whereas a high modal does not require *dě/bù*. This asymmetric relation is also found in the excessive *ta* construction as discussed in the Section 3.1, and therefore, I propose that the relation between the low and high modals can be captured by Agree. The tree diagram in (76) illustrates how Agree works in the *dě/bù* constructions:



Following Cinque (1999), Butler (2003), and Tsai and Portner (2008), I assume that root modals merge lower than epistemic modals, and more specifically, root modals are base-generated between TP and vP, whereas epistemic modals are above TP, as shown in (76). Furthermore, Modal heads and *dé/bù* each possesses unvalued modal features, and the modal feature of *Mod*⁰ probes *dé/bù* at the internal Modal projection *deP* via Agree. This Agree between two unvalued modal features doesn't result in valuation on the modal features of *Mod*⁰ and *dé/bù*, but produces a single occurrence of a modal feature with two instances (Pesetsky and Torrego 2007: 266). As suggested in Pesetsky and Torrego (2007), if a later operation of Agree applies between one of the instances of unvalued

modal feature, the result will be a valued modal feature present at three locations. In our case, the modal features of Mod^0 is valued by its associated modal (epistemic or root) at its specifier, which in turn values the modal feature of *dé/bù*. The the following notations demonstrate how the modal features are valued when a root modal is present (irrelevant features are omitted):

(77) Mono-modality

a. Merge V with *deP*:

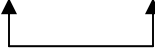
$u\text{Mod}[\]$

b. Merge $\text{Mod}_{\text{ROOT}}^0$ with *vP*:

$i\text{Mod}[\] \dots u\text{Mod}[\]$

c. Agree applies:

$i\text{Mod}_2[\] \dots u\text{Mod}_2[\]$




d. Merge root modal with Mod_{ROOT} :

$i\text{Mod}[\text{root}] \dots i\text{Mod}_2[\] \dots u\text{Mod}_2[\]$

e. Agree applies:

$i\text{Mod}_2[\text{root}] \dots i\text{Mod}_2[\text{root}] \dots u\text{Mod}_2[\text{root}]$



In (77a-c), when the computation proceeds to merge $\text{Mod}_{\text{ROOT}}^0$ with *vP*, which contains *dé/bù*, Agree applies to the two unvalued modal features on $\text{Mod}_{\text{ROOT}}^0$ and *dé/bù*; as mentioned above, this agreement produces a single occurrence of modal feature with two instances. In (77d,e), after a root modal expression is pulled in from the lexical array, and merged with Mod_{ROOT} , the two instances of unvalued modal feature are valued via Agree.

(77) is a simplified derivation for the *dé/bù* constructions with the mono-modality reading (the epistemic reading is derived instead when the epstemic Mod^0 agrees with *dé/bù*). The agreement between *dé/bù* and Mod^0 is subject to Relativized Minimality, and can be blocked by any intervening quantificational elements. The double modality interpretation (epstemic>root) is derived when both epistemic and root modals are present in the structure, and the root Mod^0 agrees with *dé/bù*. The impossible reading of

“root>epistemic” results from the intervention of the root modal, which blocks the agreement between the epistemic modal and *dé/bù*. Thus, the structural difference between epistemic and root modal accounts for the absence of the fourth reading in (66), as also claimed by C.-H. Wu (2004). Lastly, the head movement takes place from R to V through *dé/bù*, which gives the order of V-*de/bu*-R. This Agree approach avoids the theoretical and empirical problems raised by C.-H. Wu’s approach, since it does not assume excorporation, and it needs not resort to the covert movement to establish the relation between the modals.

Before we leave this section, I would like to present some cross-linguistic facts to support the idea of postulating a functional projection hosting modals in the v-domain. In South Min (Taiwanese), modals can also appear low in the sentences and the choice of the forms of the low modals seems to be dependent on the category of the following constituent. While *e(tang)/be(tang)* ‘can/cannot’ can appear inside an RVC, *u/bo* ‘have/not.have’ only appears before a nominal object:

(78) South Min (Taiwanese)

Li-e	xia-e(tang)/be(tang)-liao	hit-di ^N u ^N	pue.
Li	write-can/cannot-finish	that-cl	letter

‘Li can/cannot finish writing the letter.’

(C.-H. Wu 2004: 282)

(79) South Min (Taiwanese)

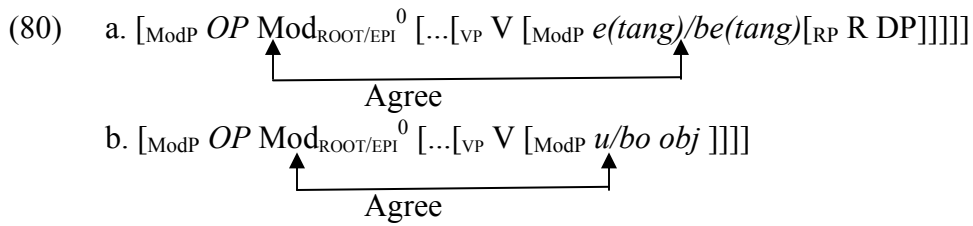
a. Abing thak u/bo che.
 Abing read have/not.have book
 ‘Abing can/cannot study well.’

b. Abing chue u/bo sosi.
 Abing search.for have/not.have key
 ‘Abing can/cannot find the key.’

(H.-Y. Huang 2008: 675)

In (78), *e(tang)/be(tang)* ‘can/cannot’ intervenes between the action verb *xia* ‘write’ and the result verb *liao* ‘finish’, whereas *u/bo* ‘have/not.have’ appears before the nominal *che*

‘book’, which expresses an idiomatic meaning ‘study’ with the main verb *thak* ‘read’ in (79a). *U/bo* ‘have/not.have’ can also precede a definite nominal as shown in (79b). Note that (79a) does not mean ‘Abing did/did not study well’ and similarly, (79b) does not mean ‘Abing did/didn’t find the key’; both sentences convey modality meaning. The phenomena can be explained without stipulation if we assume that modals can be projected as low as in the v-domain, and while *e(tang)/be(tang)* ‘can/cannot’ c-selects a verbal constituent, *u/bo* ‘have/not.have’ takes a nominal as its complement. The representations for South Min internal modals are sketched below:



As shown in (80), an Agree relation is established between the internal ModP headed by *e(tang)/be(tang)* and *u/bo* and the external ModP outside vP. While *e(tang)/be(tang)* takes a resultative phrase as its complement, *u/bo* takes the direct object as its complement.

Chapter 4

Inner Focus¹

4.0. Introduction

In Chapter 2 and 3, I have established the Agree relation between Inner and Outer Aspect as well as Inner and Outer Modal. I have shown that not only can the Agree approach account for the grammatical properties of the elements involved in the examined constructions, but it also offers a natural explanation to phenomena such as intervention effects. The Agree relation between high and low grammatical elements is also claimed to be responsible to derive a proper semantic interpretation after the sentence is sent to LF. In this chapter, I continue to present evidence for internal functional projections, and particularly, I explore the Agree relation between the projections that encode focus. I start the discussion with a case study of the Turkish question particle (Q- particle) *-mI*. Unlike other languages (Chinese, Japanese, Tlingit, see Cable (2007) for more examples) which use a fixed-position Q- particle to signal yes-no questions, the position of the Turkish Q- particle *-mI*, at first glance, seems to be relatively freer. Kabak and Vogel (2001) propose that the position of the Q- particle is correlated to the locus of sentence stress, and the Q particle must follow the sentence stress-bearing element. However, in Section 4.1, I will show that first of all, the prosody-based analysis fails to explain some cases where the Q particle does not immediately follow the element that receives stress, but rather follows the syntactic constituent that contains it; second, the position of the Q- particle will be shown to have a consequence on certain syntactic phenomena such as NPI licensing. The sensitivity to syntactic constituency and the interaction with some syntactic objects presented in Section 4.1 call for a syntactic analysis for the *-mI* constructions. Following Kahnemuyipour and Kornfilt (2011) and Kamali (2010), I propose that the Turkish Q- particle heads a focus projection inside vP. By postulating an inner focus projection, we can account for examples with multiple foci, and also explain some intervention effects triggered by the presence of a focus element in the *-mI* construction.

¹ Unless otherwise indicated, all data in this Chapter are taken from my Turkish Question Particle and Armenian Auxiliaries project (June 2011- September 2012), funded by SIG travel grant, Department of Linguistics, University of Toronto.

The existence of an internal focus projection is also supported by Eastern Armenian. It has been noticed by many linguists that the E. Armenian auxiliary, carrying the agreement and tense features, can appear in a wide range of positions (Tamrazian 1991, Megerdooonian 2002, Kahnemuyipour and Megerdooonian 2008, 2010). Similar to the Turkish Q- particle, the position of this auxiliary must respect syntactic constituency. Based on the similarities between the Turkish Q- particle and the E. Armenian auxiliary, I extend the Inner Focus analysis to E. Armenian, with a modification to explain the stress patterns exhibited in sentences with negation. After laying the theoretical and empirical ground work for inner focus, I further show that the two functional projections associated with Focus, that is, external (high) Focus and internal (low) Focus establish an Agree relation, which may be blocked by focus particles. The Inner Focus analysis suggested for Turkish and E. Armenian also provides a straightforward account for the distinct interpretations associated with different focus projections in Persian.

4.1. Focus and the Turkish Question Particle *-mI*

4.1.1. Pre-stressing suffixes and the grammatical properties of the Q- particle *-mI*

Turkish is a scrambling language as the constituents in a sentence can freely occur in different orders as shown in (1). The sentences in (1) contain three constituents, *Ali*, *evi* ‘house’, and *sattı* ‘saw’, and five different word orders can be generated in addition to the unmarked SOV word order in (1a).

- (1) a. Ali ev-i sat-tı.
 Ali house-ACC see-PAST
 ‘Ali sold the house.’
 b. evi Ali sattı.
 c. Ali sattı evi.
 d. evi sattı Ali.
 e. sattı Ali evi.

f. *sattu evi Ali*.

(Göksel and Kerslake 2005: 395)

A salient feature of Turkish phonology that is relevant to our discussion of the Q-particle *-mI* is its stress pattern. Turkish has word-final stress, which means that the last syllable of a word receives stress; however, there is a set of suffixes that do not attract stress, and instead, the stress appears on the preceding syllable. A few instances of pre-stressing suffixes are listed in (2); notice that the Q-particle *-mI* and the negation marker *-mA* are among them. Their stress properties will be relevant to our later discussion of these two grammatical elements.

(2) *ki*: complementizer; *-(y)ken* ‘when, while’; *-mI*: question particle; *-mA*: negation

(Kahnemuyipour and Kornfilt 2011: 206)

Göksel and Kerslake (2005) observe that when a phrase is focused in Turkish, it gets heavy stress (somewhat higher in pitch than a stressed phrase in an unmarked sentence) and must occur before the predicate, whereas constituents that carry old information are required to follow the predicate, and are never stressed (Göksel and Kerslake 2005:397).

We now turn to the Q particle *-mI*. As mentioned earlier, *-mI* does not receive word-final stress; instead, the stress falls on the syllable that precedes it. If we take a closer look at the constituent that the Q particle *-mI* is suffixed to, we find that it must also bear sentence stress. (3) and (4) below show that the Q particle appears after the constituent that receives sentence stress, which is the verb *git* ‘go’ in (3), the object *iskambil* ‘cards’ in (4a), the manner adverb *hızlı* ‘fast’ in (4b), and the unaccusative subject *su* ‘water’ in (4c).²

- (3) git-ti-níz mi?
go-PAST-2.PL Q
‘Did you go?’

(Göksel and Kerslake 2005:32)

² Throughout this chapter, word stress is marked with an accent on the syllable, and phrase/sentence stress is marked by underlining.

- (4) a. Ali iskambıl mi oyna-dı? (sentence stress on the object)
 Ali cards Q play-PAST
 ‘Did Ali play cards?’
- b. Ali hızlı mı iskambil oyn-uyor? (sentence stress on the adverb)
 Ali fast Q cards play-IMPF
 ‘Does Ali play cards fast?’
- c. ocak-ta sú mu kayn-ıyor? (sentence stress on the unacc. subject)
 Stove-on water Q boil-IMPF
 ‘Is there water boiling in the stove?’

(Kamali 2010)

The Q particle *–mI* also interacts with information focus: when the sentence stress is shifted to a focused phrase, *–mI* follows the focused phrase. In (5a), the object *iskambil* ‘card’ is emphasized with stress, in (5b), the main verb *oynadı* ‘played’ is focused, and in (5c), the sentence focus is on the subject *Ali*; in all the cases, the Q- particle *–mI* must follow the focused phrase, and failure to place *–mI* after the focused constituent results in ungrammaticality.

- (5) a. Ali (*mı) iskambıl mi oyna-dı (*mı)? (focus on the object)
 Ali cards Q play-PAST
 ‘Is it cards that Ali played?’
- b. Ali (*mı) iskambil (*mı) oyna-dı mı? (focus on the verb)
 Ali cards play-PAST Q
 ‘Did Ali play cards, as discussed? Or ‘Did Ali indeed play cards (this time)?’
- c. Ali mi iskambil (*mı) oyna-dı (*mı)? (focus on the subject)
 Ali Q cards play-PAST
 ‘Is it Ali who played cards?’

(Kamali 2010)

Even more interestingly, *–mI* can also be placed inside an idiom chunk such as *sinek avh* ‘mosquito catch= fail in business’, or a compound verb such as *yardım et* ‘help make= help’,

and in both instances, the sentence stress falls on the N part of the idiom/compound preceded by *-mI*:

(6) A: I heard Ali has a lot of debt to the bank'

B: hala sinék mi avh-yor?

Still mosquito Q catch-IMF

'Is his business still not going well?'

(Kamali 2010)

(7) san-a yardım mı et-ti o adam?

you-DAT help Q make-PAST that man

'Did that man help you?'

(Göksel and Kerslake 2005:292)

In addition to yes-no questions, it has been reported that *-mI* can appear with a *wh*- word to form an echo *wh*- question (Tosun 1991; Göksel and Kerslake 2005). (8a) below is a regular *wh*- question, and no Q particle is required. The *wh*- question in (8b) with *-mI* following *ne* 'what' is interpreted as an echo question, and it is used when "the initial question is unexpected and has come as a surprise, or because part of the initial question has not been heard or understood properly" (Göksel and Kerslake 2005: 306). Unsurprisingly, the Q particle is required to follow the *wh*-phrase, since the *wh*-phrase is the locus of sentence focus, as shown in (8b).

(8) a. Hasan ne yaptı?

Hasan what did

'What did Hasan do?'

b. Hasan (*mı) ne mi yaptı (*mı)?

Hasan what Q did

'Hasan did what?'

So far, we have seen how the position of the Q particle in Turkish is correlated to the location of sentence focus. However, there are cases which indicate that the placement of *-mI*

doesn't just follow the stress in a sentence; it also needs to respect syntactic constituency. Kamali (2010) shows two such examples:

- (9) a. *Ali [beyaz mı bir araba] al-dı?
 Ali white Q a car buy-PAST
 b. Ali [beyaz bir araba] mı al-dı?
 Ali white a car Q buy-PAST
 'Did Ali buy a white car?'

(Kamali 2010)

(9) above involves a noun phrase with a modifying adjective, and *-mı* can't follow the adjective *beyaz* 'white', which bears the stress. (10) below involves a preposition phrase, in which the nominal phrase *arabaya* 'car' within the PP is focused, and again, *-mı* cannot be placed right after this NP.

- (10) a. *[araba-yá mı doğru] yür-üyor-uz?
 Car-DAT Q towards walk-IMF-1PL
 b. [araba-yá doğru] mı yür-üyor-uz?
 Car-DAT towards Q walking-IMF-1PL
 'Is it the car that we are walking towards?'

(Kamali 2010)

The conclusion that can be drawn from the observations made above is that the attachment of the Q particle *-mı* follows the constituent that receives sentential or focal stress, and the occurrence of the Q particle *-mı* is not restricted to yes-no questions; it can also be found in *wh*- questions, and imposes an echo interpretation. It seems that unlike the second position clitics in many Slavic languages, the Q particle *-mı* does not blindly follow any word at a certain position, but is sensitive to syntactic constituency as well as the prosodic aspect of the sentence, and thus the issue arises as to how to account for the aforementioned interactions with syntax and phonology and how semantics and syntax should be mapped to each other to achieve the meaning of interrogative in the *-mı* construction. In the following sections, we will first

discuss some previous approaches that attempt to address the issues regarding the Q- particle –*mI*, and after evaluating those proposals, I will present an Agree analysis in Section 4.1.3, which, I believe, better captures the grammatical behaviours of –*mI*, and makes correct predictions in the case of multiple focus constructions. The proposed analysis supports the main theses made in the beginning of this dissertation in that low focus category must be licensed by a correspondent focus element in the higher domain via Agree in order to have a semantic input to LF.

4.1.2. Previous proposals

Based on the stress patterns exhibited in Turkish words, Kabak and Vogel (2001) propose a prosodic account which assumes that a phonological word consists of a root plus some suffixes:

- (11) Turkish Phonological Word (Kabak and Vogel 2001: 324)

The PW consists of a root + (most) suffixes.

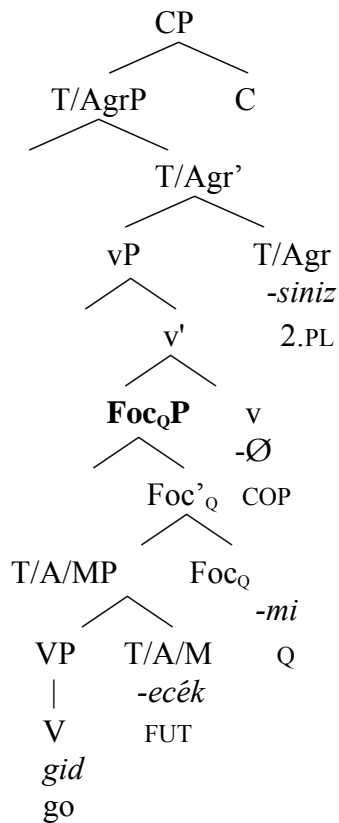
The key idea in Kabak and Vogel’s proposal is that in Turkish, the negation –*mA* and the Q- particle –*mI* along with other pre-stressing suffixes don’t attract stress because they are never part of the phonological word with the root they attach to. Their prosodic account is simple and straightforward, but as Kamali and Samuels (2008) and Kahnemuyipour and Kornfilt (2011) point out, this approach runs into problems by treating the behaviours of pre-stressing suffixes as idiosyncratic. As will be shown later, the stress pattern associated with the negation –*mA* and the Q- particle –*mI* can be accounted for in a systematic way. Moreover, the stress pattern associated with the negation and the Q- particle is beyond the word level, and thus the phenomenon in question cannot be dealt with in the framework assumed by Kabak and Vogel (2001). The prosodic account would also need to account for the examples in (9) and (10) where the Q- particle is not adjacent to a stress-bearing word. In addition, the prosodic account is silent as to how to account for the various positions that the Q particle can occupy at the sentence level, and how its distribution is related to the information structure of the sentence. In view of the shortcomings of the prosodic account, the approaches introduced below try to account for the grammatical behaviours of the Q- particle –*mI* from a syntactic perspective.

Kahnemuyipour and Kornfilt (2011) propose that the negation *-mI* and the Q particle *-mI* head Foc_QP , and this functional projection can be generated either in the CP domain or VP domain. In both cases, it is “immediately above the head which is the locus of Tense/Aspect in the correspondent domain” (Kahnemuyipour and Kornfilt 2011: 211). In their account, stress domains correspond to syntactic domains which contain a T/A/M projection, a projection that encodes the information of tense, aspect or modality³; Foc_QP introduced by *-mI* must be situated right above this T/A/M projection. The focus analysis is demonstrated in the tree diagrams in (12). (12a) exhibits two stress domains with a T/Agr and a T/A/M projection in the structure, and the lower domain receives the primary stress realised on the aspect marker *-ecek*. (12b) only articulates one stress domain with a single Tense projection, and the primary stress falls on the agreement marker *-niz*.

- (12) a. $[\text{DOMAIN2 } [\text{DOMAIN1 } \text{gid-ecék-mi}]-\emptyset\text{-siniz}]?$

go-FUT-Q-COP-2.PL

‘Will you go?’

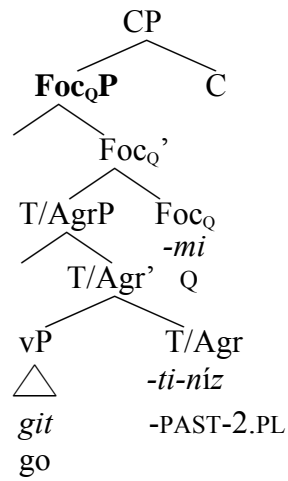


³ Kahnemuyipour and Kornfilt (2011) suggest that the T/A/M in the vP domain can be taken as the equivalent of an internal AspP, which expresses telicity, and the T/AgrP in the CP domain is the equivalent of TP or IP.

b. [DOMAIN *git-ti-níz-mi*]?

go-PAST-2.PL-Q

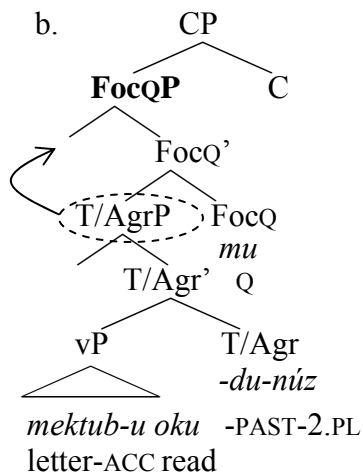
‘Did you go?’



(Kahnemuyipour and Kornfilt 2011: 211-212)

Moreover, Foc_QP can attract a focalized phrase to its specifier, accompanied by prosodic prominence. As shown in (13), the predicate is the contrastive focus, and is raised to the Spec of FocP.

- (13) a. mektub-u ok-du-núz-mu, yaz-dı-níz-mı?
 letter-ACC read-PAST-2.PL-Q write-PAST-2.PL-Q
 ‘Did you **read** the letter (or) did you **write** (it)?’

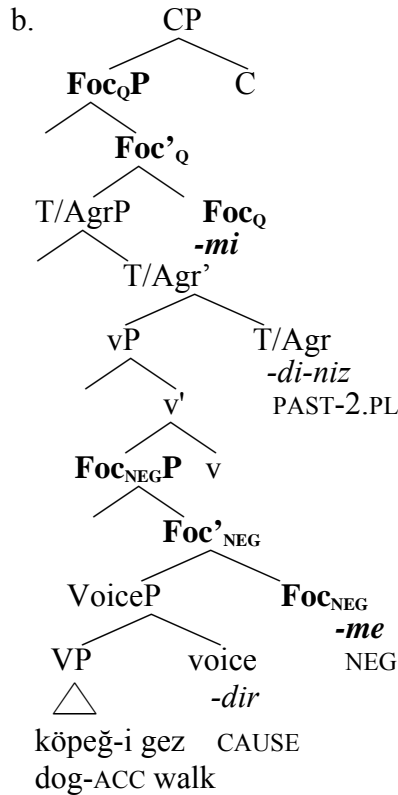


(Kahnemuyipour and Kornfilt 2011: 214)

In Kahnemuyipour and Kornfilt's (2011) account, the negation marker *-mA* is also a focus marker at a low focus head within vP, and it may co-occur with another Focus projection headed by the Q- particle in the higher domain as illustrated in (14b).

- (14) a. köpeğ-i gez-dir-me-di-niz-mi?
 dog-ACC walk-CAUSE-NEG-PAST-2.PL-Q
 'Didn't you walk the dog?'

(Kahnemuyipour and Kornfilt 2011: 215)



The focus analysis of the Q- particle *-mI* is also adopted in Kamali (2010), in which *-mI* is proposed to head its own projection below vP or might be merged in the later cycle, i.e. at the CP domain. Kamali (2010) further argues that only when *-mI* is merged at CP can *-mI* license an NPI element, and she uses the example in (15) to support this claim:

- (15) a. *Ali mi hiç iskambi oynar?
 Ali Q ever cards plays
 b. *Ali hiç mi iskambi oynar?
 Ali ever Q cards plays

c. *Ali hiç iskambi mi oynar?

Ali ever cards Q plays

d. Ali hiç iskambi oynar-mi?

Ali ever cards plays-Q

‘Does Ali ever play cards?’

(Kamali 2010)

(15) shows that the Q particle *-mI* must be at the end of the sentence, a C position assumed by Kamali (2010), to license the NPI word *hiç* ‘ever’. Whether the Q particle *-mI* is at C or at a position simply higher than VP, (15) supports the claim that the positioning of the Q- particle – *mI* is a syntactic operation and it cannot be easily dealt with by a pure prosodic account like that of Kabak and Vogel (2001).⁴

As for the focus analysis of the negation marker *-mA* in Kahnemuyipour and Kornfilt (2010), Kamali and Samuels (2008) argue that it fails to capture the following differences between the negation *-mA* and the Q- particle *-mI*: first of all, while the negation *-mA* overrides sentential focus, and always imposes stress on the preceding verb, the Q- particle *-mI* is only attached to the constituent that carries sentential stress. Recall that sentence stress falls on the object in an unmarked sentence like (16a). When the negation is introduced, as shown in (16b), the prosodic prominence is shifted to the verb which precedes the negation marker, and this stress pattern is in contrast to the one demonstrated in (16c) with the presence of the Q particle *-mI*.

(16) a. Ali iskambıl oynadı. (sentence stress on the object)

Ali cards play-PAST

‘Ali played cards.’

b. Ali iskambıl oyná-ma-dı. (sentence stress on the verb)

Ali cards play-NEG-PAST

‘Ali didn’t play cards.’

⁴ (15) also poses a problem to Kamali and Samuels’ (2010) post-syntactic analysis of the Q- particle *-mI*, if we assume that NPI is a syntactic phenomenon.

- c. Ali iskambıl mi oyna-di. (sentence stress on the object)
 Ali cards Q play-PAST
 ‘Did Ali play cards?’

(Kamali and Samuels 2008: 4)

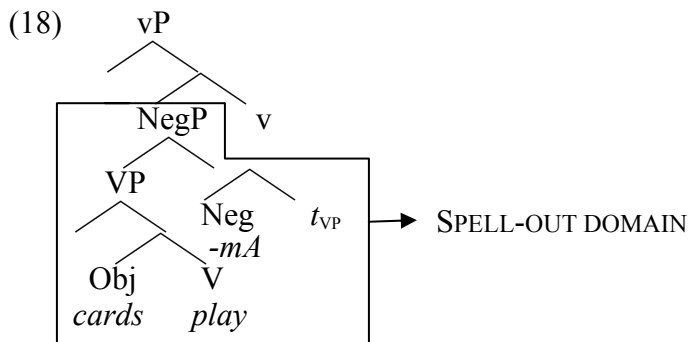
Secondly, Kamali and Samuels (2008) claim that the negation *-mA* doesn’t correlate with informational focus, and it doesn’t mind if there is informational focus elsewhere in the sentence. The argument for their position is that the negation *-mA* can appear with a focused phrase in the sentence. The negative sentence (16b), repeated in (17a), can host a focused element, be the object *iskambil* ‘cards’ in (17b) or the subject *Ali* in (17c).

- (17) a. Ali iskambil oyná-ma-di.
 Ali cards play-NEG-PAST
 ‘Ali didn’t play cards.’
 b. Ali iskambil oyna-ma-di.
 Ali cards play-NEG-PAST
 ‘It is cards that Ali didn’t play.’
 c. Ali iskambil oyna-ma-di.
 Ali cards play-NEG-PAST
 ‘It is Ali that didn’t play cards.’

(Kamali and Samuels 2008: 18)

Based on the properties of the negation marker *-mA* discussed above, Kamali and Samuels (2008) propose that the Turkish negation marker *-mA* is situated below vP and heads NegP, the highest projection in VP. To account for the aforementioned differences on the stress patterns between *-mA* and *-mI*, they adopt Kahnemuyipour’s (2004) view that default stress is assigned to the highest element in the spell-out domain, that is, the complement of a phase head. As shown in (18), the constituent at the right edge of [Spec, NegP], i.e., the VP, receives sentential stress as it occupies the highest position in the spell-out domain.⁵

⁵ As Arsalan Kahnemuyipour (p.c.) points out, the default stress assignment to VP in a negative sentence won’t work when a manner adverb is present in the sentence. This is because manner adverbs are presumably generated within vP but higher than Neg due to word order, and this means that manner adverbs are at the highest position in



(Kamali and Samuels 2008: 26)

While I agree that the negation marker *-mA* does not “float around” in a sentence like the Q- particle *-mI* does when the sentential focus shifts, the co-existence of the negation and a focused phrase does not entail that the negation *-mA* cannot be a focus marker; it is possible that negation occupies a low focus projection and thus can occur with another focused phrase at a higher position. Turkish does allow multiple foci, as shown in (19) with multiple *wh*-words.

- (19) kim kim-i sev-iyor-muş?
 Who who-ACC love-PROG-REPO
 ‘Who loves whom?’

(Göksel and Özsoy 2000: 222)

To prove that the negation marker *-mA* indeed can’t be a focus marker, I suggest the following test: following Rizzi’s (1997) claim that unlike Topic, structural focus is not iterable in the same domain, if the negation marker *-mA* indeed is a focus marker, we would expect that it cannot co-occur with the Q- particle *-mI* when they both appear inside vP; this is because they would target the same position. However, I will show below that this prediction is not borne out. The polarity item *hala* ‘yet’ in Turkish only appears in a negative context, and unlike its English

the spell-out domain, and should receive stress; however, as shown in (i), the stress remains on the VP rather than the manner adverb.

- (i) Ali hızlı iskambil oyna-ma-dı.
 Ali fast cards play-NEG-PAST
 ‘Ali didn’t play cards fast.’

counterpart *yet*, it can't be licensed by the Q- particle $-mI^6$, as (20a, b) show. Assuming that the adverb *hala* 'yet' marks the edge of vP, and that Turkish verbs don't move out of vP (Kahnemuyipour and Kornfilt 2011), (20c) indicates that the negation $-mA$ can co-occur with $-mI$ inside the same domain, which in turns suggests that the negation marker cannot be a focus marker.

- (20) a. Ali hala araba al-ma-dı mı?
 Ali yet car buy-NEG-PAST Q
 'Didn't Ali buy a car yet?'
 b. *Ali hala araba al-dı mı?
 Ali yet car buy-PAST Q
 Intended, 'Did Ali buy a car yet?'
 c. Ali [_{vP} hala araba mı al-ma-dı]?
 Ali yet car Q buy-NEG-PAST
 'Didn't Ali buy A CAR yet?'

Based on the discussion of the different stress patterns of sentences with the Q-particle $-mI$ and the negation $-mA$, it appears that default stress and focal stress are different grammatical objects, and thus need to be teased apart, and receive different treatments.⁷ While default stress

⁶ When *hala* occurs in a negation-free context, it has a different interpretation as 'still'.

⁷ As pointed out in 4.1.1, when a phrase is focused in Turkish, it gets heavy stress which is higher in pitch than a stressed phrase in an unmarked sentence. Göksel and Özsoy (2000) also suggest that sentential stress and focal stress are distinct in Turkish; for sentential stress it falls immediately on a preverbal position, and focal stress can be realized on a constituent in any preverbal position. Semantically, unlike sentential stress, focal stress always evokes alternatives (cf. Rooth (1985)); take (i) for example, in a neutral context, (ia) merely states that the proposition expressed by 'Ali played cards' is false, whereas in (ib) with a focus on the verb, the sentence implies that Ali did something else with cards.

- (i) a. Ali iskambil oyna-ma-dı.
 Ali cards play-NEG-PAST
 'Ali didn't play cards.'
 b. Ali iskambil [_{vP} oyna]-ma-dı.
 Ali cards play-NEG-PAST
 'Ali didn't PLAY cards.'

is assigned by a phonological algorithm based on phases as argued in Kahnemuyipour (2004, et seq.), focal stress is determined by the presence of the functional projection FocP in the structure. In the next sections, we will see more evidence from the Q-particle *–mI* and other grammatical phenomena to support the existence of internal and external FocPs in Turkish.

4.1.3. Outer vs. Inner focus in Turkish

In the last section, we saw that the Q-particle *–mI* can appear low inside the vP domain, and there are proposals such as Kahnemuyipour and Kornfilt (2011), and Kamali (2010), which argue for an internal focus projection that hosts the Q-particle *–mI*. In this section, I will present more evidence for this internal focus projection, from existential constructions and multiple focus constructions.

Özçelik and Nagai (2011) observe that in Turkish, bare noun subjects in unergative constructions can never receive an indefinite interpretation or bear sentential stress; as shown in (21) and (22), the subject *adam* ‘man’ does not attract sentential stress, and instead, the stress must fall on the unergative verbs *güldü* ‘laughed’ and *uyudu* ‘slept’.

- (21) a. *adám* *gül-dü*.
 man laugh-PAST
 ‘The man laughed.’
 b. **adám* *gül-dü*.
 man laugh-PAST
 ‘A man laughed.’

(Özçelik and Nagai 2011: 308)

- (22) a. *adám* *uyu-dú*.
 man sleep-PAST
 ‘The man slept.’
 b. **adám* *uyu-dú*.
 man sleep-PAST
 ‘A man slept.’

(Özçelik and Nagai 2011: 308)

In an unaccusative context, the sentential stress could be assigned either to the verb or the bare subject depending on the interpretation of the bare subject; when the subject is definite, the stress is on the verb as shown in (23a), and (23b) shows that an indefinite meaning can be associated with the stress on the subject .

- (23) a. adám gel-dí.
 man arrive-PAST
 ‘The man arrived.’
 b. adám gel-dí.
 man arrive-PAST
 ‘A man arrived.’

(Özçelik and Nagai 2011: 307)

Similarly, the definiteness effect (DE, henceforth) observed in the unergative cases is also found in the existential construction:

- (24) a. *adám vár.
 man exist
 ‘There is the man.’
 b. adám vár.
 man exist
 ‘There is a man.’

(Özçelik and Nagai 2011: 309)

The stress patterns in the examples above can be explained, if we adopt Kratzer’s (1996) proposal that arguments of unergative and existential verbs are external to VP and are introduced by the functional head v. According to the default sentential stress assignment (Kahnemuyipour 2004), the external argument never receives default sentential stress since it is not in the right position, i.e., it is not the highest element in the spell-out domain of vP.

However, as Özçelik and Nagai (2011) point out, DE is not observed under certain circumstances; for instance, the English existential sentence in (25) receives a list reading, and DE can be violated here.

- (25) There is the man, his wife and also his son.

In Turkish, when the bare subject is focused, DE can also be violated, as illustrated by the definite bare subject *adam* ‘man’ in (26a). Crucially, the definite subject remains in v/VP, as it cannot be placed before the temporal adjunct, *evde* ‘at home’ as shown in (26b).

- (26) a. *ev-de* *adám* *vár.*
 home-at man exist
 ‘There is THE MAN at home.’
 b. **adám* *ev-de* *vár.*
 man home-at exist
 ‘There is THE MAN at home.’

(Özçelik and Nagai 2011: 309)

The stress pattern exhibited in (26) can be explained by the existence of Inner Focus, which assigns the focal stress vP-internally to the existential subject, and the DE constraint on this focused subject is alleviated in the existential construction.

The existence of Inner Focus also makes the distribution of the Q- particle *–mI* in the multiple focus constructions less puzzling. Recall that Turkish allows multiple *wh*-questions and also that when the Q- particle *–mI* is added to a *wh*-question, the sentence becomes an echo question; the relevant examples are repeated below:

- (27) *kim* *ney-i* *gör-d-muş?*
 Who what-ACC love-PROG-REPO
 ‘Who loves what?’

- (28) *Hasan ne* *mi* *yaptı?*
 Hasan what Q did
 ‘Hasan did what?’

When the Q- particle appears in a multiple *wh*- sentence like (27), it turns a regular *wh*-question into an echo *wh*-question, and moreover, depending on what the speaker would like to focus on, it can occur after either *wh*-word, as shown in (29a & b):

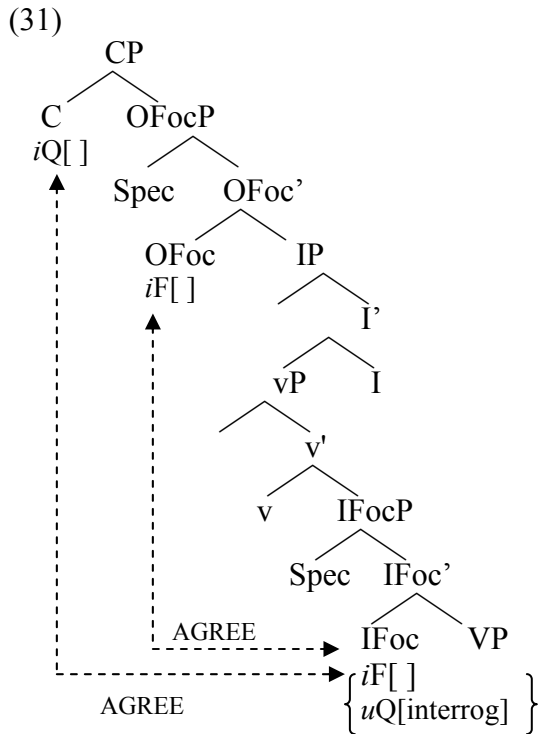
- (29) a. kim ney-i mi gör-d-muş?
 who what-ACC Q love-PROG-REPO
 ‘Who loves WHAT?’
 b. kim mi ney-i gör-d-muş?
 who Q what-ACC love-PROG-REPO
 ‘WHO loves what?’

Along this line of thinking, if Inner and Outer Focus are available in Turkish grammar, we would expect the Q- particle *–mI* to appear in other multiple focus constructions as well, and it should be able to move around if one of the focused constituents is more prominent than the other; this prediction is indeed borne out: (30a) is a regular *wh*-question that can be uttered out of the blue, and when *–mI* is added to the sentence in (30b- d), the echo interpretation is brought out.

- (30) a. okul-a ne zaman gid-ecek-sin?
 school-DAT when go-FUT-2.SG
 ‘When will you go to school?’
 b. okula ne zaman mı gid-ecek-sin?
 school-DAT when Q go-FUT-2.SG
 ‘You will go to school when?’
 c. okula mı ne zaman gid-ecek-sin?
 school-DAT Q when go-FUT-2.SG
 ‘You will go to SCHOOL when?’
 d. okula ne zaman mı gid-ecek-sin?
 school-DAT when Q go-FUT-2.SG
 ‘You will go to SCHOOL WHEN?’

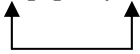

(30b) is typically used in a context in which the speaker A asks for the information of the time when s/he should go to school, and the speaker B continues the conversation with (30b) to confirm the request before s/he provides the information of interest. In (30c) and (30d), with the displacement of *-mI*, the focus of the sentence is shifted to *okula* ‘at school’ and the *wh*-word *ne zaman* ‘when’, respectively. The availability of two focus positions in the structure gives us a straightforward analysis for data like (29) and (30).

As Kahnemuyipour and Kornfilt (2011) have laid out the groundwork for the internal and external focus projections in Turkish, I further propose that these two functional projections agree with each other, and the interrogative interpretation can be achieved via Agree even when the Q particle *-mI* appears low in the sentence. An intervention effect is therefore expected when the agreement between the Outer and Inner Focus is blocked by an element which shares the properties of focus⁸, and indeed that is what we find in the cases where focus expressions are barred in the *-mI* sentences; I will show these findings after presenting the structure. The structure of the *-mI* construction is sketched below:



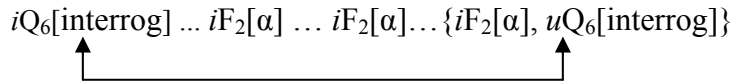
⁸ In fact, Kim (2002) and Beck (2006) have argued at length that what produces the intervention effect are focus phrases, rather than negation or quantifiers. However, see Yang (2007) and Chapter 5 of this dissertation for a different perspective on Intervention effects. Readers should be reminded that the issue of Intervention effects is beyond the scope of this dissertation, and will be left for future research.

(31) represents a (simplified) structure of the *-mI* construction. The feature of question (Q) on C is interpretable yet unvalued, and it probes the matching feature in its c-command domain (see Pesetsky and Torrego (2007) for a similar treatment of the Q feature on an interrogative C); we will see later how the presence/absence of C would affect the licensing of Q. Both O(uter)FocP in the CP domain, and I(nner)FocP in the vP domain host a set of interpretable, unvalued features of focus (F)⁹, meaning that they have semantic input on the LF side once the computation converges, but since they are unvalued, they must receive their values from a counterpart on a focused phrase. Furthermore, either OFoc⁰ or IFoc⁰ can bear *uQ*[interrog]. When a focused phrase merges low at IFocP, the F feature on IFoc⁰ is valued by this focused phrase at its Spec, which in turn values the F feature on OFoc⁰ via Agree. The Q feature on C is also valued by its matching goal on IFoc⁰. The feature bundle, {*iF*[α], *uQ*[interrog]}, is spelled out as the Q-particle *-mI*. (32) shows how the valuation of the features of F and Q proceeds in the *-mI* constructions (irrelevant features are omitted):

- (32) a. Merge IFoc⁰ with VP:
 $\{iF[], uQ[interrog]\}$
 b. Merge focused phrase with IFoc':
 $iF[\alpha] \dots \{iF[], uQ[interrog]\}$
 c. Agree applies:
 $iF_2[\alpha] \dots \{iF_2[\alpha], uQ[interrog]\}$

 d. Merge OFoc⁰ with IP:
 $iF[] \dots iF_2[\alpha] \dots \{iF_2[\alpha], uQ[interrog]\}$
 e. Agree applies:
 $iF_2[\alpha] \dots iF_2[\alpha] \dots \{iF_2[\alpha], uQ[interrog]\}$

 f. Merge C⁰ with OFocP:
 $iQ[] \dots iF_2[\alpha] \dots iF_2[\alpha] \dots \{iF_2[\alpha], uQ[interrog]\}$

⁹ As will be discussed in Section 4.3, the features that make up OFocP and IFocP may not be the same, since these two focus positions may be associated with distinct interpretations. The actual values for these focus features can only be decided after we gain a better understanding of how different types of focus are interpreted in the structure.

g. Agree applies:



(32a-c) shows that after a focused phrase is merged with IFoc', the focus feature on the focused phrase values the focus feature on IFoc⁰, which also possesses an uninterpretable Q feature. (32d, e) shows that the focus feature on OFoc⁰ enters an Agree relation with the two instances of focus feature on the focused phrase and IFoc⁰, when OFoc⁰ is merged with IP. As C⁰ is introduced to the computation in (32f,g), the uninterpretable Q feature of IFoc⁰ values the Q feature of C⁰, and the sentence is clause-typed as a question.

Since Outer and Inner Focus are in the relation of Agree, and respect Relativized Minimality, it is expected that a certain class of elements would be able to block the agreement between these two functional projections and result in intervention effects. One such intervener is the NPI expression *kimse* 'no-one':

- (33) a. **kimse* *pizza-yi* *mi* *ye-me-di*?
 no-one pizza-ACC Q eat-NEG-PAST
- b. *pizza-yi* *mi* *kimse* *ye-me-di*?
 pizza-ACC Q no-one eat-NEG-PAST
 'Is it the pizza that nobody ate?'

(Tosun 1999:7)

As shown in (33a), the subject *kimse* 'no-one', which is made up of the *wh*-word *kim* 'who' and the conditional morpheme '-(I)*se*', precedes the focused object *pizza* located at the Inner Focus headed by the Q- particle *-mi*; this configuration is ungrammatical. To rescue the sentence, the focused object must be raised to a position higher than the intervener *kimse* 'no-one', as shown in (33b). The same blocking effect can be detected when *kimse* 'no-one' appears in a *wh*- echo question; as (34) shows, the object *kimi* 'whom' cannot appear below the scope of *kimse* 'no-one':

- (34) a. **kimse* *kim-i* *mi* *gör-me-mis*?
 No-one who-ACC Q see-NEG-REPO

- b. kim-i mi kimse gör-me-mis?
 who-ACC Q no-one see-NEG-REPO
 ‘Nobody saw what?’

The fact that (33b) and (34b) don’t trigger an intervention effect can be explained if we assume that no Agree is observed between OFocP and IFocP in (33b) and (34b). IFocP is not present in the structures of (33b) and (34b) when *-mI* is merged high, and the focused phrase is moved from its launching site to OFocP without blocking any agreement. Another element that triggers an intervention effect in the *-mI* construction is the focus adverb *yalnızca* ‘only’. The examples in (36) below illustrate essentially the same point as the NPI examples in (33) and (35): *yalnızca* ‘only’ blocks the agreement between the focused phrase *neyi* ‘what-ACC’, and the high focus above TP, and to avoid the blocking effect, *neyi* ‘what-ACC’ must move above *yalnızca* ‘only’, as (36b) shows.

- (36) a. **yalnızca* Hasan ne-yi mi oku-mus?
 only Hasan what-ACC Q read-REPO
 b. ne-yi mi yalnızca Hasan oku-mus?
 what-ACC Q only Hasan read-REPO
 ‘Only Hasan read what?’

Notice that non-focus phrases do not constitute an intervener, and therefore, do not trigger an intervention effect; the non-focused subject *Ali* in (37) can either precede or follow the focused object *iskambil* ‘cards’ without incurring ungrammaticality.

- (37) a. Ali iskambil mi oyna-dı?
 Ali cards Q play-PAST
 b. iskambil mi Ali oyna-dı?
 cards Q Ali play-PAST
 ‘Is it the cards that Ali played?’

So far, I’ve shown that the Inner Focus analysis of the Turkish *-mI* constructions provides a straightforward account of the existence of multiple focus constructions, and it also explains the anti-DE effect observed in the existential construction. Several intervention effects

involving focus phrases such as *kimse* ‘no-one’ and *yalnizca* ‘only’ are taken as evidence for the Agree relation established between Inner and Outer Focus. Before I close up this subsection, I wish to make one last point on how the *–mI* constructions are interpreted as interrogative. It has been widely adopted that the interpretation of interrogatives is done by clause-typing at C (Cheng 1997). It follows that the presence of C would be crucial to whether the Q and focus features can be realized in the structure. To illustrate this point clearly, consider the following sentence:

- (38) [Ali (mi) okul-a (mI) git-ti mi] merak edi-yor-um.
 Ali Q school-DAT Q go-PAST Q wonder-IMPF-1SG
 I wonder if Ali went to school.

In (38), the Q particle *–mI* appears in the embedded clause of an indirect question. Again, it can occur at various positions depending on where the focused phrase is, and the default position is after the embedded predicate.¹⁰ When an indirect question contains both a *wh*- phrase and the Q- particle in the embedded clause, it surfaces as an echo question, as can be seen in (39b), and in this case, the embedded clause must be nominalised.

- (39) a. *[kim mi okul-a git-ti] merak edi-yor-um.
 who Q school-DAT go-PAST wonder-IMPF-1SG
 b. [kim-in mi okul-a git-ti-gi]-ni merak edi-yor-um.
 who-GEN Q school-DAT go-VN-POS-ACC wonder-IMPF-1SG
 ‘I wonder if WHO went to school?’

(39a) shows that if we simply replace a constituent with a *wh*- word, say, the embedded subject in (38), the sentence is not acceptable. To render (39a) grammatical, the embedded clause must be nominalised, as indicated by the genitive case *–in* on the embedded subject *kim* ‘who’, the

¹⁰ Tosun (1999) also suggests that the position of the Q particle depends on the constituent under focus, and clause-edge seems to be its default position for clause-typing, unless there is some focused constituent in the sentence; she further proposes that in the latter case, clause typing is done via covert movement of Q to the edge of the clause. In this dissertation, I argue that clause typing needs not involve LF movement of Q, but can be accomplished via agree between the focus position in the structure associated with the relevant C⁰. See Reinholtz (2007) on question marking in Swampy Cree for a similar proposal.

nominalised form of the verb *-ti*, and the accusative case *-ni* marked on the clause in (39b). Assuming that nominalised clauses, unlike their finite counterpart, lack a full set of C projections (Alexiadou 2001), (39) suggests that the Q in the embedded clause of an echo question can be associated with the matrix C, and scope over the entire sentence since there is no intervening C in the complement clause. (40) shows the same point with a *wh*-adjunct in the embedded clause of an echo question.

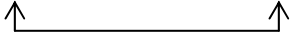
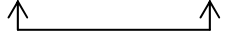
- (40) a. *_{[CP}_{[CP} Ali nere-ye mi git-ti] merak edi-yor-um].
 Ali where-DAT Q go-PAST wonder-IMPF-1SG
 b. _{[CP}_{[DP} Ali'nin nere-ye mi git-ti-gi]-ni merak edi-yor-um].
 Ali.GEN where-DAT Q go-VN-POS-ACC wonder-IMPF-1SG
 'I wonder if Ali went WHERE?'

Furthermore, the relation between C and the Q feature is also a target for intervention effects triggered by focus elements; as the contrast between (41a) and (41b) shows, the presence of the NPI expression *kimse* 'no-one' in the matrix clause causes ungrammaticality.

- (41) a. Ali _{[DP} Ayse-nin mi gel-eceg-i]-ni düşün-di?
 Ali Ayse-GEN Q come-VN-POS-ACC think-PAST
 'Did Ali think that AYSE would come?'
 b. *kimse _{[DP} Ayse-nin mi gel-eceg-i]-ni düşün-me-di?
 no-one Ayse-GEN Q come-VN-POS-ACC think-NEG-PAST
 'Did nobody think that AYSE would come?'

The schematized representations below summarize the findings of this subsection:

- (42) a. Agree between OFoc⁰ and IFoc⁰:

$$[_{CP} C^0 [_{OFocP} OFoc^0 \dots \alpha [_{VP} v [_{IFocP} IFoc^0 VP]]]]$$

 $\alpha \neq \text{focus phrase}$
 b.
$$[_{CP} C^0 \beta [_{O/IFocP} O/IFoc^0 VP]]$$

 $\beta \neq C^0, \text{ or focus phrase}$

(42a) captures the facts that Inner and Outer Focus exhibit an Agree relation, which may be blocked by interveners such as *kimse* ‘no-one’ and *yalnizca* ‘only’. (42b) illustrates a syntactic relation established between C and Focus, which as well can also be a target for intervention effects triggered by a C element or a focus phrase. In this section, I also presented two pieces of evidence for the existence of the internal and external focus projections in Turkish: the anti-definiteness effect in the existential construction, and the existence of the multiple focus constructions. In section 4.2, we will see that the same pattern observed in the Turkish *-mI* construction also emerges in Eastern Armenian.

4.2. Focus and the Eastern Armenian Auxiliary

Like the Turkish Q- particle *-mI*, the E. Armenian auxiliary does not have a fixed position, and its distribution seems to correlate with the location of sentential stress as well; however, as will be shown in this section, the dislocation property of the E. Armenian auxiliary cannot be viewed as a purely phonological phenomenon, since the placement of the auxiliary must respect syntactic constituency. The free distribution of the E. Armenian auxiliary has posed a challenge to any approach which assumes a unifying T/Infl position for grammatical elements bearing tense information; in this section, I propose that The E. Armenian auxiliary can occupy a structurally low position inside the vP domain (Inner Focus) as well as a position higher than TP (Outer Focus), in both cases, the auxiliary attracts a focused constituent. The availability of the Inner and Outer Focus projections in E. Armenian entails the presence of multiple focus constructions in this language and predicts that an intervention effect should arise when a focus phrase intervenes between the two focus projections. This section starts with a few notes on E. Armenian grammar, and a thorough investigation of the grammatical properties of the auxiliary in this language. The analysis of Inner Focus will be presented after a discussion of Tamrazian’s (1991) proposal, which attempts to capture the syntactic interactions between focus and the position of the auxiliary by assuming that E. Armenian auxiliary undergoes an LF movement to a focus position in the CP periphery. However, we will see that this LF analysis makes wrong predictions in the case of multiple focus constructions.

4.2.1. Grammatical features of Armenian Auxiliaries

Eastern and Western Armenian, spoken in the Republic of Armenia as well as in the region of Nagorno-Karabakh, represent the two standard varieties of Modern Armenian. These two dialects have SOV word order in an unmarked context, and allow scrambling; they differ from each other in a few aspects in phonology and syntax; one of the differences relevant to our discussion here is that while there is no fixed position for E. Armenian auxiliary, in W. Armenian, “the auxiliary always follows the verb unless there is negation in the structure in which case it follows the Neg element” (Tamrazian 1991: 101). Based on this dialectal difference, I will restrict my attention to E. Armenian.

E. Armenian exhibits word-final stress, but the auxiliary does not take on stress. Instead, the stress is placed on the preceding syllable. The example in (43) shows that the stress is on the aspect marker *–um* rather than the following auxiliary.

- (43) yer^h-úm e.
sing-PROG AUX
‘He is singing/He sings.’

(Kahnemuyipour and Megerdooimian 2008: 2)

E. Armenian auxiliary carries tense and agreement (both person and number) features, and usually follows the verb in neutral and unmarked sentences; the example in (43) above demonstrates the post-verbal position of auxiliary, and a full paradigm of the E. Armenian auxiliary is shown in (44).

(44) Table 4.2.1. E. Armenian Auxiliary paradigm (Kahnemuyipour and Megerdooimian 2008)

	Present tense	Imperfect (past) tense
1.sg	<i>em</i>	<i>ei</i> (colloquial <i>im</i>)
2.sg	<i>es</i>	<i>eir</i> (colloquial <i>ir</i>)
3.sg	<i>e</i> (colloquial <i>a</i>)	<i>er</i>
1.pl	<i>enk</i>	<i>eink</i> (colloquial <i>ink</i>)
2.pl	<i>ek</i>	<i>eik</i> (colloquial <i>ik</i>)
3.pl	<i>en</i>	<i>ein</i> (colloquial <i>in</i>)

Another prominent feature of the E. Armenian auxiliary is that it follows the constituent that bears the primary stress of the sentence, which usually falls on the predicate when the sentence doesn't contain any of the following expressions: non-specific object, manner/measure adverb, unaccusative subject, and preverb in compound verb. When one of the aforementioned constituents appear in a sentence, the primary stress shifts from the predicate to the constituent in question, and the auxiliary is obligatorily adjacent to it. The examples in (45) and (46) illustrate this change.

- (45) Ara-n hats e tats-a-ts-n-um
 Ara-NOM bread AUX wet-INCH-CAUS-ASP-PRES
 'Ara is wetting bread.'

(Megerdooonian 2002: 5)

- (46) a. Ara-n hats-ə tats-a-ts-n-um e.
 Ara-NOM bread-ACC wet-INCH-CAUS-ASP-IMP AUX
 'Ara is wetting the bread.'

(Megerdooonian 2002: 5)

- b. Siran-ə surik-in sirum e.
 Siran-NOM Surik-ACC like-PRES AUX
 'Siran likes Surik.'

(Tamrazian 1991: 103)

The sentence in (45) is in contrast to those in (46) in that while the nonspecific object *hats* 'bread' in (45) has primary stress with the auxiliary *e* following it, the definite objects (*hats* marked with an accusative marker and the proper name *Surik*) are excluded from the domain of stress assignment. As claimed by Megerdooonian (2002), an accusative object in E. Armenian receives a specific reading and must be interpreted as referential or partitive; structurally, it occupies a position outside VP, and does not receive the main stress of the clause. In contrast, a bare object has a weak reading, and is interpreted as existential; structurally, it remains in VP, and receives the sentential stress.

(47a) - (47c) below show that in an unmarked context, the auxiliary follows the manner adverb (*lav* ‘good’), the unaccusative subject (*mart^h* ‘man/human’), and the preverb noun (*chav* ‘pain’), which bear the primary stress of the sentence in (47a)-(47c) respectively.

- (47) a. Nairi-n lav er gndax xaq-um
 Nairi-NOM good AUX ball play-PRES
 ‘Nairi was playing ball well.’
- b. mart^h a gal-i.
 man/human AUX come-PROG
 ‘Someone is coming.’
- c. es hivand-ə chav er kaš-um
 this patient-NOM pain AUX pull-PROG
 ‘This patient was in pain /This patient was hurting.’

(Kahnemuyipour and Megerdooimian 2008: 4; 6)

The schema used in Kahnemuyipour and Megerdooimian (2008) is adopted below in (48) to summarize the findings regarding the positions of E. Armenian auxiliary presented above:

(48)

[_{vP}	<i>manner adverb</i>	AUX	DO-NSP	Preverb	Verb]
	[_{vP}	<i>DO-NSP</i>	AUX	Preverb	Verb]
		[_{vP}	<i>Preverb</i>	AUX	Verb]
			[_{vP}	<i>Verb</i>	AUX]

(Kahnemuyipour and Megerdooimian 2008: 8)

To account for the positional distribution of E. Armenian auxiliary, Kahnemuyipour and Megerdooimian (2008) propose that the E. Armenian auxiliary is a second position clitic in a vP phase, as it cliticizes to the highest constituent within the vP complement, that is, manner adverbs, non-specific object (if manner adverbs are absent), or preverb nouns (if the previous two are absent); the default stress is also assigned to the same constituent which occupies this position. However, this second position analysis is only applicable if focus is not present; if a sentence contains a focused element, the default stress is overridden by the focal stress, and the auxiliary, if present, follows the focused element, rather than the constituent which would

normally attract primary stress. For instance, in (49), the definite object *girk^hn* ‘the book’, which otherwise doesn’t get primary stress, must be followed by the auxiliary if it is focused.

- (49) Ara-n girk^h-n¹¹ a ar-el.
 Ara-NOM book-ACC AUX buy-PRF
 ‘Ara has bought THE BOOK (instead of the pen).’

On the other side, proper nouns, which normally don’t bear sentence stress as we saw in (46), can be focused, and the auxiliary is then required to follow them:

- (50) a. surik-en e Siran-in sirum.
 Surik-NOM AUX Siran-ACC like-PRES
 ‘SURIK likes Siran.’
 b. siran-ə surik-in e sir-um.
 Siran-NOM Surik-ACC AUX like-PRES
 ‘Siran likes SURIK.’

(Tamrazian 1991: 103;106)

One thing worth mentioning is that when an auxiliary appears in a negative sentence, it is always cliticized to the negation, and attracts the primary stress of the sentence, as seen in (51):

- (51) Ara-n girk^h č^h-i ar-el.
 Ara-NOM book NEG-AUX buy-PRF
 ‘Ara did not buy a book/books.’

This pattern is somewhat different from what we saw in Turkish both morphologically and prosodically. Recall that in Turkish the primary stress falls on the verb followed by the negation marker, and we have suggested that the phenomenon can be accounted for by the proposal that default stress is assigned to the highest element in the spell-out domain. Following this line of reasoning, I propose that the difference between Turkish and E. Armenian can be

¹¹ Notice that the accusative marker is changed to *-n* for phonological reasons.

boiled down to the fact that the E. Armenian auxiliary merges below NegP inside vP, and by head movement to Neg⁰, it receives the primary stress at PF. One piece of evidence comes from (52a- b): when a focused constituent, *Aran*, occurs in a negative sentence, Neg+Aux *č^h-i* needn't be adjacent to this focused phrase ((52a)), nor can the negation cliticize to the verb and leave the auxiliary *a* follows the focused NP *Aran*, as illustrated in (52b). The examples in (52) suggest that the E. Armenian auxiliary must merge right below NegP inside vP, and once the auxiliary cliticizes to Neg⁰ in a vP phase, it is not accessible to any syntactic mechanism outside the phase.

- (52) a. *Ara-n č^h-i girk^h ar-el.
 Ara-NOM NEG-AUX book buy-PRF
 Intended, 'It is Ara who did not buy the book.'
- b. *Ara-n a girk^h č^h-ar-el.
 Ara-NOM AUX book NEG-buy-PRF
 Intended, 'It is Ara who did not buy the book.'

The same facts in (52) are also used in Tamrazian (1991), who attributes the ungrammaticality of the examples to the incompatibility of negation with a focused phrase in the same clause¹². However, the examples below show that her description is incorrect:

¹² Tamrazian (1991) noted that in addition to negation, a focused verb cannot co-occur with another focused element as well:

- (i) *Siran-e girk^h-ə katr-um e.
 Siran-NOM book-ACC read-PRES AUX
 'SIRAN is READING the book.'

(Tamrazian 1991: 119)

However, my consultants do not agree with her conclusion. The double focus reading can be readily elicited from the following context:

- (ii) A: Ara stole the book.

- (53) a. Ara-n girk^h č^h-i ar-el.
 Ara-NOM book NEG-AUX/3SG.PRES buy-PRF
 ‘It is Ara who did not buy the book.’
- b. girk^h Ara-n č^h-i ar-el.
 book Ara-NOM NEG-AUX buy-PRF
 ‘It is a book/books that Ara did not buy.’
- c. [girk^h č^h-i ar-el] Ara-n.
 book NEG-AUX buy-PRF Ara-NOM

In the negative sentences in (53) above, (53a) contains a focused subject *Aran*, and (53b) contain a focused object, *girk^h* ‘book’; both examples show that the constituent which receives the focal stress needs to be fronted in a negative sentence. (53a- b) show that focus and negation indeed can co-exist in the same clause, and when the focus is on the object, object fronting or VP fronting can be employed, as shown in (53c).

A last point to demonstrate that E. Armenian auxiliary must follow focal stress is shown in the context of *wh*-questions. Tamrazian (1991) suggests that E. Armenian *wh*- sentences employ covert *wh*- movement, a syntactic operation identified as the same type of movement as in focused sentences by Megerdooonian and Ganjavi (2001), and crucially, the auxiliary, if present, obligatorily follows the *wh*-word, as shown in (54).

- (54) a. Siran-e umen e sir-um (*e)?
 Siran-NOM who-ACC AUX like-PRES AUX
 ‘Who does Siran like?’
- b. ov e siran-ən sir-um (*e)?
 Who.NOM AUX Siran-ACC like-PRES AUX
 ‘Who likes Siran?’

(Tamrazian 1991: 104)

B: No. Nobody stole the book. Actually, ANUŠ BOUGHT the book.

- Anuš-ə girk^h-ə ar-el a.
 Anuš-NOM book buy-PRF AUX
 ‘ANUŠ BOUGHT the book.’

Interestingly, in a double focus setting, the auxiliary can freely appear after either focused element. Observe the following *wh*-sentences:

- (55) a. ov e umn naj-um?
 who.NOM AUX who.ACC look-PRES
 ‘Who is looking at whom?’
 b. ov um e naj-um?
 who.NOM who.ACC AUX look-PRES
 ‘Who is looking at whom?’

(Tamrazian 1991: 106)

Notice that there is no meaning difference between (55a) and (55b); they both can be replied by answers with a pair-list reading¹³ (‘John is looking at Sarah and Peter is looking at Mary.’), though my consultants reported that (55a) is preferred over (55b). In other words, the auxiliary seems to have a tendency to follow the first *wh*-word in the sentence, and this preference can be clearly demonstrated in one of the many examples in the E. Armenian reference book in (56), where the object *wh*-word *inč* ‘what’, is fronted and followed by the auxiliary *e*.

- (56) a. ov e inč gr-um?
 Who.NOM AUX what-ACC write-PRES.
 ‘Who writes what?’
 b. inč e ov gr-um?
 what-ACC AUX who.NOM write-PRES.
 ‘Who writes what?’

(Dum-Tragut 2009: 403)

¹³ A reply with a single pair reading (‘John is looking at Sarah’) is pragmatically odd both to (55a) and (55b); the same observation can be found in English:

- (i) Who bought what?
 a. John bought a book, Sue bought a record, and Bill bought a tape.
 b. ??John bought a book.

On the other hand, when a non-*wh* phrase is focused in a *wh*-sentence, the auxiliary may not follow the focused phrase.

- (57) a. *um* *a* *Aran* *k^hp-el?*
 who.ACC *AUX* *Ara.NOM* *hit-PRF*
 b. *Aran* *um* *a* *k^hp-el?*
 Ara.NOM *who.ACC* *AUX* *hit-PRF*
 ‘Who did Ara hit?’
 c. **Aran* *a* *um* *k^hp-el?*
 Ara.NOM *AUX* *who.ACC* *hit-PRF*

In the examples above, the auxiliary follows the *wh*-word *um* ‘*who.ACC*’ that attracts the focal stress, and (58) below shows further that when a constituent other than the *wh*-word is focused, the subject *Aran* in this case, the auxiliary follows the *wh*- phrase instead of the focused subject *Aran*. Notice further that both sentences in (58) receive an echo question interpretation.

- (58) a. *Aran* *um* *a* *k^hp-el?*
 Ara.NOM *who.ACC* *AUX* *hit-PRF*
 b. *um* *a* *Aran* *k^hp-el?*
 who.ACC *AUX* *Ara.NOM* *hit-PRF*
 ‘ARA hit who?’¹⁴

¹⁴ Tamrazian (1991) uses the following example to show the incompatibility of focus and *wh*-phrases in E. Armenian.

- (i) **ov* *Siran-in* *e* *sir-um?*
 Who.NOM *Siran-ACC* *AUX* *like-PRES*
 Intended, ‘Who likes SIRAN?’

However, I suggest that the ungrammaticality of (i) can be explained by the wrong placement of the auxiliary, that is, the auxiliary should be positioned after the *wh*-element, rather than after the focused phrase.

- (ii) *ov* *e* *Siran-in* *sir-um?*
 who.NOM *AUX* *Siran-ACC* *like-PRES*

Based on the observations above, it may seem at first glance that the position of the E. Armenian auxiliary is determined by the prosody of the sentence so that it follows the constituent with the most prominence in stress. However, there is evidence that the phonological factor cannot be the sole determinant for the displacement of the E. Armenian auxiliary, and as will be argued later, syntax also takes part in the distribution of the element in question. As we can see in (59a-b) below, the subconstituents of the nominal *nra p^hol^hr eɣbayr* ‘his little brother’ cannot be separated by the auxiliary *e*, even though the adjective *p^hol^hr* ‘little’ in (59a) and the possessive *nra* ‘his’ carry the sentence stress in (59a) and (59b); instead, the auxiliary must follow the nominal as a whole. On the other hand, (59c) shows that a well-formed syntactic constituent such as the subject *Aramn* can be the target for the placement of the auxiliary if it is focused.

- (59) a. *Aram-ə* [*nra* *p^hol^hr* (**e*) *eɣbayr-n*] *e*?
 Arm.NOM his little AUX brother.ACC AUX
 ‘Is Aram his LITTLE brother?’
- b. *Aram-ə* [*nra* (**e*) *p^hol^hr* *eɣbayr-n*] *e*?
 Arm.NOM his AUX little brother.ACC AUX
 ‘Is Aram HIS little brother?’
- c. *Aram-n* *e* [*nra* *p^hol^hr* *eɣbayr-ə*]?
 Aram.NOM AUX his little brother.ACC
 ‘Is ARAM his little brother?’

(Dum-Tragut 2009: 397)

More examples are cited in (60) and (61) to support the claim that the displacement of the E. Armenian auxiliary must respect syntactic constituency. (60) indicates that the non-constituent *kapuyt* ‘blue’ cannot attract the auxiliary *a*, and the focused dative marked noun *Puškini* in (61) cannot be extracted from the reduced relative clause *Puškini anvan* ‘named after

(iii)	<u><i>Siran-in</i></u>	<i>ov</i>	<i>e</i>	<i>sir-um?</i>
	<i>Siran-ACC</i>	<i>who.NOM</i>	<i>AUX</i>	<i>like-PRES</i>

However, both (ii) and (iii) receive an echo question interpretation which needs a pre-established set of individuals for *ov* ‘who’.

Pushkin’ to a preverbal position, a position which has been assumed to relate to focus in the literature.

- (60) Ara-n [kapuyt (*a) maz-er-ov təgh-in] a hravir-el.
 Ara-NOM blue AUX hair-PL-INST boy-DAT AUX invite-PRF
 ‘Ara has invited the BLUE-haired boy.’

(Kahnemuyipour and Megerdooimian 2008: 13)

- (61) a. Aram-ə gn-um e [Puškin-i an-van dprots^h] ?
 Aram-NOM go-PRES AUX Puškin-DAT name-DAT school.ACC
 ‘Does Aram go to the school named after Pushkin?’

- b. *Aram-ə Puškin-i e gn-um [an-van dprots^h] ?
 Aram-NOM Puškin-DAT AUX go-PRES name-DAT school.ACC

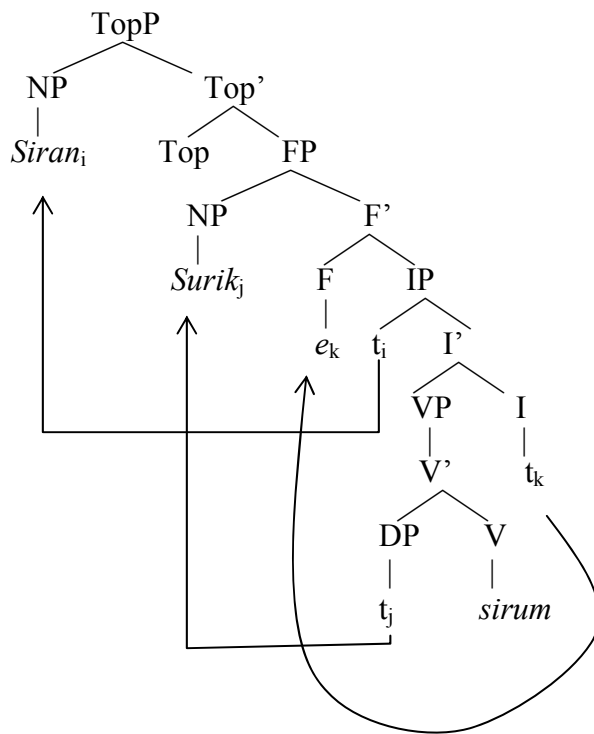
(Dum-Tragut 2009: 399)

In conclusion, we have seen that the E. Armenian auxiliary follows the constituent that bears the primary stress of the sentence in an unmarked context; when a focal stress appears in a sentence, the auxiliary is required to be immediately adjacent to the focused phrase. In this subsection, I also clarified that negation and focus can co-exist in the same clause and that a sentence with a focused verb can have another focused phrase. I’ve shown that on one hand, with a proper context, the unacceptable sentences used to demonstrate the constraints on the co-existence of negation/focused verb and a focused phrase can be greatly improved and become acceptable. On the other hand, I have also proposed that the different prosodic and morphological behaviours of negation in Turkish and E. Armenian can be accounted for if we assume that default stress is assigned to the complement of vP (Kahnemuyipour 2004, et seq.), and the auxiliary in E. Armenian merges below NegP inside vP, and a head movement takes place from the auxiliary to Neg⁰, which is absent in Turkish grammar; this explains why the auxiliary in E. Armenian must be adjacent to the negation, and together they receive the sentence stress, while the Turkish negation *–mA* invariably imposes stress in the preceding verb. In the next section, I will present Tamrazian’s (1991) LF analysis before I introduce a new perspective on E. Armenian auxiliary in 4.2.3 that argues that information structure can reach down to vP, and that vP internal focus projection hosts the E. Armenian auxiliary.

4.2.2. Previous account: Tamrazian (1991)

Acknowledging the fact that the E. Armenian auxiliary needs to follow the focal stress of the sentence, Tamrazian (1991) suggests that this adjacency requirement on the focused phrase and the auxiliary can be explained by assuming a head-specifier relation holding between these two elements in a Focus projection. This Focus projection is occupied by the auxiliary and a focused phras. Her analysis can be represented in the following tree diagram:

- (62) Siran-e Surik-in e sir-um.
 Siran-NOM Surik-ACC AUX like-PRES
 ‘Siran likes SURIK.’



The focused object *Surik* moves to the spec of FP, whose head is occupied by the auxiliary to support the abstract F(ocus) morpheme and assigns f(ocus)-feature to the constituent at [Spec, FP]. The subject *Siran* moves further to a topic position, and thus the surface word order of subj+obj+aux+verb is derived. However, Tamrazian noticed that the material that precedes the focused phrase cannot always be in a topic position, in view of the difficulty of applying the topicalization analysis to the following example in (63):

- (63) Siran-e amen aravot patyhanits umn e kanch-um.
 Siran-NOM every morning window.DAT who AUX call-PRES
 ‘Who does Siran call every morning from the window?’

(Tamrazian 1991: 107)

The left dislocation treatment for (63) must be rejected for the following reasons: first of all, the interpretation of (63) suggests that the material preceding the *wh*-phrase doesn’t serve as a topic in the sentence. This claim is also well supported by the grammaticality of (64), in which the clause in (63) is embedded in an *if* clause, as it is believed that embedded clause disallows dislocated elements (É. Kiss 1987).

- (64) Surik-e hartsən-um e te
 Surik-NOM ask-PRES AUX if
 [Siran-e amen aravot patyhanits umn e kanch-um].
 Siran-NOM every morning window.DAT who AUX call-PRES
 ‘Surik is asking if Siran calls who every morning from the window.’

(Tamrazian 1991: 108)

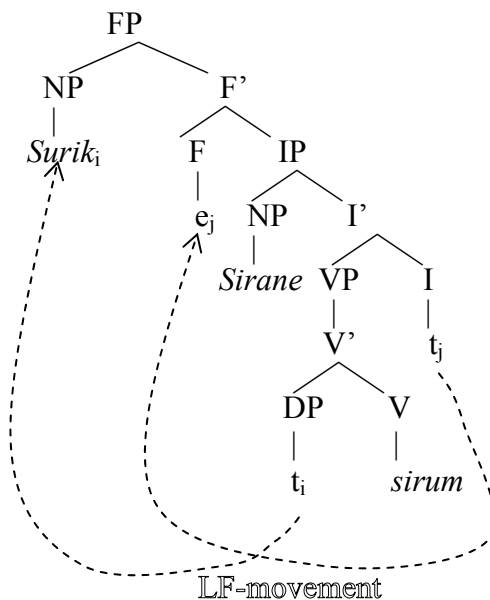
Secondly, the material preceding the *wh*-phrase can be a universal quantifier or an indefinite, which both are known to resist topicalization (May, 1977). (65a) below shows that indefinite nominals such as *mi ashakert* ‘one student’ cannot be topicalized in E. Armenian, while (65b) shows that such a phrase can nonetheless precede a focused phrase.

- (65) a. * mi ashakert yes tes-el em.
 one student I see-PRF AUX
 Intended, ‘one student, I have seen.’
 b. aisor tesa vor [mi ashakert ais girk er kard-um].
 today saw.I that one student this book AUX read-PRES
 ‘Today I saw that a student was reading THIS BOOK.’

(Tamrazian 1991: 108)

The facts in (63)-(65) forced Tamrazian to reformulate her analysis, and instead of claiming that focus movement takes place at S-structure, she proposes that it is part of the LF component. To account for the nearly unrestricted ordering effect observed in the behaviour of the auxiliary, she makes the following claim: the auxiliary should be viewed as an instance of feature assigning, and “this feature is only assigned to the verb in sentences which don’t have a focus, and to the element bearing the +f feature in sentences which have a focus” (Tamrazian 1991: 111). Take (66) again for example: the head of FP assigns its f feature to *Surik* at the Spec of FP, and forms a chain with it. Since the head of FP is an abstract one that requires pronunciation at PF, the auxiliary on I must move to support F^0 . Notice that the movements in (66) take place at LF. The chain formed between the focused phrase and the F^0 ensures the feature transmission of tense and agreement features, i.e. the auxiliary, which is later spelled out on the focused phrase.

- (66) Siran-e Surik-in e sir-um.
 Siran-NOM Surik-ACC AUX like-PRES
 ‘Siran likes SURIK.’



Tamrazian’s approach is attractive, as it provides a very straightforward explanation as to how the E. Armenian auxiliary is tied to focus and why there is an adjacency requirement on the focused constituent and the auxiliary. However, her LF mechanism also generates some

wrong results, and runs into difficulty with explaining the surface word order in the case of the multiple focus constructions. Let's see how.

First of all, Tamrazian's LF approach assumes that focused phrases stack at the Spec of FP above IP at LF, and at S-structure, focused phrases "reconstruct" to their original positions before the structure is shipped to PF; the features of tense and agreement would be realized on the "closest" focused phrase, that is, the "first" focused element targeted by f-feature. If this is the case, we would expect a locality constraint in effect in the multiple focus constructions; more specifically, we would expect that we should not have a case in which a "high" focused phrase precedes a "low" focused phrase and the auxiliary follows the low focused phrase (Foc1+Foc2+Aux). The reason is that the f- feature would always target the "closest" focused phrase before the more distant ones, and as a consequence, the auxiliary on F⁰ would follow the "closest" focused phrase. However, this prediction is not borne out, and many counter-examples can be found. The VP adjunct *inchpes* 'how' follows the *wh*-subject *ov* 'who' in (67) and the focused subject *Siran* in (68); under the analysis proposed in Tamrazian (1991), we should expect these sentences to be unacceptable, as the *wh*-/focused subject at IP is a closer target for the focus movement than the *wh*-adjunct, and therefore, the tense and agreement features should be spelled out on the *wh*-/focused subject.

- (67) *ov* *inchpes* *e* *gər-um?*
 who.NOM how AUX write-PRES
 'Who writes how?'

- (68) *Siran-e* *inchpes* *e* *gər-um.*
 Siran-NOM how AUX write-PRES
 'How is SIRAN writing?'

Notice that the phenomenon discussed above is not restricted to *wh*-adjuncts. As shown in (69), a *wh*- object also can be followed by an auxiliary:

- (69) *ov* *umn* *e* *sir-um?*
 who.NOM who.ACC AUX like-PRES
 'Who likes whom?'

To overcome the shortcomings of the mono-focus analysis in Tamrazian (1991), I take the existence of multiple focus constructions as evidence for postulating two layers of focus projections, for one in the C/IP domain, and the other one in the vP domain. I further suggest that focus movement must be visible in syntax, and in the following section, I will present the Inner Focus analysis for E. Armenian auxiliary.

4.2.3. Inner Focus account

In the first part of this section, I present evidence for “overt” focus movement in E. Armenian, contra Tamrazian’s (1991) LF raising approach. After laying the ground for overt focus movement, I further argue for the existence of two focus projections in the structure, and I take the multiple focus constructions as a syntactic object that articulates that structure; by demonstrating that certain focus elements could trigger intervention effects in these constructions, I suggest that the two focus projections exhibit an Agree relation, which applies between two focus features on the Inner and Outer Focus heads, and can be blocked by grammatical elements with the same properties as focus.

Kahnemuyipour (2001, 2006) studies Persian *wh*-questions, and proposes that *wh*-elements in Persian do not employ the same syntactic movement as their English or Chinese counterparts, both of which are claimed to be raised to CP overtly or covertly under the standard analysis. Instead, he argues that Persian *wh*-questions involve a shorter movement to a functional projection associated with focus, and thus Persian forms a third typological group in which *wh*-phrases undergo focus movement, distinct from *wh* in-situ and *wh*-movement (to CP) languages. I claim that E. Armenian *wh*-movement is also an instance of focus movement, and this movement must be part of the overt component of the grammar, contra to the proposal in Tamrazian (1991).

To show that focus movement in E. Armenian must be overt, consider the examples in (70)–(75) below, which all involve post-verbal constituents¹⁵¹⁶. In (70), the adjunct clause originates postverbally in an unmarked context, and in (71), when the *wh*-adjunct is questioned, it cannot remain postverbally but appears before the verb *amushatsel* ‘married’.

¹⁵ As we saw in (67)–(69), the word order of a sentence with a *wh*-subject or a *wh*-object surfaces the same as their non-*wh* counterparts, and therefore, we still obtain an SOV order in these cases, which won’t help us determine if there is movement in E. Armenian *wh*-sentences.

¹⁶ The tests in (70)–(75) are adopted from Kahnemuyipour (2006), in which Persian *wh*-words are examined.

- (70) Ara-n amushats-el e Siran-i het, [vorovetev nasir-um e nran].
 Ara-NOM marry-PRF AUX Siran-DAT to because he love-PRES AUX her
 ‘Ara married Siran because he loves her.’

- (71) a. inchu e Ara-n amushats-el Siran-i het?
 why AUX Ara-NOM marry-PRF Siran-DAT to
 ‘Why did Ara marry Siran?’
 b. *Ara-n amushats-el Siran-i het inchu e?
 Ara-NOM marry-PRF Siran-DAT to why AUX

The same pattern obtained in (71) can be observed in the cases with postverbal arguments. When *Sirani* ‘to Siran’ in (72) and *seghuanin* ‘on the table’ in (74) are questioned, they must be raised to a preverbal position as well, as shown in (73) and (75). Note that the *wh*-phrases in (71), (73), and (75) can also appear after the subject. If we take the presence of the auxiliary to mean that the constituent preceding it carries focus, the examples we see below indicate that E. Armenian *wh*-movement must be overt and must be associated with focus.

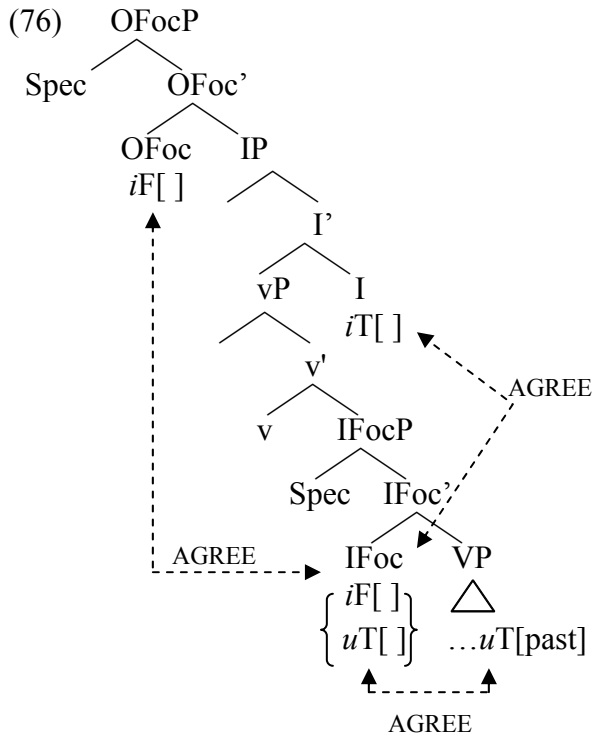
- (72) Ara-n tv-el e girkh [Siran-in].
 Ara-NOM give-PRF AUX book Siran-DAT
 ‘Ara gave the book to Siran.’

- (73) a. [um]e Aran tv-el aid girkh?
 who AUX Ara-nom give-PRF that book
 ‘Who did Ara give that book to?’
 b. *Aran tv-el aid girkh [um] e?
 Ara-nom give-PRF that book who AUX

- (74) Ara-n dr-el e girkh [seghuan-in].
 Ara-NOM put-PRF AUX book table-DAT
 ‘Ara put the book on the table.’





- (75) a. [voztegh] e Ara-n dr-el girkh?
 where AUX Ara-NOM put-PRF book
 ‘Where did Ara put the book?’
- b. *Ara-n dr-el girkh [voztegh] e?
 Ara-NOM put-PRF book where AUX

If focus movement indeed takes place in the overt component of E. Armenian grammar, then the next question we might want to ask is where focused phrases move to in the structure. I suggest that focused phrases move to a preverbal position inside the vP domain, which I call an internal focus position, and they can also move to a pre-subject position in the C/TP domain, an external focus position proposed by Tamrazian (1991). A tree representation with the external/internal focus is illustrated below:



When a phrase is focused, it is raised to [Spec, IFocP] inside vP, or it can undergo a focus movement to a higher position in the C/TP domain. Following Pesetsky and Torrego (2004), I assume that the tense feature on T is interpretable though unvalued, and it acquires its value in finite clauses from the finite verb. I claim that in E. Armenian, Focus (O/IFoc⁰) carries an uninterpretable tense feature *uT*[] in addition to a focus feature, and *uT*[] on Foc⁰ finds as its goal the valued T feature on the verb, which in turn values the tense feature on T. Later at the

Spell-Out, the tense features on Focus are realized as an auxiliary. (77) demonstrates how the focus and tense features are valued during the derivation:

- (77) a. Merge IFoc⁰ with VP:
 $\{iF[], uT[]\} \dots uT[past]$
- b. Agree applies:
 $\{iF[], uT_2[past]\} \dots uT_2[past]$

- c. Merge focused phrase with IFoc':
 $iF[\alpha] \dots \{iF[], uT_2[past]\} \dots uT_2[past]$
- d. Agree applies:
 $iF_6[\alpha] \dots \{iF_6[\alpha], uT_2[past]\} \dots uT_2[past]$

- e. Merge I with vP:
 $iT[] \dots iF_6[\alpha] \dots \{iF_6[\alpha], uT_2[past]\} \dots uT_2[past]$
- f. Agree applies:
 $iT_2[past] \dots iF_6[\alpha] \dots \{iF_6[\alpha], uT_2[past]\} \dots uT_2[past]$

- g. Merge OFoc⁰ with IP:
 $iF[] \dots iT_2[past] \dots iF_6[\alpha] \dots \{iF_6[\alpha], uT_2[past]\} \dots uT_2[past]$
- h. Agree applies:
 $iF_6[\alpha] \dots iT_2[past] \dots iF_6[\alpha] \dots \{iF_6[\alpha], uT_2[past]\} \dots uT_2[past]$


As mentioned above, Focus in Armenian carries two grammatical features, a focus feature and an uninterpretable tense feature; when IFoc⁰ is present and merged with VP, the tense feature of it is valued by agreeing with V. (77c-d) shows that after a focused phrase is merged with IFoc', the focus feature on the focused phrase values the focus feature on IFoc⁰. As T⁰ is introduced to the computation in (77e), the tense feature on I⁰ is valued by the two instances of tense feature on IFoc⁰ and V; the output of this agreement is such that the sentence will receive an interpretation of past tense. (77g,h) shows that the focus feature on OFoc⁰ enters an Agree relation with the two instances of focus feature on the focused phrase and IFoc⁰, when OFoc⁰ is merged with IP.

Lastly, Inner Focus and Outer Focus are associated with different semantic properties (to be shown in Section 4.3), and syntactically are in a relation of Agree, which is susceptible to intervention effects. Elements such as the focus particles *miain* ‘only’ and *nuinisk* ‘even’ constitute a potential intervener for the Agree relation between the two focus heads. In (78a), the subject *Ara* is under the scope of the focus particle *mianin* ‘only’, and must be followed by the auxiliary. (78b) shows that when another focused phrase is present below *mianin Ara* ‘only Ara’, the sentence becomes unacceptable, and to rescue the sentence, the focused phrase must move to the front of the subject as illustrated in (78c).

- (78) a. *mianin Ara-n e Siran-in hǽrvir-el.*
 only Ara-NOM AUX Siran-ACC invite-PRF
 ‘Only Ara invited Siran.’
- b. **mianin Ara-n Siran-in e hǽrvir-el.*
 Only Ara-nom Siran-ACC AUX invite-PRF
- c. *Siran-in mianin Ara-n e hǽrvir-el.*
 Siran-ACC only Ara-NOM AUX invite-PRF

A similar situation to (78) can be found in a *nuinisk* ‘even’ sentence. In (79a), when the object is questioned, the subject associated with the focus particle *nuinisk* ‘even’ must follow but not precede it, as shown in (79b, c).

- (79) a. *nuinisk Ara-n e mrtsanak haxt-el.*
 even Ara-NOM AUX prize win-PRF
 ‘Even Ara won a prize.’
- b. **nuinisk Ara-n inch e haxt-el.*
 even Ara-NOM what AUX win-PRF
 Intended, ‘Even Ara won what?’
- c. *inch e nuinisk Ara-n haxt-el.*
 what AUX even Ara-NOM win-PRF

The contrasts between (78b) and (78c) on the one hand, and (79b) and (79c) on the other, indicate that there is some relation established between the high and low focus, and this relation

can be blocked by elements that share the same properties as Focus⁰ such as *mianin* ‘only’ and *nuinisk* ‘even’.

The intervention effects observed in E. Armenian are parallel to our discussion on the Turkish cases in Section 4.1, where focus phrases *kimse* ‘no-one’ and *yalnizca* ‘only’ are interveners in the *–mI* constructions. The data from the intervention effects in E. Armenian and Turkish supports Kim’s (2002) claim that what produces an intervention effect is focus phrases, rather than negation or quantifiers.

Recall that we have argued in Turkish that a syntactic relation established between C and Focus can be a target for intervention effects triggered by a C element or focus phrase such as *kimse* ‘no-one’. Another similarity shared by E. Armenian and Turkish is that focused constituents in E. Armenian also serve as an intervener and can block other focused phrases in an embedded clause from agreeing with the matrix C. This property can be seen clearly in (80).

- (80) a. Ara-n k’artzum e [vor **ov** e k’at’v-in k’erak’rel]
 Ara-NOM thinking AUX that **who** AUX cat-ACC fed
 ‘Who does Ara think fed the cat?’
- b. * Ara-n e k’artzum [vor **ov** e k’at’v-in k’erak’rel]
 Ara-NOM AUX thinking that **who** AUX cat-ACC fed
 ‘Who is it that ARA thinks fed the cat?’

(Megerdooonian and Ganjavi 2001)

The contrast shown above suggests that in (80b), the matrix clause contains a focused phrase *Aran*, which prevents the *wh*-word *ov* ‘who’ in the embedded clause from taking scope over the matrix clause. Thus the ungrammaticality of (80b) can be captured by assuming that there is some syntactic relation established between C and Focus, which is subject to intervention effects.

In sum, we have seen that the E. Armenian auxiliary behaves similarly to the Turkish Q-particle in that they both exhibit a relatively unrestricted distribution and their positions are related to the location of sentential stress. We have shown that a prosodic approach cannot fully account for the distribution of E. Armenian auxiliary, as there are cases where the auxiliary clearly does not follow the element that bears sentence stress. We have also seen that an LF raising approach proposed in Tamrazian (1991) fails to account for the word order in the multiple focus constructions, and also there is evidence that suggests that focus movement in E. Armenian must be overt and therefore can’t take place at LF. Lastly, the Inner Focus analysis

was proposed to capture the displacement property of the auxiliary and the intervention effects observed in the examples involving focus particles.

4.3. Summary

In this chapter, I have extended our investigation to Turkish and Eastern Armenian, and examined two constructions which both involve grammatical elements that are related to informational structure, but can appear at a position lower than vP- the Turkish *-mI* construction and the E. Armenian auxiliary construction. We observed that although the Turkish Q- particle *-mI* and E. Armenian auxiliary are sensitive to the location of sentence stress, their distributions cannot be accounted for by a prosody-based analysis as proposed by Kabak and Vogel (2001). We have also seen that first of all, the placements of *-mI* and E. Armenian auxiliary are sensitive to syntactic constituency; secondly, the position of the Q- particle *-mI* plays a role in NPI licensing, as only when it appears sentence-finally can it license an NPI, and thirdly, focus expressions trigger intervention effects in the sentences that contain the elements under investigation. The facts mentioned above all point to a syntactic analysis for the Turkish *-mI* construction and the E. Armenian auxiliary construction. To capture the tight relation between the Turkish Q- particle and E. Armenian auxiliary and Focus, I have proposed a structure with two layers of focus projections to accommodate the sentences with multiple foci and the agree relation established between the two focus projections ensures an intervention effect when it is blocked by a focus expression.

If the Inner Focus analysis suggested in this chapter is on the right track, then we might wonder why we need two foci, or to put it a different way, what role each focus projection plays in the structure. Kahnemuyipour (2001, 2006) analyses Persian *wh*- questions as involving not *wh*-movement to CP, but rather focus movement to a lower functional projection in the vP domain. He also suggests that the Persian *wh*-phrase can optionally move to a focus position in the left periphery for emphasis. Following Kahnemuyipour's works, Megerdooonian and Ganjavi (2009) further argue that the additional focus movement from a vP-internal position to a position outside vP is only possible with a D-linked *wh*-element or a specific DP for contrastive/exhaustive focus, and that a non- D-linked *wh*-element remains in the low FP inside vP. The following examples were used to demonstrate the two distinct focus projections in Persian *wh*- sentences.

- (81) a. Ali chi xord-ø?
 Ali what ate-3SG
 ‘What did Ali eat?’
 b. Ali che chiz-ro xord-ø?
 Ali what thing-INDEF-RÂ ate-3SG
 ‘What was it that Ali ate?’

(Megerdooonian and Ganjavi 2009: 4)

(81a) can be replied to with various answers from *sib* ‘apple’, *un do tâ sândevich-ro* ‘those two sandwiches’, to *hichi* ‘nothing’. However, *hichi* ‘nothing’ isn’t an appropriate answer to (81b), and Megerdooonian and Ganjavi (2009) explain that this is because that while (81a) solicits any new information, the *wh*-phrase in (81b) seeks an answer that either identifies an exhaustive or contrastive subset of a set of individuals given in the context. Megerdooonian and Ganjavi (2009) argue that the contrast in the interpretations of the *wh*-phrases above is a reflection of distinct landing sites for *wh*-elements in Persian: non- D-linked *wh*-words occupy a focus position inside vP and hence they surface after manner adverbs, whereas their D-linked counterparts move further to a higher focus position, and therefore, they may appear before manner adverbs, as shown in (82) and (83).

- (82) a. Ali tond-tond chi xord-ø
 Ali fast-fast what ate-3SG
 ‘What did Ali eat quickly?’
 b. ?*Ali chi tond-tond xord-ø (with non-specific reading)
 Ali what fast-fast ate-3SG

- (83) a. ??Ali tond-tond kodum maqâla-ro xund-ø
 Ali fast-fast which article-RÂ read-3SG
 ‘Which article did Ali read quickly?’

- b. Ali kodum maqâla-ro tond-tond xund-ø
 Ali which article-RÂ fast-fast read-3SG

(Megerdooonian and Ganjavi 2009: 4-5)

In (82), when the *wh*-phrase *chi* ‘what’ receives a non-specific reading, it follows the manner adverb *tondtond* ‘quickly’, and on the contrary, the *wh*-phrase *kodum maqâlaro* in (83) is required to precede *tondtond* ‘quickly’. The contrast shown in (82) and (83) strongly suggests that these two *wh*-elements are associated with distinct syntactic positions.

From the discussion above, we have learnt that Persian has two focus sites which correspond to different interpretations: the higher focus represents an identificational focus which “expresses exhaustive identification performed on a set of entities given in the context or situation” (Megerdooian and Ganjavi 2009: 5), whereas the lower focus “marks the non-presupposed nature of the information it carries” (ibid.), that is, it represents the new information of the sentence. The semantic division of two foci in Persian is also in accordance with the general patterns exhibited in languages which display an opposition between an *in situ* and an *ex situ* focused phrase; in these languages, *ex situ* focus is contrastive or exhaustive, while *in situ* focus is new information focus (see Hungarian in Kiss 1998, Georgian in Skoepeteas and Fanselow 2010). I would like to suggest that the external focus is the host of contrastive focus and the internal focus carries the new information in Turkish and E. Armenian. Thus, the existence of the two focus projections is not merely a trivial fact that supports the claim that information structure can reach down to the vP domain, and what appears to be repetitive and redundant may have an interpretive effect on the output of the computation.

Chapter 5

Concluding Remarks

The dissertation probes into the structure of the vP periphery, and addresses the relation between functional phrases at the left edges of CP/IP and vP, and the cross-domain interaction between them. Focusing on the functional projections which encode the information of aspect, modal, negation, and focus, I examined the following constructions: Mandarin temporal adverbial constructions, Mandarin excessive *tā* constructions, Mandarin modal *dé/bù* constructions, the Turkish question particle *-mI*, and Armenian auxiliaries.

In Chapter 2, I showed that in Mandarin, lexical aspect and viewpoint aspect are encoded at two separate levels in the structure, Inner Aspect and Outer Aspect, and the temporal adverbials demonstrate interactions between lexical and viewpoint aspect via various co-occurrence restrictions. The syntactic operation Agree applies to Inner Aspect and Outer Aspect, and the result of this Agree relation gives rise to the semantic interpretation of completeness. In this chapter, the issue of word order variability between post-verbal temporal adverbial and nominal has received a systematic account: the phenomenon is linked to telicity and the semantics of the nominal in Mandarin. Two types of bare nouns are also recognized in this work: a generic type and a property-denoting type; the latter can affect telicity, form a constituent with the preceding frequency/duration expressions, and has different referential properties from the generic type.

In Chapter 3, I argued that modality elements can also be projected inside the vP domain, and presented two pieces of evidence from Mandarin Chinese to support the Inner Modality proposal: the excessive *tā* construction, which contains a pronoun that seems to lack referentiality, yet expresses a meaning of excessiveness, and the *dé/bù* construction, in which a modal appears inside a resultative verbal compound. I proposed that there is a vP-internal functional projection which hosts these grammatical constituents, and these marked forms must be licensed by a correspondent functional element in the domain of C/TP via Agree. The Agree relation between the high and the

low modals is established to derive the meaning of excessiveness in the *tā* construction, and the epistemic/deontic reading in the *dé/bù* construction. In this chapter, I also separated the issue of the excessive *tā* from the event classifier *ge*, and in this way, we are able to account for the various interpretations with respect to the presence/absence of these two elements. Moreover, the Agree account proposed for the *dé/bù* construction offers a simpler system without resorting to LF-excorporation (cf. Wu 2004).

In Chapter 4, I presented evidence for the existence of the internal functional projection that encodes focus. I examined two constructions in this chapter which both involve grammatical elements that are related to informational structure, but can appear at a position lower than vP- the Turkish *-mI* construction and the E. Armenian auxiliary construction. The Turkish Q- particle, and E. Armenian auxiliary head a focus projection inside vP, and display intervention effects with other focus expressions at a higher position. To capture the tight relation between the Turkish Q- particle and E. Armenian auxiliary and Focus, I have proposed a structure with two layers of focus projections to accommodate the sentences with multiple foci, and the agree relation established between the two focus projections ensures an intervention effect when it is blocked by a focus expression. The Inner Focus analysis proposed here is consistent with the previous analyses which argue that Q-particle *-mI* occupies a focus position below vP (Kahnemuyipour and Kornfilt 2011, and Kamali 2010). The Inner Focus analysis is extended to E. Armenian auxiliary, and the Agree approach to the Inner/Outer Focus provides a natural explanation to the Intervention Effects induced by an intervening focus expression in these two constructions. The different stress patterns of the negations in these two languages, an issue that hasn't received much attention in the literature, are also examined, and accounted for in this chapter.

In conclusions, I have established a parallel analysis between C/IP and vP, and argued that first of all, the low grammatical elements involved in the construction under investigation head a functional projection inside the vP domain; secondly, they involve grammatical features that are typically considered to be in C, and are required to be licensed by a corresponding functional category in the C/T domain for the purpose of Full Interpretation. The licensing relation between the high and low functional projections is

implemented by the syntactic operation Agree, and is subject to several structural conditions including intervention effects.

The proposed analysis in this dissertation offers a unified account for the low functional categories cross-linguistically. It reveals the connections between the two phase domains, CP and vP, and identifies the following similarities shared by them: a) C and v* are both endowed with Agree and EF features. b) the mechanism of feature lowering is available in both phases. c) the formal features of C can appear at v* if they are properly licensed via Agree. The findings of this dissertation also provide a basis for research on Agree between A' elements, a topic not fully explored yet. In this work, the syntactic operation Agree on A' elements is taken to be no different from the mechanism which gives rise to the Φ agreement since in both cases, a formal relation is established between Probe and Goal, and uninterpretable features are valued as a result.

Finally, I would like to look at the following issues in my future research:

(i) This dissertation points out the licensing relation between the high and low functional projections, and maintains that the licensing relation is accomplished via Agree. However, the question remains as to what the exact content of the low A' elements is; unlike Inner and Outer Aspect, each of which has more defined and distinct workings in the structure, the distinction between Inner and Outer Modal and Inner and Outer Focus is not as clear. An issue thus can be explored more is that in which way Inner Modal is different from Outer Modal, and Inner Focus from Outer Focus.

(ii) Is it possible to have more than one low functional category in the structure? If yes, what does the structure look like? Does it mirror the hierarchy in the peripheries of C/TP? If no, why is there such a restriction?

(iii) Do other ethical datives behave the same as the excessive *tā*? An investigation on ethical datives in different language types will help us understand the grammatical properties of non-argumental/theta-marked pronouns in general.

(iv) Are Intervention Effects homogeneous or heterogeneous? In this dissertation, I have suggested that in the *dě/bù* constructions, what triggers the Intervention effect can be quantificational expressions; however, in the Turkish and Armenian cases, focus elements are the interveners. A tentative thought on this discrepancy is that it may have to do with the feature specification of the intervener and

the intervenee, which is in line of Yang (2007). More research on the nature of the Intervention Effects is required.

References

- Alexiadou, Artemis. 2001. *Functional Structure in Nominals: Nominalization and ergativity*. John Benjamin Publishing Company.
- Aoun, Joseph, and Y.-H. Audrey Li. 1993. *Syntax of Scope*. The MIT Press, Cambridge.
- Baker, Mark. 1988. *Incorporation: A Theory of Grammatical-Function Changing*. Chicago: University of Chicago Press.
- Beck, Sigrid. 1996. Quantified Structures as Barriers for LF-movement. *Natural Language Semantics* 4, 1-56.
- . 2006. Intervention effects follow from Focus Interpretation. *Natural Language Semantics* 40, 1-56.
- Belletti, Adriana. 2004. Aspects of the low IP area, in *The Structure of CP and IP*, ed. by L. Rizzi, 16-51, Oxford University Press.
- Biq, Yung-O. 2004. Construction, reanalyses, and stance: ‘V yi ge N’ and variations in Mandarin Chinese. *Journal of Pragmatics* 36: 1637-1654.
- Bobaljik, Jonathan D., and Susi Wurmbrand. 2003. Long distance object agreement, restructuring, and anti-reconstruction. *NELS* 33, ed. by M. Kadowaki and S. Kawahara. Amherst, Mass, 67-86.
- Borer, Hagit. 2005. Some notes on the syntax of quantity. *Aspectual Inquiries*, ed. by P. Kemchinsky and R. Slabakova, p 41-68. Springer: Netherlands.
- Bowern, Claire, and Gülşat Aygen-Tosun. 2000. Titan’s Tensed Prepositions. *CLS* 36, ed. by Akira Okrent, and John P. Boyle, p 35-48.
- Butler, Jonny. 2003. A Minimalist Treatment of Modality. *Lingua* 113: 967-996.
- Cable, Seth. 2007. *The grammar of Q : Q-particles and the nature of Wh-fronting, as revealed by the Wh-questions of Tlingit*. Doctoral dissertation, MIT.
- Cecchetto, Carlo. 2004. Explaining the locality conditions for QR: Consequences for the theory of phases. *Natural Language Semantics* 12: 345-397.
- Carlson, Gregory Norman. 1977. *Reference to Kinds in English*. Ph.D. thesis, University of Massachusetts, Amherst.
- Chao, Yuen-ren. 1968. *A grammar of Spoken Chinese*. Berkeley: University of California Press.

- Cheng, Lisa L.-S., and Rint Sybesma. 1998. On Dummy Objects and the Transitivity of Run. *Linguistics in the Netherlands*, ed. by R. van Bezooijen and R. Kager, p 81-93. John Benjamins: Amsterdam.
- . 1999. *Yi wan tang, yi ge tang*: Classifiers and Massifiers. *The Tsing Hua Journal of Chinese Studies* 28-3: 385-412.
- . 2005. Classifiers in four varieties of Chinese. In *The Oxford Handbook of Comparative Syntax*, ed. by Gulielmo Cinque and Richard Kayne, p 259-292. New York: OUP USA.
- Cheng, Lisa L.-S. 1997. *On the Typology of Wh-Questions*. New York/London: Garland Publishing.
- Chierchia, Gennaro. 1998. Plurality of Mass Nouns and the Notion of Semantic Parameter. In *Events and Grammar*, ed. by Susan Rothstein, p 53-103. Kluwer, Dordrecht.
- Chomsky, Noam. 1986. *Knowledge of Language: Its nature, Origin, and Use*. Praeger, New York.
- . 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- . 2000. Minimalist Inquiries. In *Step by step: Essays on minimalist syntax in honour of Howard Lasnik*, ed. by Roger Martin, David Michaels and Juan Uriagereka, 89-156. Cambridge, Mass.: MIT Press.
- . 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz. Cambridge, Mass.: MIT Press.
- . 2005. Beyond Explanation Adequacy. In *Structures and beyond*, ed. by Belletti A., Oxford University Press.
- . 2008. On Phases. In *Foundational Issues in Linguistic Theory*, ed. by Robert Freidin, Carlos P. Otero and Maria-Luisa Zubizarreta, 133-166. Cambridge, MA: MIT Press.
- Chung, Sandra, and William A. Ladusaw. 2004. *Restriction and Saturation*. MIT Press
- Clarke, Sarah. 2009. The manifestation of viewpoint aspect in Inuktitut. *Studia Linguistica* 63-3, 292-322.
- Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-linguistic Perspective*. New York, Oxford University Press.

- Cowper, Elizabeth. 1999. Grammatical Aspect in English. *The Linguistic Review* 16: 205-226.
- . 2003. Tense, Mood and Aspect: A feature-Geometric Approach. Ms., University of Toronto.
- Cuervo, Cristina. 2003. *Datives at large*. Doctoral dissertation, MIT.
- Cummins, Sarah, and Yves Roberge. 2005. A modular account of null objects in French. *Syntax* 8: 44-64.
- Danon, Gabi. 2001. Syntactic definiteness in the grammar of Modern Hebrew. *Linguistics* Vol. 39-6, 1071-1116.
- Dum-Tragut, Jasmine. 2009. *Armenian: Modern Eastern Armenian*. John Benjamins Pub. Company.
- Durie, Mark. 1988. Verb Serialisation and Verbal-prepositions in Oceanic Languages. *Oceanic Linguistics* 27, 1-23.
- Embick, David, and Rolf Noyer. 2001. Movement Operations after Syntax. *Linguistic Inquiry* 32, 555-595.
- Erlewine, Michael. 2007. *A new Syntax-semantics for the Mandarin bi Comparative*. M.A. thesis, University of Chicago.
- Ernst, Thomas. 1994. Conditions on Chinese A-not-A questions. *Journal of East Asian Linguistics* 3: 241-264.
- Göksel, Aslı, and Celia Kerslake. 2005. *Turkish: a comprehensive grammar*. Abingdon: Routledge.
- Göksel, Aslı, and A. Sumru Özsoy. 2000. Is there a focus position in Turkish? *Proceedings of the International Conference on Turkish Linguistics*. Oxford Üniversitesi.
- Han, Chung-hye. 1999. Deontic modality, lexical aspect and the semantics of imperatives. *Linguistics in the Morning Calm* 4. Hanshin Publications, Seoul, 479-495.
- Hoestra, Teun. 1992. Aspect and Theta Theory. In *Thematic structure: its role in grammar*, ed. by Iggy Roca, p 145-174. Berlin: Foris Publications.
- Huang, C.-T. James. 1982. *Logical relations in Chinese and the theory of grammar*. Doctoral dissertation, MIT.

- 1991a. Modularity and Chinese A-not-A questions. In *Interdisciplinary Approaches to Language: Essays in Honour of S. Y. Kuroda*, ed., by C. Georgopoulos and R. Ishihara, 305-332. Dordrecht: Kluwer.
 - 1991b. Remarks on the Status of the Null Object. In *Principles and Parameters in Comparative Grammar*, ed., by R. Freidin, 56-76. Cambridge, MA: MIT Press.
 - 2008. “Ta de laoshi dang de hao,” in *Essays Commemorating Professor Lü Shuxiang*, Chinese Academy of Social Sciences.
- Huang, Hui-Yu Catherine. 2008. Ambiguity in the Affirmative/Negative ‘V U/BO NP’ Construction in Taiwanese Southern Min. *Proceedings of NACCL-20* Vol. 2: 675-689.
- Huang, Xiao-Yu Kevin. 2009. Multiple-Modal Constructions in Mandarin Chinese: A Cartographic Approach and an MP Perspective. In *Proceedings of the 21st North American Conference on Chinese Linguistics (NACCL-21)*, ed. by Yun Xiao. Smithfield, Rhode Island: Bryant University, p 524-540.
- Horn, R. Laurence. 2008. I love me some him: The landscape of non-argument datives. In *Empirical Issues in Syntax and Semantics 7*, ed., by O. Bonami & P. Cabredo Hofherr, pp. 169–192.
- Hornstein, Norbert, Jairo Nunes, and Kleanthes K. Grohmann. 2005. *Undertsanding Minimalism*. New York: Cambridge University Press.
- Iljic, Robert. 1987. Empty *ta* in Mandarin Chinese. *Computational Analyses of Asian and African Languages* 26: 15-34.
- Jackendoff, R. 1991. Parts and Boundaries. *Cognition* 41, 9-45.
- Jayaseelan, K. A. 2001. IP-internal topic and focus phrases. *Studia Linguistica* 55-1, p39-75.
- Kabak, Barış, and Irene Vogel. 2001. The phonological word and stress assignment in Turkish. *Phonology* 18: 315-360.
- Kahnemuyipour, Arsalan, and Jaklin Kornfilt. 2011. The Syntax and Prosody of Turkish ‘Pre-stressing’ Suffixes, in *Interfaces in Linguistics: New Research Perspectives*, ed. by Folli, Rafaella and Christiane Ulbrich. Oxford: Oxford University Press, 205-221.

- Kahnemuyipour, Arsalan, and Karine Megerdooomian. 2008. Second position, Focus and Multiple Spell-Out: Toward an Analysis of the Armenian Auxiliary. *Meeting Clitics*, Barcelona, August 23rd, 2008.
- . 2010. On the Domain of Second Position Clitics. *WCCFL* 28, Feb 19th 2010, USC, Los Angeles.
- Kahnemuyipour, Arsalan. 2001. On wh-questions in Persian. *Canadian Journal of Linguistics* 46:41-61.
- . 2004. *The syntax of sentential stress*. Doctoral dissertation, University of Toronto.
- . 2006. When wh-movement isn't wh-movement. *Proceedings of the 2006 annual conference of the Canadian Linguistic Association*.
- Kamali, Beste. 2010. The Question in Turkish: Consequence for the Interfaces. *WCCFL* 2010, University of Southern California.
- Kamali, Beste, and Bridget Samuels. 2008. The syntax of Turkish pre-stressing suffixes. *TIE3*, Lisbon.
- <http://ling.umd.edu/~bridget/pdfs/TIE3.pdf>
- Kayne, Richard. 1989. Facets of Romance Past Participle Agreement. *Dialect Variation and the Theory of Grammar* ed. by P. Benincà, 85-103. Dordrecht: Foris.
- . 1991. Romance Clitics, Verb Movement and PRO, *Linguistic Inquiry* 22: 647-686.
- . 1994. *The Antisymmetry of Syntax*, Cambridge, Mass.: MIT Press.
- . 2007. Several, few and many. *Lingua* 117: 832-858.
- Kennedy, Christopher, and Louise McNally. 2005. Scale structure and the semantic typology of gradable predicates. *Language* 81(2):1-37.
- Kennedy, Christopher. 1999. *Projecting the Adjective: The Syntax and Semantics of Gradability and Comparison*. Garland, New York.
- Kim, Kyumin. 2011. *External argument introducers*. Doctoral dissertation, University of Toronto.
- Kim, Shin-Sook. 2002. Intervention Effects Are Focus Effects. In *Japanese/Korean Linguistics 10*, ed. by Noriko Akatsuka and Susan Strauss, 615-628. Stanford: CSLI.
- É. Kiss, Katalin. 1987. *Configurationality in Hungarian*. Dordrecht: Reidel.
- . 1998. Identificational focus versus information focus. *Language* 74: 245-273.

- Kojima, Miyuki. 2006. The non-referential uses of personal pronouns. Paper presented at *the IACL-14 & IsCLL-10*. Taipei: Academia Sinica.
- Koopman, Hilda. 2006. Agreement Configurations: in defence of “Spec head”, in *Agreement systems* ed. by C. Boeckx. John Benjamins.
- Kornfilt, Jaklin. 2001. Functional projections and their subjects in Turkish clauses. In *the Verb in Turkish*, ed. by Erguvanlı-Taylan, John Benjamins, Amsterdam/Philadelphia, 183- 212.
- Kratzer, Angelika. 1996. Severing the External Argument from its Verb. In *Phrase Structure and the Lexicon*, ed. by J. Rooryck and L. Zaring. Dordrecht, Kluwer: 109-137.
- Krifka, Manfred. 1992. Thematic relations as links between nominal reference and temporal constitution. In *Lexical Matters*, ed. by Ivan A. Sag and Anna Szabolcsi. Stanford: CSLI.
- Levison, Dmitry. 2006. Polarity Sensitivity in Inflectional Morphology. ms. Stanford University.
<http://semanticsarchive.net/Archive/zZkNGM2Z/Levinson.Polarity.sensitivity.in.morphology.pdf>
- Li, Charles, and Sandra Thompson. 1981. *Mandarin Chinese: A Functional Reference Grammar*. Berkeley: University of California Press.
- Li, Y.-H. Audrey. 1990. *Order and Constituency in Mandarin Chinese*. Kluwer, Dordrecht.
- . 1997. Structures and Interpretations of Nominal Expressions. *Ms.*, University of Southern California, Los Angeles.
- Lin, Jimmy. 2004. *Event Structure and the Encoding of Arguments: The Syntax of the Mandarin and English Verb Phrase*. Ph.D. Thesis, MIT.
- Lin, Jo-Wang, and Jane Tang. 1995. Modals as Verbs in Chinese: A GB Perspective, *The Bulletin of the Institute of History and Philology* 66: 53-105, Academia Sinica, Taiwan.
- Lin, Jo-Wang, and Niina N. Zhang. 2006. The Syntax of the Non-referential TA ‘it’ in Mandarin Chinese. 2006. *Language and Linguistics* 7.4: 799-824. Taipei: Academia Sinica.

- Lin, Jo-Wang. 1994. Object non-referentials, definiteness effect and scope interpretation. *Proceedings of North Eastern Linguistic Society* 24, ed. by Merce Gonzalez, 287-301. Amherst: University of Massachusetts.
- Lin, Tzong-Hong Jonah. 2001. *Light Verb Syntax and the Theory of Phrase Structure*, PhD. Dissertation, University of California, Irvine.
- Lü, Shu-Xiang. 1984. *Hanyu yufa lunwenji* [Papers on Chinese syntax]. Beijing: Shangwu.
- Ma, Qiong-Zhu. 1983. *Xiandai Hanyu de shuangbinyu gouzao* (Double objects constructions in modern Chinese). *Yuyanxue Luncong* 10: 166-196. Beijing: The Commercial Press.
- Marantz, Alec. 1984. *On the nature of grammatical relations*. MIT Press, Cambridge.
- . 1993. Implications of asymmetries in double object constructions. In *Theoretical Aspects of Bantu Grammar*, ed. Sam A. Mchombo, 113–150. Stanford: CSLI Publications.
- 2001. Words. Presented at *the 20th West Coast Conference on Formal Linguistics* (WCCFL 20), University of Southern California, Los Angeles.
- May, Robert. 1977. *The Grammar of Quantification*. Doctoral dissertation. MIT.
- Megerdumian, Karine. 2002. Parallel Domains and the Projection of Arguments. *USC Student Workshop*, 2002 April 29. www.zoorna.org/handouts/USC2002-ParallelDomains.pdf
- Megerdumian, Karine, and Shadi Ganjavi. 2001. Against optional wh-movement. In *Proceedings of WECOL 2000*, Volume 12.
- 2009. D-Linked Wh-Phrases and Focus-Fronting in Persian. In *Third International Conference on Iranian Linguistics*, Sept 11-13, 2009, Paris. <http://www.zoorna.org/handouts/ICIL3-GanjaviMegerdumian.doc>
- Miyagawa, Shigeru. 2009. *Why Agree? Why Move?* Cambridge, MA: The MIT Press.
- Ouhalla, Jamal. 1991. *Functional Categories and Parametric Variation*. London: Routledge.
- Özçelik, Öner and Miho Nagai. 2011. Multiple Subject Positions: A case of Perfect Match between Syntax and Prosody. *Proceedings of the 28th West Coast Conference*

- on *Formal Linguistics*, ed. by Mary Byram Washburn et al, 303-312. Somerville, MA: Casadilla Proceedings Project.
- Palmer, Frank Robert. 1990. *Modality and the English modals*. London: Longman
- Parson, Terence. 1990. *Events in the Semantics of English: A Study in Subatomic semantics*. The MIT Press, Cambridge.
- Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and clausal architecture: Syntactic derivation and interpretation*, ed. by S. Karimi, V. Samiian & W. K. Wilkins, 262–294. Amsterdam: John Benjamins.
- Pylkkänen, Liina. 2002. *Introducing arguments*. Doctoral dissertation, MIT.
- Rackowski, Andrea, and Norvin Richards. 2005. Phase Edge and Extraction. *Linguistic Inquiry* 36, 565–599.
- Reinholtz, Charlotte. 2007. The Minimal Scope of Interrogative: Variable Question Marking in Eastern Swampy Cree. *Workshop on Structure and Constituency of the Languages of the Americas* 12, 2007 March 30- April 1, University of Lethbridge.
- Ritter, Elizabeth, and Sara Thomas Rosen. 1998. Delimiting Events in Syntax. In *The projection of Arguments: Lexical and Compositional Factors*, ed. by Miriam Butt and Wilhelm Geuder, p 135-164. CSLI Pub.
- . 2005. Topic or Aspect. In *Issues and Interfaces in the Study of Aspect*, ed. by Kempchinsky P., and R. Slabakova, pp 21-40, Springer.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.
- . 1997. The Fine Structure of the Left Periphery, in *Elements of Grammar*, ed. by L. Haegeman. Kluwer Publications, Dordrecht.
- Roberts, G. Ian. 2010. *Agreement and Head Movement: Clitics, Incorporation, and Defective Goals*. Cambridge, MA: MIT Press.
- Rooth, Mats. 1985. *Association with Focus*. Doctoral dissertation, University of Massachusetts.
- Rotschy McLachlan, Liela. 2011. I love me some Jiminy Glick: The Semantic Contribution of ‘Some’ in Personal Dative Constructions. Presented at *Linguistic Society of America annual meeting*, January 6-9, 2011.

- Rotschy McLachlan, Liela, and Kurt Queller. 2010. Subjectification and the Evolution of the Personal Dative Construction: A hearer-Based Account. Paper presented at *The High Desert Linguistics Conference*, November 2010.
- Shu, Chih-Hsiang. 2007. On the Clitic Status of the Verbal Classifier/Mood Marker *ge* in Chinese. *Ms.* Stony Brook University.
- Skopeteas, Stavros, and Gisbert Fanselow. 2010. Focus in Georgian and the expression of contrast. *Lingua* 120, p1370-1391.
- Smith, Carlota. 1994. Aspectual Viewpoint and Situation Type in Mandarin Chinese. *Journal of East Asian Linguistics* 3, 107-146.
- . 2009. *Text, Time, and Context: Selected Papers of Carlota S. Smith*, ed. by Carlota S. Smith, Richard P. Meier, Helen Aristar-Dry, and Emilie Destruel. Springer.
- Smith, Lawrence R. 1978. *A survey of the derivational postbases of Labrador Inuttut*. Ottawa: National Museums of Canada.
- Soh, Hooi Ling. 2008. The syntax and semantics of change/transition: Evidence from Mandarin Chinese. In *Theoretical and Cross-linguistic Approaches to the Semantics of Aspect*, ed. by Susan Rothstein, 387-419. Philadelphia: John Benjamins.
- Soh, Hooi Ling, and Yi-Chun Kuo. 2004. Perfective Aspect and Accomplishment Situations in Mandarin Chinese. In *Perspectives on Aspect*, ed. by Verkuyl H. & H. de Swart, p 1-28. Dordrecht: Kluwer.
- Steele, Susan. 1978. Word order variation: a typological study. In *Universals of human language*, ed. by Joseph H. Greenberg, 585-623. Stanford: Stanford University Press.
- Su, Julia Y.-Y. 2009. Inner Aspect in Mandarin Chinese: evidence from the interaction between post-verbal adverbials and post-verbal nominals. *Ms.* University of Toronto.
- Sybesma, Rint 1992. *Causatives and Accomplishment: The case of Chinese "Ba"*. HIL, Dordrecht.
- . 1999. *The Mandarin VP*. Kluwer, Dordrecht.
- Tai, James H.-Y. 1984. Verbs and Times in Chinese: Vendler's Four Categories. In *Papers from the Parasession on Lexical Semantics*, ed. by D. Testen, V. Mishra, and J. Drogo, p. 289-296. Chicago Linguistic Society.

- Tamrazian, Armine. 1991. Focus and Wh-Movement in Armenian. *UCL Working Paper* 3: 101- 121.
- Tang, C.-C. Jane. 1990. *Chinese Phrase Structure and the Extended X-bar Theory*. Ithaca: Cornell University Dissertation.
- Thompson, Ellen. 2006. The structure of bounded events. *Linguistic Inquiry* 37: 211–228.
- Tieu, Lyn L.-S. 2007. Transitivity in Context: Towards a semantic analysis of the generic object construction in Chinese. Presented at *the Workshop on East Asian Linguistics2*, University of Toronto, April 12, 2007.
- Tosun, Gulsat. 1999. The question particle in Turkish. *Ms.* Harvard University.
- Travis, Lisa deane. 1984. *Parameters and Effects of Word Order Variation*. PhD Dissertation, MIT.
- . 2010. *Inner aspect: the articulation of VP*. Dordrecht: Springer.
- Tsai, W.-T. D. and P. Portner. 2008. Adverb-Modal Interactions and Actuality Entailments in Chinese. Paper presented in IsCCL-11, National Chiao Tung University, Taiwan.
- Tsai, Wei-Tien Dylan. 1998. On "Constancy" and "Change" in Linguistics: A Methodological Study. *Zhongguo yuyanxue luncong* Vol2: 25-38.
- . 2001. On subject specificity and theory of syntax-semantic interface. *Journal of East Asian Linguistics* 10: 129- 168.
- . 2009. Actuality Entailments and Topography of Chinese Modals. Paper presented at *The Seventh GLOW in Asia*, EFLU, Hyderabad, India.
- Vendler, Zeno. 1967. *Linguistics in philosophy*. Ithaca, New York: Cornell University Press.
- Wu, Ching-Huei Teresa. 2004. On *de/bu* and the Syntactic Nature of Resultative Verbal Compounding. *Language and Linguistics* 5.1: 271-329.
- Wu, Feng-Chun. 2003. *Ta* in Mandarin spoken discourse: Discourse-pragmatic functions and grammaticalization. MA thesis, National Taiwan Normal University.
- Wu, Zoe. 2002. *Wo pao-le ge feikuai* and reanalysis of the classifier *ge*. *On the Formal Way to Chinese Languages*, ed. by Sze-Wing Tang, and Chen-Sheng Luther Liu, 163-188. Stanford, California: CSLI Publications.
- Xiang, Ming. 2003. A phrasal analysis of Chinese comparatives. In *CLS* 39.

- <http://www.ling.umd.edu/~mxiang/Xiang-CLS39.pdf>
- Yang, Rong. 2001. *Common Nouns, Classifiers, and Quantification in Chinese*. Doctoral dissertation, Rutgers, The State University of New Jersey.
- Yang, C.-Y. Barry. 2007. Intervention effect, *Wh*-movement, and Focus. *UST Working Papers in Linguistics* 3, p 95-107.
- Yeh, Jui-chuan. 2006. On the Excessive Construction in Mandarin Chinese. *Concentric: studies in Linguistics* 32.2: 93-118.
- Zeijlstra, Hedde. 2008. Negative Concord is Syntactic Agreement. *ms*. University of Amsterdam.
- Zhang, Niina Ning. 2002. Counting and Classifying Eventualities in Chinese. *Ms*. Zentrum für Allgemeine Sprachwissenschaft (ZAS).
<http://www.usc.edu/dept/LAS/ealc/chinling/articles/>
- Zhu, De-Xi. 1982. *Yufa Jiang yi* [Lectures on Grammar]. Beijing: The Commercial Press.