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Sentence Structure and Adverbs in Indonesian*

Niken Adisasmito-Smith

1. Introduction

The goal of the present study is to provide more adequate descriptive generalizations about verbs and auxiliaries in Indonesian, and to begin exploring the theoretical implications of their behavior. Adverb placement is crucial in determining the syntactic behavior of the two. I will discuss and analyze these facts primarily within the Government and Binding framework.

Indonesian is an Austronesian language spoken in the Indonesian archipelago. This language serves both as the official language of the country and as a lingua franca. Many Indonesians learn this language as a second language, while speaking at least one other language, such as Javanese, Sundanese, Toba Batak, etc. Due to this sociolinguistic situation, there are several varieties of Indonesian in the region. The variety that I am discussing in this paper is the one which I take to be more or less standard, spoken by Indonesians who have had formal education.

While there has not been comprehensive work on the syntax of Indonesian, there are works done on syntactic aspects of the language in various frameworks. Dardjowidjojo (1966) discusses the types of phrases and sentences in Indonesian, and Butar-Butar (1976) examines the syntax of phrasal movements in Indonesian sentences. Syntactic analyses of the Indonesian passive constructions are found in Chung (1976) and Sie (1989). Recently Guiffoyle, et al. (1992) have argued for two subject positions in several Austronesian languages, including Indonesian. Martohardjono (1993) focuses on wh-movement in Indonesian and other languages, and its consequences on second language acquisition.

Of particular interest in the present study are the D-structure and S-structure positions of transitive verbal forms in active sentences in Indonesian, usually consisting of the prefix meN- and a stem. The discussion focuses on the question of whether the S-structure position of a verbal stem is the result of a movement, or whether it is the position where the stem is base-generated. Related to this question, I will also discuss the position in which

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the verbal prefix \textit{meN}-, in particular, is base-generated. Structures with auxiliaries provide some insight to answering these questions. The placement of Indonesian adverbs in relation to verbs and auxiliaries also provides crucial evidence for their D-structure and S-structure positions.

The organization of this paper is as follows. In section 2, I will discuss the distribution of verbs and auxiliaries in Indonesian. Since the verbal prefix \textit{meN}- is integral to the discussion, I will also briefly examine verbal affixes in Indonesian. In section 3, the discussion focuses on previous theoretical claims regarding verbal forms in Indonesian within the GB framework, particularly as discussed in Guilfoyle, et al. (1992). In section 4, I will describe the distribution of certain adverbs in Indonesian sentences. Section 5 will focus on the syntactic analysis of adverb placement and its consequences on the positions of verbs and adverbs in Indonesian sentences.

2. Verbs and auxiliaries in Indonesian

Indonesian is an SVO language, i.e. in an unmarked sentence, a verb usually appears following the surface subject NP, and a direct object, if present, follows the verb.

Verbs in Indonesian usually consist of at least a stem, and may or may not be accompanied by one or more affixes. Note that in Indonesian there is no overt marking on nouns indicating person, number or gender, nor is there any overt marking on verbs indicating agreement with the features of nouns. This language does not show any overt marking of tense either. The actual time of an action or event is usually retrievable through context during the utterance. The following data illustrate this point.

In (1), the sentence is accompanied by a temporal adverb, \textit{besok} ‘tomorrow’. The presence of the auxiliary \textit{akan} ‘will’ is optional (for discussion of auxiliaries, see section 2.3). With an overt time reference, \textit{besok}, as shown in (1), the ‘understood’ time is future, whether or not \textit{akan} is present.

(1) Hasan (akan) \textbf{meng-ayun} cangkul-nya \textbf{besok}

\hspace{1cm} Hasan (will) pfx-swing hoe-his tomorrow

\hspace{1cm} \textit{Hasan will swing his hoe tomorrow}

In contrast, when a temporal adverb like \textit{kemarin} ‘yesterday’ is present in the sentence, as in (2), the understood time is past. The form of the verb in (2) is identical to that in (1); i.e., it does not show any overt agreement indicating the difference in tense.
(2) Hasan meng-ayun cangkul-nya kemarin
Hasan pfx-swing hoe-his yesterday
Hasan swung his hoe yesterday

The sentence in (3) shows yet a different time. It is present progressive, indicated by the temporal adverbial sekaran ‘now’. We can see that the verbal form remains identical to that in (1) and (2). As indicated in (3), the presence of the auxiliary sedang ‘in the process of’ is optional.

(3) Hasan (sedang) meng-ayun cangkul-nya sekaran
Hasan (in the process of) pfx-swing hoe-his now
Hasan is swinging his hoe now

In the sections that follow, I will present data which illustrate verbal forms, i.e. types of verbal stems and types of verbal affixes. I will also discuss auxiliaries in relation to the verbal forms.

2.1 Verbal stems

The class of verbs in Indonesian which may occur without any affixes is referred to as ‘intransitive verbs’ (Kridalaksana 1987). However, some intransitive verbs do occur with affixes (see 2.2 for discussion). When bare stems occur with affixes, the meaning of the verbs or their argument structure changes. The data in (4) show some of these verbs:

(4) Stems With affixes
a. bangun ‘to get up’ meN-bangun ‘to build’
   meN-bangun-kan ‘to wake sb up’
b. terbang ‘to fly’ meN-terbang-kan ‘to fly an aircraft’
c. duduk ‘to sit’ meN-duduk-i ‘to sit, to occupy’
d. datang ‘to come’ meN-datang-i ‘to visit’
   meN-datang-kan ‘to import st, to invite sb’

The stem bangun ‘to get up’ in (4a) can occur by itself in a sentence as the sentence in (5) shows. In this case, there is only one argument, Hasan.

(5) Hasan bangun jam lima pagi
Hasan get up hour five morning
Hasan got up at 5 am
In (6), the stem bangun is accompanied by the prefix meN-. The verb has two arguments, one is the Agent, Hasan, the other the Theme, rumah ‘house’.

(6) Hasan mem-bangun rumah tahun lalu  
    Hasan  pfx-build house year past  
    Hasan built a house last year

This stem may also be combined with the prefix meN- and the suffix -kan, as shown in example (7).

(7) Hasan mem-bangun-kan adik-nya  
    Hasan  pfx-get up-sfx brother-his  
    Hasan woke up his brother

The verbal form has two arguments, an Agent and a Theme. The example in (7) illustrates one function of the suffix -kan, i.e. being a causative marker.

Not all verbs behave like the verb bangun with respect to affixes. Let’s take the stem shown in (4c), datang ‘to come’. The example in (8) shows the case where this stem has only one argument.

(8) Hasan datang ke rumah kami  
    Hasan  come to house 1st pl.  
    Hasan came to our house

When a set of affixes accompanies the stem, the argument structure changes, as shown in example (9).

(9) Hasan men-datang-i rumah kami  
    Hasan  pfx-come-sfx house 1st pl.  
    Hasan came to our house

In this sentence, the verbal form mendatangi ‘to come to’ has an Agent and a Theme. The preposition that we see earlier in (8) seems to be ‘absorbed’. One may argue that the suffix i- is in complementary distribution with the preposition ke ‘to’.

In (10), the stem datang is accompanied by the prefix meN- and the suffix -kan.

(10) Hasan men-datang-kan mobil dari Amerika  
    Hasan  pfx-come-sfx car from USA  
    Hasan imported a car from the US
In this case, the verbal form has an Agent and a Theme, and it also requires the presence of a prepositional phrase. When the prepositional phrase is absent, the sentence is 'incomplete', shown in (11).

(11) Hasan mendatangkan mobil

The two main verbal suffixes -i and -kan have a range of functions. Due to their complex nature, full treatment is beyond the scope of the current study. See Dardjowidjojo (1971) for discussion on the relation between argument structure and the system of affixes in Indonesian, Hung (1988) for these cases in Malay, and Thomas (1978) for the role of these suffixes as focus markers. As far as the present study is concerned, of direct relevance are verbal forms, consisting of the prefix meN- and a stem, having two arguments in active sentences.

In Indonesian, a stem making up a verbal form does not have to be from the verbal category. The stems shown in (4) are verbal in nature, but stems forming a verb may also be nominal, or adjectival. The forms in (12a-b) show these different lexical categories and their corresponding verbal forms in active constructions.

(12) a. **Nominal stems**

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
<th>Verbal form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>bentuk</td>
<td>'form'</td>
<td>meN-bentuk</td>
<td>'to form'</td>
</tr>
<tr>
<td>pihak</td>
<td>'side'</td>
<td>meN-pihak</td>
<td>'to take side'</td>
</tr>
<tr>
<td>harga</td>
<td>'price'</td>
<td>meN-harga-i</td>
<td>'to respect'</td>
</tr>
<tr>
<td>hasil</td>
<td>'result'</td>
<td>meN-hasil-kan</td>
<td>'to produce'</td>
</tr>
<tr>
<td>garam</td>
<td>'salt'</td>
<td>meN-garam-i</td>
<td>'to put in salt'</td>
</tr>
</tbody>
</table>

b. **Adjectival stems**

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
<th>Verbal form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>dalam</td>
<td>'deep'</td>
<td>meN-dalam-i</td>
<td>'to specialize in'</td>
</tr>
<tr>
<td>ramai</td>
<td>'noisy'</td>
<td>meN-ramai-kan</td>
<td>'to make festive'</td>
</tr>
<tr>
<td>selesai</td>
<td>'be over'</td>
<td>meN-selesai-kan</td>
<td>'to finish'</td>
</tr>
<tr>
<td>sadar</td>
<td>'be conscious'</td>
<td>meN-sadar-i</td>
<td>'to realize'</td>
</tr>
</tbody>
</table>

The stems in (12a) are nominal, and their active verbal forms are formed by attaching the verbal prefix meN-. A suffix is required in some cases. (12b) shows several adjectival stems. In the active constructions, the verbal forms of these adjectives are obtained by taking the prefix meN- and a suffix. The forms in (12) show that the composition of the affixes is such that the configuration of arguments (two arguments, or Agent/Theme configuration) is maintained. This phenomenon is quite productive in Indonesian. As far
as the current study is concerned, of direct relevance is the fact that the verbal form (prefix + stem) has two arguments, an Agent and a Theme.

In the following section, the focus of discussion is prefixes associated with stems forming verbs in Indonesian. The purpose of this discussion is to provide a brief, general background of some Indonesian prefixes associated with verbs.

2.2 Verbal prefixes

In addition to meN-, there are several other affixes in Indonesian which are attached to stems to form verbs. A stem may have a single prefix, or a double prefix. For the present purpose, I will focus on the single prefixes: meN-, ber-, ter-, and di-.\(^1\)

As I mentioned earlier, the prefix meN- is associated with active sentences. There is a set of verbal stems which cannot occur without the prefix meN- and these verbs are intransitive. The sentence in (13) illustrates the occurrence of such verbal stem.

(13) a. Semut itu me-rayap di dinding
    that pfx-crawl on wall
    *That ant is crawling on the wall

b. *Smut itu rayap di dinding

c. *Smut itu ber-rayap di dinding

d. *Smut itu ter-rayap di dinding

The sentence is ruled out when the prefix is absent, as shown in (13b). No other prefix can occur with this type of stem, as (13c-d) show. This type of constructions is excluded from the discussion in this study which focuses on active transitive sentences.

Active transitive sentences refer to those in which the verb is preceded by a subject NP, the Agent, and followed by an object NP, the Theme. The examples are shown in (14) and (15).

(14) Nina mem-bawa buku itu
    Nina pfx-bring book that
    Nina brought that book

(15) Hasan meng-ayun cangkul-nya
    Hasan pfx-swing hoe-his
    Hasan swings his hoe

As I have mentioned earlier, there is no overt tense marker in Indonesian. The tense in the translated sentences is not necessarily indicative of the time reference in the corresponding

\(^1\) It has been suggested that di- is a person marker (e.g. Guilfoyle, et al. 1992, Thomas 1978).
Indonesian sentences. The prefix *meN*- indicates the fact that the surface subject position, being the position for the topic of a sentence, is occupied by the Agent, as argued for in Guilfoyle, et al. (1992). For further discussion on this argument, see section 3.2.

The prefix *ber*- attaches to stems, forming verbs which have only one argument, as shown in (16) and (17). It seems that this prefix is an intransitive marker.

(16) Nina ber-jalan dengan cepat
Nina intrans-walk with fast intrans = intransitive
*Nina walked fast*

(17) Dia ber-teriak keras-keras
S/he intrans-scream loudly
*S/he screamed loudly*

The prefixes *ter*- and *di*- are usually associated with passive constructions. The prefix *ter*- is claimed to indicate several phenomena (Wouk, 1980; Soh, 1995), one being the fact that the event occurs accidentally. The prefix *di-*, on the other hand, indicates that the event is intended by an Agent, whether the Agent is overtly present or implied. The semantic distinction between the prefixes *di*- and *ter*- is illustrated in (19) and (20). The sentence in (18) (= (14)) shows the active version of the two sentences following it.

(18) Nina mem-bawa buku itu
Nina pfx-bring book that
*Nina brought that book*

(19) Buku itu di-bawa (oleh)² Nina
book that pass-bring by Nina pass = passive
*That book was brought in by Nina*

(20) Buku itu ter-bawa (oleh) Nina
book that pfx*go*br-ing by Nina accd = accidental
*That book was accidentally brought in by Nina*

² Myhill (1988) argues that the presence or absence of the preposition *oleh* 'by' in Indonesian passive sentences indicates whether an NP Agent following a verb is incorporated or not into the verb.
Since this study focuses on active sentences, only the prefix *meN-* is of concern. For an in-depth study of passive constructions, see Sie (1989), and Chung (1976). Guilfoyle, et al. (1992) suggest a syntactic analysis for the prefix *di-*.

In the following section, I will discuss auxiliaries in Indonesian sentences, and their occurrences with respect to the verbal forms.

### 2.3 Auxiliaries

Macdonald (1976), Dardjowidjojo (1978) and Alwi, et al. (1993) provide a basic description of constructions with auxiliaries. They propose three groups of auxiliaries in Indonesian, shown in (21). In their description, these groups are distinguished from each other based on their sequential order in cases where three auxiliaries co-occur in a sentence: the auxiliaries under group A would precede those in groups B and C, and the auxiliary *harus* in group B would precede those in group C.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>akan ‘will’</td>
<td>harus ‘must’</td>
<td>boleh ‘may’</td>
</tr>
<tr>
<td>sedang ‘be in the process of’</td>
<td></td>
<td>dapat ‘can’</td>
</tr>
<tr>
<td>sudah ‘already’</td>
<td></td>
<td>sanggup ‘can’</td>
</tr>
<tr>
<td>belum ‘not yet’</td>
<td></td>
<td>mau ‘be willing’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>suka ‘like’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ingin ‘want’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bisa ‘can’</td>
</tr>
</tbody>
</table>

The sentence in (22) illustrates the occurrence of three auxiliaries in a sentence, one from each of the three groups.

(22) Hasan **sudah harus bisa** me-nyetir mobil dalam waktu tiga bulan  
Hasan already must can pfx-drive car in time three month  
*Hasan should have been able to drive a car in three months*

These auxiliaries occur between the surface subject NP *Hasan* and the main verb of the sentence, *menyetir* ‘to drive’. As we will see later, this is actually the fixed position for auxiliaries in Indonesian.

Some of the auxiliaries in (21) may function as main verbs, as exemplified in (23).

(23) a. Dia akan meng-harus-kan mahasiswa-nya untuk ikut ujian  
he will pfx-must-sfx student-his for follow exam  
*He will require that all his students take the exam*
b. Penjaga itu sudah mem-boleh-kan Hasan masuk
That guard has allowed Hasan to enter

The stem of the main verb in (23a) is from group B in (21), and that in (23b) is from group C. Since some of the auxiliaries in (21) may also function as main verbs in addition to being auxiliaries, the question to be raised is how auxiliaries and main verbs are distinguished from each other. One way to differentiate the two is by looking at the agreement properties of verbs in general. In English, for example, it seems that ‘true’ auxiliaries do not inflect for person and number agreement, while regular verbs do. As mentioned earlier however, agreement marking on Indonesian verbs is not overtly marked. The surface form of verbs do not show any information about person, number, or gender of either the subject NP, or the object NP when it is present. Therefore, agreement will not discriminate between regular verbs and auxiliaries in Indonesian.

Since verbal forms may or may not have prefixes and/ or suffixes, one might look at the possibility of a stem to take verbal affixes as an indication whether it is an auxiliary or whether it is a regular verb (suggested by John Bowers). While this may not be the only way to distinguish the two, this seems to be indicative for the verbal cases in Indonesian.

Returning to the list in (21), the forms in group A cannot take any verbal affixes. On the other hand, the forms in both groups B and C can take affixes, with one exception: bisa ‘can’. Based on this, I will refer to the forms shown in (24), i.e. those in group A, and bisa ‘can’, as the auxiliaries. I will treat the rest of the forms in (21) as main verbs, as far as their syntactic behavior is concerned.

(24) akan ‘will’
    sedang ‘be in the process of’
    sudah ‘already’
    belum ‘not yet’
    telah ‘already’
    bisa  ‘can’

Note that, semantically, these auxiliaries seem to indicate some kind of mood. Therefore I will refer to them as modal auxiliaries.

Now we can look at the position of these auxiliaries relative to that of verbs, as illustrated by the examples in (25a-d).
(25) a. Hasan akan meng-ayun cangkul-nya
    Hasan will pfx-swing hoe-his
    Hasan will swing his hoe

b. *Akan Hasan mengayun cangkulnya
c. *Hasan mengayun akan cangkulnya
d. *Hasan mengayun cangkulnya akan

The only position where the auxiliary akan 'will' can occur is between the surface subject NP and the verb. When it occurs in any other position, the sentence is ungrammatical.

In section 3.1, I will focus on laying out the general argument set forth in Guilfoyle, et al. (1992). In section 3.2, I will summarize their claims for the Indonesian data, particularly those relevant to the position/s of subject NP and the verbal forms in active sentences. In section 3.3, I will present cases in Indonesian where the arguments in Guilfoyle, et al. run into problems.

3. Syntactic analysis of Indonesian verbs and auxiliaries

Guilfoyle, et al. discuss the structure of sentences, particularly that of active and passive simple sentences, in several Austronesian languages. Since the argument made for Indonesian/Malay data is drawn from the arguments made for cases in Malagasy, I summarize their general argument in section 3.1.

3.1 The account in Guilfoyle, et al.

The particular framework adopted in Guilfoyle, et al. is the VP-internal Subject Hypothesis as argued for in Koopman and Sportiche (1991). The basic argument in Guilfoyle, et al. is that there are two subject positions in such Austronesian languages as Malagasy, Cebuano, Tagalog, Malay and Indonesian. One of the NP positions is the [Spec,VP], the other is the [Spec,IP]. For a language like Malagasy, they argue that both Spec positions may be occupied simultaneously at S-structure. In this account, certain morphology is argued to license the presence of the lexical material in the NP positions. In (26) and (27), I reproduce the Malagasy data from Guilfoyle, et al. The bolded expression is the topic.

(26) Malagasy:
    M-an-sasa (manasa) ny lamba amin’ny savony ny zazavavy
    AT-wash the clothes with the soap the girl
    The girl washes the clothes with the soap

(AT = Agent Topic; TT = Theme Topic)
(27) *Malagasy:*
Sasa-na (sasan’) ny zazavavy amin’ny savony ny lamba
wash- TT the girl with the soap the clothes
*The clothes are washed with the soap by the girl*

Malagasy is claimed to be a VOS language. This surface word order is shown by the sentence in (26). In this sentence, the Agent of the verb *ny zazavavy* ‘the girl’ is a topic, indicated by the word order where the Agent is in the sentence-final position, as well as by the morphology on the verb. In (27), the surface word order, VSO, and the presence of the suffix *-na* is claimed to indicate that the theme NP *ny lamba* ‘the clothes’ occupies the topic position. The diagrams of the surface sentences in (26) and (27), assumed to have the same D-structure, are presented in (28a) and (28b).

(28) (a) IP
   I’
   SPEC
   Agent
   I⁰
   VP
   SPEC
   t
   V’
   V⁰
   NP
   Theme
   an-sasa
   CASE

(b) IP
   I’
   SPEC
   Theme
   I⁰
   -na
   VP
   SPEC
   t
   V’
   V⁰
   NP
   Theme
   sasa
   CASE

Guilfoyle, et al. cite Hung (1988) for the proposal that the prefix *an-* assigns Case to the Theme NP, and licenses the Theme NP in its theta position. The Agent is not Case-marked in its D-structure position, and therefore should raise to the [Spec,IP] position to receive Case, assigned by the head of the IP, via the Spec-head Agreement. As the diagram in (28a) shows, the prefix *an-* is assumed to be base-generated in the head of VP. The suffix *-na* is claimed by Hung to be base-generated in the head of IP and to assign Case to the Agent in the [Spec,VP] position. The Theme NP is not Case-marked in its D-structure position because the stem itself does not assign Case. Therefore the Theme NP should raise to the [Spec,IP] position to be assigned Case via Spec-head Agreement.
Guilfoyle, et al. argue that the circumstantial form of the verb, shown in (29), provides the strongest argument for the licensing ability of the affixes.

(29) Malagasy:
An-sasa-na (anasan') ny zazavavy ny lamba ny savony
XT-wash the girl the clothes the soap
*The soap was washed (with) the clothes by the girl*

XT indicates the circumstantial topic morphology. The NP ny savony ‘the soap’ occurs in the sentence-final position, which means that it occupies the topic position of the sentence. Both of the affixes in (26) and (27) are present, and the preposition preceding ny savony is absent. The diagram for (29) is presented in (30).

(30)

As indicated in this diagram, the suffix -na assigns Case to the Agent NP and the prefix-an assigns Case to the Theme NP. The consequence of this Case assignment is that the two NPs do not have to move or raise, since they are licensed in their D-structure position. Guilfoyle, et al. argue that the third NP raises obligatorily to the [Spec,IP] position, due to the EPP (Extended Projection Principle) requirement (i.e. sentences must have subjects). Note that the preposition of the NP in the [Spec,IP] disappears. Guilfoyle, et al. consider this phenomenon to be preposition incorporation. However, they do not discuss the mechanism of preposition incorporation in detail (see footnote 7 in their work). Also, they do not discuss the ways in which the surface verbal forms (affixes + stem) in Malagasy are achieved. For the purpose of the present study, I will not address these two issues, but will concentrate instead on their extension of this analysis to Indonesian.
3.2 Indonesian cases according to Guilfoyle, et al.

Drawing a parallel from the facts in Malagasy, Guilfoyle, et al. propose that Indonesian, and the other Austronesian languages that they discuss share essentially the D-structure proposed for Malagasy. The significant difference between Malagasy and Indonesian is in the direction that the [Spec,IP] branches. In Malagasy, the Spec position branches out of IP to the right, resulting in the sentence-final position of the topic. On the other hand, in Indonesian the [Spec,IP] branches to the left, yielding the sentence-initial position for the topic. The diagram in (31) shows the D-structure argued for Indonesian.

(31)

```
    IP
     \  /  \
   Spec I'  \\
     \   /\  \\
   I⁰   VP  \\
     /  \  /\  \\
   Spec Agent V'  \\
     /  /  /  \\
 V⁰  meN-  NP  Theme
```

Guilfoyle, et al. claim that Malay and Indonesian are essentially the same, as far as active and passive constructions are concerned. I will discuss only the Indonesian data and make no claim about whether my analysis can be extended to Malay.

In their account of the Indonesian data, Guilfoyle, et al. are not explicit as to where the prefix `meN-` is base-generated. It is suggested that in Malagasy, verbal morphemes like `an-` and `-na` are base-generated in the head of the IP and of the VP, respectively, based on the Case assignment considerations. The prefix `an-` is associated with the occurrence of the Theme NP in VP and the occurrence of the Agent NP in the [Spec,IP]. Based on their claim that this is parallel to the prefix `meN-`, they seem to suggest two things: (i) that the prefix `meN-` is base-generated in the head of the VP, adjoined to the verb, and (ii) that this prefix plays a role in Case assignment. When it is present, the Theme NP remains in its D-structure position and is assigned Case by the prefix `meN-` being in head of the VP. The Agent NP is not assigned Case in its D-structure position; it raises to the [Spec,IP] position to receive Case, via Spec-head agreement. They also argue that the verbal form (prefix + stem) raises to the head of IP. While this V-to-INFL movement is not apparent in active sentences, Guilfoyle, et al. argue that passive sentences provide a motivation for this movement.
In the following section, I will present cases which provide evidence against the claim of the V-to-INFL raising in both active and passive structures in Indonesian. However, the discussion will focus on the active structures.

3.3 Problems with the account in Guilfoyle, et al.

In this section, I will show that the V-to-INFL movement in Indonesian active sentences, as claimed in Guilfoyle, et al., should not take place; otherwise ungrammaticality results. Sentences with auxiliaries and adverbs provide evidence for this counterargument.

In sentence (32), I show the case where an auxiliary and two adverbs occur between the surface subject NP and the verb.

(32) Hasan pasti akan keras-keras meng-ayun cangkul-nya
Hasan surely will hard pfx-swing hoe-his
Hasan will surely swing his hoe hard

Adopting the account proposed in Guilfoyle, et al., the structure of the sentence in (32) is represented in (33). For the moment, I will set aside the discussion on what generates the string pasti akan keras-keras (in boldface in (32)). In the diagram in (33), this string is under an unspecified XP. This XP is located lower than the IP and higher than the VP, reflecting the surface position of this string.

(33)

Adopting the account in Guilfoyle, et al., the Agent Hasan is base-generated in the[Spec,VP]. The Theme NP cangkul-nya ‘his hoe’ is base-generated as the complement
of $V^0$. In their analysis, the verbal stem in $V^0$ assigns theta roles to the Agent and the Theme. The prefix meN- assigns Case to the Theme cangkulnya, and therefore the latter can remain in its D-structure position. There is no Case-assigner for the Agent Hasan in [Spec,VP]. Therefore it should raise to a position where a Case can be assigned: it raises to [Spec,IP] to be assigned Case via Spec-head Agreement.

Returning to the question of whether the verbal form in active sentences raises to the head of IP, we can see that this movement is impossible. If we assume that this movement takes place, the surface result would be as shown in (34), but this sentence is ruled out in Indonesian.

(34) **Hasan mengayun, pasti akan keras-keras t cangkulnya

Guilfoyle, et al. argue that passive constructions provide evidence for the V-to-INFL movement. Sentence (35) shows that even in passive constructions, this raising to $I^0$ should not take place. (35a) is the passive counterpart of (32). Were the raising to occur, (35b) will result, which is ruled out in Indonesian.

(35) a. Cangkul itu pasti akan keras-keras di-ayun (oleh) Hasan
    That hoe will surely be swung hard by Hasan
    hoem that surely will hard pass-swing by Hasan

b. *Cangkul itu diayun, pasti akan keras-keras t (oleh) Hasan

Based on this evidence, I conclude that, in Indonesian, it must not be the case that verbal forms (prefix + stem) raise from $V$ to $I$.

In light of this conclusion, there are several questions that need to be asked before the discussion of adverbs. First, do verbal stems in Indonesian raise from their D-structure

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3 While this sentence is the exact passive counterpart of (31), it is a bit contrived. A better example that will illustrate the same point is the following:
Persoalan itu pasti akan segera di-selidik-i oleh pihak yang ber-wajib
matter that surely will soon pass-investigate by side that pfx-duty
That matter will surely be investigated soon by the authority
The same ungrammaticality results if V-to-INFL raising occurs:
*Persoalan itu diselidiki, pasti akan segera t oleh pihak yang berwajib.

4 Within the Minimalist Program (Chomsky 1996), this is to say that the Case and agreement features of verbs in Indonesian are weak. Since they are weak, they do not need to be checked overtly; therefore there is no overt movement at PF. Ultimately, the V-to-I raising will take place at LF.
position, or do they remain in-situ? If they do raise, where do they raise to? Second, where is the D-structure position of the verbal prefix meN- in Indonesian? Is it in the head of the VP, or somewhere else? Examining the occurrence of adverbs, which I will undertake in section 4, will help us answer these questions, to which I will return in section 5.3.

4. Adverbs in Indonesian

I turn now to the discussion of adverbs in Indonesian. In section 4.1, I focus on the forms of adverbs, and in section 4.2, the discussion concentrates on the positions in a sentence where adverbs would appear.

4.1 Forms of adverbs

As discussed in Purwo (1985), lexical adverbs are adverbs which are formed by single adverbial stems, reduplicated adverbial stems, or polymorphemic adverbs. Single adverbial stems mean that the adverbs are expressed in the form of single lexical items conveying adverbial meaning. The stems themselves may be adverbial or adjectival, as shown in (36) and (37).

(36) Adjectival stem

Masalah itu akan ramai di-per-bincang-kan orang... (Purwo 1985)
problem that will noisy pfx-pfx-discuss-sfx people
That problem will be widely (?) discussed by people...

(37) Adverbial stem

Saya akan segera mem-baca karya itu
I will immediately pfx-read work that
I will read that work immediately

Reduplicated adverbial stems are adverbs that are formed by the reduplication of the adverbial stems, shown in (38).

(38) Mereka akan me-mikir-kan masalah itu masak-masak
they will pfx-think-sfx problem that carefully
They will think about that problem carefully

Polymorphemic adverbs are those formed by a stem combined with some affixes. These affixes may be just a suffix, or a combination of a prefix and a suffix. The example
in (39) shows a case where the adverbial stem is reduplicated and is accompanied by the prefix se- and the suffix -nya simultaneously.

(39) Harga di-tekan se-rendah-rendah-nya (Purwo 1985)
price pfx-suppress pfx-low-low-sfx
The price is lowered the lowest possible

Another possible form of a polymorphemic adverb is as shown in (40). The adverbial stem is reduplicated and the suffix -an is attached to it.

(40) Mereka ber-juang mati-mati-an
they pfx-fight die-die-sfx
They fight the best they can

According to the data presented in Purwo, phrasal adverbs in Indonesian are those where a preposition precedes a stem. The stem may be a verb, an adjective or an adverb. The data in (41a-c) show the occurrences of phrasal adverbs, particularly those with the preposition deng\-\-an ‘with’.

(41) a. Preposition + verb
Hasan me-nyetir mobil-nya deng\-\-an ber-semangat
Hasan pfx-drive car-his with pfx-enthusiasm
Hasan drove his car enthusiastically

b. Preposition + adjective
Nani mem-baca buku itu deng\-\-an teliti
Nani pfx-read book that with thorough
Nani read that book thoroughly

c. Preposition + adverb
Hasan muncul di depan-ku deng\-\-an tiba-tiba
Hasan appear in front-1\textsuperscript{st} sg. with sudden
Hasan suddenly appeared in front of me

Another preposition that is commonly used in phrasal adverbs is secara ‘in an X manner’. An example is given in (42).

(42) Hasan dan Adi me-nyesai-kan per-musu\-h-an mereka secaradewasa
Hasan and Adi pfx-settle-sfx pfx-enemy-sfx 3\textsuperscript{rd} pl. prep. mature
Hasan and Adi settled their hostility (against each other) in a mature way
As discussed in Purwo, there are some distributional restrictions with regards to the occurrences of adverbs that can occur with or without a preposition, as shown in (43) (these examples are from Purwo 1985).

(43)  
a. Harap (*dengan) segera di-selesai-kan  
please with soon pfx-finish-sfx  
_Please finish (it) soon_

b. Harap diselesai-kan (dengan) segera

According to the examples above, when the adverb segera ‘soon’ precedes the verb, the presence of the preposition dengan ‘with’ to form a [preposition + adverb] adverbial phrase, shown in (43a), is ruled out. However, at the sentence-final position (43b), there is no such restriction. The presence of the preposition is optional, and when it appears, it does not result in ungrammaticality. No account was proposed by Purwo as to why this is the case. To avoid potential complications due to any differences in syntactic behavior that may exist between lexical adverbs and phrasal adverbs, in the present study I will focus on lexical adverbs, as defined above drawing from Purwo (1985). Phrasal adverbs will be excluded altogether from the discussion.

4.2 Positions of adverbs

Jackendoff (1972) discusses the positions in which -ly adverbs in English can occur. There are three basic positions for these adverbs: sentence-initial position, sentence-final position, and auxiliary position, which is the position between the subject and the main verb. He further divides these adverbs into different classes based on which position or the combination positions they can occur in. As I mentioned earlier, in this study, I focus on the occurrence of lexical adverbs. While these adverbs may be further divided into different classes or types, that will not be the concern here.

In Indonesian, there are two possible positions for lexical adverbs between the surface subject and the main verb, one preceding and one following a potential auxiliary. Both possibilities are illustrated by the data shown earlier in (32), repeated in (44). Since the occurrence of auxiliaries is relevant to the placement of adverbs, from this point on I will use the auxiliary akan ‘will’ in all of the Indonesian sentences.

(44)  
Hasan pasti akan keras-keras meng-ayun cangkul-nya  
Hasan surely will hard pfx-swing hoe-his  
_Surely Hasan will swing his hoe hard_
In this example, the auxiliary akan ‘will’ is between two adverbs pasti ‘surely’ and keras-keras ‘hard’.

For Indonesian adverbs in general, there are four possible positions in which they can occur. Not all adverbs occur in all positions, however. These positions are schematized in (45). Note that in Indonesian (as in English, but not in French), no adverbs can occur between a verb and its following direct object.


The position indicated by [Adv₁] is sentence-initial position, [Adv₂] is pre-Aux position, [Adv₃] is post-Aux position, and [Adv₄] is post-VP.

As discussed in Purwo (1985), some adverbs can appear only preceding the verb, some others may appear preceding or following the verb, and yet some others can appear only following the verb. Purwo does not discuss the possibility of adverbs to appear sentence-initially, nor does he discuss the occurrences of adverbs in relation to auxiliaries. (46) - (53) show the sentences with adverbs. The list of lexical adverbs in this study is by no means exhaustive. Grammaticality judgments were based on three native speaker consultants.

No examples were found of lexical adverbs which can appear in only sentence-initial or pre-Aux position. In (46) I provide examples of these two options for the adverb pasti ‘certainly’ which can appear in either position.


a. Pasti Nina akan mem-bawa buku-nya
certainly Nina will pfx-bring book-her
\textit{Nina will certainly bring her book}

b. Nina pasti akan membawa bukunya

c. *Nina akan pasti membawa bukunya

d. *Nina akan membawa bukunya pasti

Other adverbs that pattern with pasti are jelas-jelas ‘obviously’, memang ‘indeed’, justru ‘precisely’, and biasanya ‘usually’.

(47a-d) show the sentences with the adverb ramai ‘noisily’ which occurs only in post-Aux position.

a. Mereka akan **ramai** mem-per-bincang-kan masalah itu\(^5\)  
   They will noisy pfx-pfx-discuss-sfx problem that  
   *They will discuss that problem 'noisily'*

b. *Ramai* mereka akan memperbincangkan masalah itu  
c. *Mereka ramai* akan memperbincangkan masalah itu  
d. *Mereka akan memperbincangkan masalah itu ramai*

Other adverbs that occur only in post-Aux position are *sering* ‘often’, *jarang* ‘rarely’, *selalu* ‘always’, *sangat* ‘very much’ (for verbs of ‘feeling’).

An adverb that can appear only sentence-finally is *lagi* ‘again’, as shown in (48a). There are no other lexical adverbs restricted to sentence-final position.

(48) \([\text{Adv}_1] \text{ NP}_{\text{subject}} [\text{Adv}_2] \text{ Aux } [\text{Adv}_3] \text{ Verb (NP}_{\text{object}}) [\text{Adv}_4]\)

a. Hasan akan meN-tanam jagung lagi  
   Hasan will pfx-plant corn again  
   *Hasan will plant corn again*

b. *Lagi* Hasan akan menanam jagung  
c. *Hasan lagi* akan menanam jagung  
d. *Hasan akan lagi* menanam jagung

The sentences in (49) illustrate the occurrence of the adverb *jarang* ‘rarely’ in sentence-initial position and in post-Aux position.

(49) \([\text{Adv}_1] \text{ NP}_{\text{subject}} [\text{Adv}_2] \text{ Aux } [\text{Adv}_3] \text{ Verb (NP}_{\text{object}}) [\text{Adv}_4]\)

a. Dia akan **jarang** me-nelpon pacar-nya  
   He will rarely pfx-phone girlfriend-his  
   *He will rarely call his girlfriend*

b. *Jarang* dia akan menelpon pacar-nya  
c. *Dia jarang* akan menelpon pacar-nya  
d. *Dia akan menelpon pacar-nya jarang*

Two of the consultants showed the judgments as indicated above. However, the third indicated that the occurrence of this adverb in \([\text{Adv}_2]\) position, shown in (49c), is also good.

Certain adverbs can occur in either pre-Aux position or post-Aux position, as shown in (50).

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\(^5\) According to Sneddon (1995), this adverb is restricted to preceding certain passive verbs. However, based on my own observation and based on the native consultants' judgments, this is not the case.
(50) $[\text{Adv}_1] \ NP_{\text{subject}} [\text{Adv}_2] \ \text{Aux} \ [\text{Adv}_3] \ \text{Verb} \ (NP_{\text{object}}) \ [\text{Adv}_4]$

a. Saya hanya akan membeli makanan
   I only will pfx-buy food
   $I \ \text{will only buy some food}$

b. Saya akan hanya membeli makanan

c. *Hanya saya akan membeli makanan

d. *Saya akan membeli makanan hanya

Other adverbs in this class are selalu ‘always’, sering ‘often’, and sengaja ‘intentionally’.

(51a-d) illustrate the cases where certain adverbs can appear either in pre-Aux position or sentence-final position.

(51) $[\text{Adv}_1] \ NP_{\text{subject}} [\text{Adv}_2] \ \text{Aux} \ [\text{Adv}_3] \ \text{Verb} \ (NP_{\text{object}}) \ [\text{Adv}_4]$

a. Nina juga akan men-jawab per-tanya-an-nya
   Nina also will pfx-answer pfx-ask-sfx-his
   *Nina will also answer his question

b. */!*Juga Nina akan menjawab pertanyaannya

c. √/!*Nina akan juga menjawab pertanyaannya

d. Nina akan menjawab pertanyaannya juga

One consultant indicated the occurrence of juga sentence-initially with a question mark.

Another consultant indicated that this adverb can appear following the auxiliary.

Adverbs like keras-keras ‘hard’ may occur in the post-Aux positions, as shown in (52).

(52) $[\text{Adv}_1] \ NP_{\text{subject}} [\text{Adv}_2] \ \text{Aux} \ [\text{Adv}_3] \ \text{Verb} \ (NP_{\text{object}}) \ [\text{Adv}_4]$

a. Ayah akan keras-keras meng-ayun kapak-nya
   father will hard pfx-swing ax-his
   *Father will swing his ax hard

b. */!*Keras-keras ayah akan mengayun kapaknya

c. *Ayah keras-keras akan mengayun kapaknya

d. Ayah akan mengayun kapaknya keras-keras

All consultants agreed that the occurrence of keras-keras in position $[\text{Adv}_3]$ and $[\text{Adv}_4]$ (shown in (52a) and (52d)) was good. They also agreed that keras-keras cannot occur in $[\text{Adv}_3]$ position, as shown in (52c). Their response to keras-keras in sentence-initial
position (shown in (52b)) is mixed. Other adverbs in this class are baik-baik ‘well’, hati-hati ‘carefully’, and dalam-dalam ‘deeply’ (at least for two of the consultants).

There are types of adverbs which seem to pattern together with those in (51), i.e. that they can occur in pre-Aux position or in sentence-final position, as shown in the following set of examples.

\[(53) \quad [\text{Adv}_1] \quad \text{NP}_\text{subject} \quad [\text{Adv}_2] \quad \text{Aux} \quad [\text{Adv}_3] \quad \text{Verb} \quad (\text{NP}_\text{object}) \quad [\text{Adv}_4] \]

a. Anak itu barangkali akan men-curui uang 
   child that probably will pfx-steal money
   *Probably that child will steal money

b. Barangkali anak itu akan mencuri uang

c. *Anak itu akan barangkali mencuri uang

d. Anak itu akan mencuri uang barangkali

(53a) and (53d) exemplify the patterning of (51). However, all consultants agree that barangkali can also appear in sentence-initial position, in contrast to the adverbs exemplified in (51). Another adverb that patterns with barangkali is mungkin ‘perhaps’.

From the list of adverbs above, it seems that most lexical adverbs in Indonesian are generated adjacent to the auxiliary. In addition, some of them may appear in sentence-initial position, while some others in sentence-final position. Based on the available list in this study, no lexical adverb is restricted only to sentence-initial position. There is only one example found of a lexical adverb occurring exclusively in sentence-final position: i.e. lagi ‘again’. Having laid out the positions of the lexical adverbs within a sentence, I focus on the theoretical implications of these adverbial positions in the following section.

5. Syntax of Indonesian adverbs

In this section, I will consider the syntactic behavior of Indonesian adverbs. Of particular relevance in this section is the relative position of different adverbs with regards to each other, in a sentence. First, I discuss adverbs that occur sentence-initially as well as in the pre-Aux position, and propose an account for where the adverbs are base-generated. Then I discuss the occurrences of adverbs in the post-Aux position and post-VP position, and finally discuss the syntactic consequences of these occurrences.
5.1 Sentence-initial and pre-Aux adverbs

I mentioned in section 4.2 that certain adverbs may occur in either sentence-initial position or in pre-Aux position. This is demonstrated in (54) for the adverb *pasti* ‘surely’.

(54) a. Hasan *pasti* akan meng-ayun cangkul-nya
    Hasan surely will pfx-swing hoe-his
    *Surely Hasan will swing his hoe*

b. √Pasti Hasan akan mengayun cangkulnya

c./?*Hasan akan mengayun cangkulnya *pasti*

d. √/?Hasan akan *pasti* mengayun cangkulnya

In (54a), the adverb occurs immediately following the surface subject NP, and it precedes the auxiliary *akan* ‘will’. The other possible position for this adverb is the sentence-initial position, as shown in (54b). The occurrences of this adverb in post-Aux positions, i.e. post-VP as in (54c) or immediately after the auxiliary in (54d), render the sentence questionable or ungrammatical.

Two of the native speakers that I consulted did not like the sentence in (54c), and another stated that it might be grammatical, but only in an informal context. The responses to the sentence in (54d) are quite mixed. According to one of the consultants, this sentence was perfectly good. The other two consultants, on the other hand, were not sure whether this sentence was good or bad. In Indonesian, *pasti* can either be an adjective or an adverb. A possible adjectival reading of sentence (54d) is shown in (55).

(55) Hasan akan (me-rasa) *pasti* (untuk)meng-ayun cangkul-nya
    Hasan will pfx-feel sure for pfx-swing hoe-his
    *Hasan will feel certain about swinging his hoe*

It is possible that the consultant judging (54c) acceptable did so with an adjectival reading with the meaning shown in (55). The other consultants who were not sure whether (54c) is grammatical or not, may have been uncertain about whether *pasti* is an adjective or an adverb.

For the purpose of the discussion here, I will focus on the sentences in (54a-b). Adopting the proposed structure in Guilfoyle, et al., sentence (54a) is represented in (56a).
As we have seen in earlier diagrams, the Agent Hasan is base-generated in \([\text{Spec,VP}],\) and the Theme cangkul-nya 'his hoe' is the complement of \(V^o\). For the moment, I will follow the assumptions in Guilfoyle, et al. The verbal form (prefix + stem) is base-generated in the head of the VP. The Theme NP is assigned Case by the prefix me\(N^\text{-}\), and remains in its D-structure position. The Agent NP, on the other hand, has to raise to \([\text{Spec,IP}]\) to get Case via Spec-head Agreement. At this point, I will assume that the auxiliary akan 'will' is base-generated in the head of IP.

(56a) accounts for the occurrences of adverbs like pasti 'surely' between the surface subject and the main verb, under the assumption that adverbial phrases can adjoin to \(X^\prime\). This was proposed in Bowers (1993) for English adverbs. Suppose I adopt the argument in Chomsky (1986), that adjunction of a maximal projection is restricted to another maximal projection. For adverbs this means that an adverbial phrase is adjoined to the IP-node, instead of the \(I^\prime\)-node. This leads to the false prediction that an adverb like pasti 'surely' will always appear either sentence-initially or sentence-finally, but never between the surface subject NP and the verb. From this point on, I will adopt the proposal set forth in Bowers (1993), namely that adverbs are \(X^\prime\)-adjuncts, \(X^\prime\) being an intermediate node of a maximal projection XP (See also Chomsky 1996.).

The focus of the following section will be on adverbs occurring after the auxiliary, immediately after it as well as after the verb.
5.2. Post-Aux and post-VP adverbs

I will first discuss adverbs that occur between an auxiliary and a verb in an active sentence. Sentence (57) illustrates this.

(57) Hasan akan **keras-keras** meng-ayun cangkul-nya
    Hasan will   hard         pfx-swing   hoe-his

*Hasan will swing his hoe hard*

The adverb *keras-keras* 'hard' occurs immediately following the auxiliary *akan* 'will' and it immediately precedes the main verb. (58a-c) show the cases where this adverb occurs in other positions.

(58) a. */\^/!*Keras-keras Hasan akan mengayun cangkulnya
    b. *Hasan keras-keras akan mengayun cangkulnya
    c. Hasan akan mengayun cangkulnya **keras-keras**

The adverb *keras-keras* 'hard' may appear sentence-finally, as in (58c). Sentence-initial position (shown in (58a)) is not felicitous for two out of three speakers. All speakers judged (58b) ungrammatical.

Before making a proposal for the D-structure position of the adverb *keras-keras*, I lay out in (59) some of the assumptions that I adopt for the analysis.

(59) (a) Adverbs are licensed by heads (Travis 1988), and by one and only one head
     (Bowers 1993)
     (b) Adverbs are X'-adjuncts (Bowers 1993)

The diagram shown in (60) represents the structure of sentence (57). The D-structure positions of the arguments are as argued for in Guilfoyle, et al. The Agent *Hasan* raises to [Spec,IP] for Case purposes, and the Theme *cangkulnya* is assigned Case in its D-structure and thus remains in-situ.
The auxiliary akan is under I⁰, and both the prefix meN- and the verbal stem ayun are in V⁰. Based on this diagram, the occurrence of the adverb pasti sentence-finally is accounted for by the right adjunction of the AdvP (adverbial phrase) to the V'-node. The sentence in (61) illustrates the occurrences of adverbs sentence-finally.

(61) Hasan akan meng-ayun cangkul-nya lagi
    Hasan will pfx-swing hoe-his again
    *Hasan will swing his hoe again

The adverb lagi 'again' is a post-VP adverb. This type of adverb can occur only sentence-finally in Indonesian. When it occurs in the other potential positions for adverbs laid out earlier, the sentence is ungrammatical, shown in (62a-c).

(62)  a. *Lagi Hasan akan mengayun cangkulnya
  b. *Hasan lagi akan mengayun cangkulnya
  c. *Hasan akan lagi mengayun cangkulnya

As I have mentioned earlier, no adverb can occur between a verb and its direct object in an active sentence. The sentence in (63) shows a case where the adverb lagi occurs between the verb mengayun and the object cangkulnya, and it is ruled out.
(63)  *Hasan akan mengayun lagi cangkulnya\(^6\)

Adopting the diagram in (60), I will have to assume that the adverb *lagi* is always adjoined to the right, to account for its sentence-final position. Semantically this adverb modifies the verb *mengayun*, i.e. there is a repeated act and the act is ‘to swing’. Therefore this adverb is licensed by the head of the VP.

Now that we have seen the neutral position where the adverbs *keras-keras* ‘hard’ and *lagi* ‘again’ occur, let’s look at cases where the two adverbs co-occur in a sentence. This is shown in (64). The first adverb, *keras-keras*, occurs between the auxiliary and the verb. The second adverb, *lagi*, occurs sentence-finally.

(64)  Hasan akan **keras-keras** meng-ayuncangkul-nya **lagi**

Hasan will hard pfx-swing hoe-his again

*Hasan will swing his hoe hard again*

In (65), the two adverbs occur sentence-finally, in which case the adverb *keras-keras* is at the ultimate sentence-final position.

(65)  Hasan akan meng-ayun cangkul-nya **lagi** **keras-keras**

Hasan will pfx-swing hoe-his again hard

*Hasan will swing his hoe again hard*

Note that these two adverbs cannot switch position, as the sentence in (66) shows. When they do, a different meaning of the sentence is obtained.

(66)  Hasan akan **mengayun** cangkulnya **keras-keras** **lagi**

Hasan will swing his hoe hard again

As mentioned earlier, the post-VP adverb *lagi* modifies the verb. When it is at the ultimate final position, as shown in (66), i.e. with the adverb *keras-keras* immediately preceding it, the sentence is correct only if *lagi* modifies *keras-keras*, indicated by the continuous line. The reading of this is: *Hasan will swing his hoe as hard as he did before*. (66) does not represent the reading of *lagi* modifying the verb, indicated by broken lines.

\(^6\) In some dialects of Indonesian, this sentence may be grammatical (John Wolff, p.c.). However, the three speakers consulted judged it ungrammatical.
The structure in (67) represents the occurrence of these two adverbs. I will leave out the structure higher than the VP-node, since it is not relevant to the discussion at hand.

(67) 

As represented in (67), both adverbs are licensed by V⁰, and are adjoined to the V'-node. The adverb keras-keras adjoins to the left, but it may also adjoin to the right for cases where it occurs sentence-finally. Since the adverb lagi can only occur sentence-finally, it always adjoins to the right. Suppose the order of adjunction between these two adverbs is switched: the adverb lagi adjoins (to the right) to the higher V'-node, and keras-keras to the lower one. The adverb lagi will occur at the ultimate sentence-final position, as shown in (66). However, the intended reading of the sentence, namely lagi modifies mengayun, is not obtained. Thus, while the structure in (67) accounts for the sentences in (64) and (65), it does not account for why the adverbs keras-keras and lagi cannot switch position. One may suppose that these two adverbs belong to different 'types' of adverb, even though they are both licensed by V⁰, according to the account in (67).

Further support is illustrated by the set of data in (68), in which three adverbs occur simultaneously within a sentence.

(68) a. Hasan pasti akan keras-keras meng-ayun cangkul-nya lagi
    Hasan surely will hard prefix-swing hoe-his again
    Surely Hasan will swing his hoe hard again

    b. *Hasan pasti akan lagi mengayun cangkulnya keras-keras
    c. *Hasan keras-keras akan pasti mengayun cangkulnya lagi
    d. *Hasan keras-keras akan lagi mengayun cangkulnya pasti
    e. *Hasan lagi akan pasti mengayun cangkulnya keras-keras
    f. *Hasan lagi akan keras-keras mengayun cangkulnya pasti
In this case, only one surface word order of these adverbs is acceptable, as shown in (68a). Earlier, we have seen that keras-keras ‘hard’ may appear in post-Aux position (shown in (64)) or in the ultimate sentence-final position (shown in (65)). In (68b), keras-keras ‘hard’ and lagi ‘again’ appear in the reverse order, relative to the order in (68a); the sentence is unacceptable. Furthermore, (68c-f) show that the three adverbs co-occurring in a sentence are restricted to only one position, providing support for the view that adverbs are licensed by different heads.

Suppose I adopt the structure proposed in Bowers (1993) to account for the ‘no-switching position’ phenomenon of the Indonesian adverbs. Some of the relevant assumptions in Bowers are listed in (69).

(69)  
(a) External arguments are base-generated in [Spec,PrP]  
(b) Internal arguments are base-generated in [Spec,VP]  
(c) Pr⁰ may selects VP, among other possible maximal projections (AP, NP, and PP)  
(d) PrP is selected by I⁰

Bowers motivates the argument for a functional maximal projection Predicate Phrase (PrP), based on facts of small clauses and the positions of certain adverbs in English. In this account, external arguments, called primary subjects, are base-generated in [Spec,PrP] (see diagram in (70)). Internal arguments, or secondary subjects, are base-generated in [Spec,VP].

(70)  
```
   PrP  
    /   
  Pr⁰  VP  
   / 
 NP  NP  V⁰  
  primary subject secondary subject XP complement
```

To account for the Indonesian data discussed in this study, the relevant assumptions in (69c-d) are that the head of PrP selects a VP, and that PrP is selected by the head of the IP. The sentences in (64) and (65) are represented in (71).
(71) *Hasan akan keras-keras mengayun cangkulnya lagi*

Hasan will hard prefix-swing his again

The Agent (or the primary subject) *Hasan* is base-generated in [Spec, PrP], and the Theme (or the secondary subject) *cangkulnya* in [Spec, VP]. The auxiliary *akan* is in the head of the IP. For the moment, let's assume that the verbal form (prefix + stem) is base-generated in V₀, following the claim in Guilfoyle, et al.; and it raises to Pr₀. The motivation for this head-to-head movement would be for theta-role assignment to the primary subject, following Bowers (1993). Since the adverbs *keras-keras* ‘hard’ and *lagi* ‘again’ do not behave alike, presumably because they are not of the same ‘type’, let’s suppose that the adverb *keras-keras* is licensed by Pr₀, and the adverb *lagi*, which always occurs post-VP, by V₀.

There are several advantages if this theory is adopted. First, as shown in diagram (71), there is no need to assume that there is directional restriction for the adjunction of adverb *lagi*. Whether it adjoins to the left or to the right, it will always occur sentence-finally on the surface. Second, if the argument that the adverbs *keras-keras* and *lagi* are licensed by two different licensors is correct, the problem of no-switching position between the two adverbs is accounted for. They are licensed by two different heads.
The focus of the following section is to determine where the D-structure and the S-structure positions are, of the prefix meN- and the verbal stem.

5.3. Positions of Indonesian verbal forms

Having proposed the structure for adverbs in Indonesian, I will now return to the questions raised earlier, listed in (72).

(72) a. Do verbal forms in Indonesian raise? If so, where to?

b. Where is the D-structure position of the verbal prefix meN-?

The answer to the first question in (72a) is yes; to obtain the correct surface word order, a verbal form in Indonesian has to move from its D-structure position to a position higher than the surface position of the Theme NP. The closest available position is the head of the PrP. When the V-to-Pr raising does not take place, the verbal form occurs in final position of the sentence, rendering the sentence ungrammatical, as shown in (73).

(73) *Hasan akan keras-keras cangkulnya lagi mengayun

Adopting the assumptions in Bowers (1993), the motivation for this movement is theta-role assignment to the Agent or the primary subject.7

There are at least two possibilities for the D-structure of the prefix meN-. The first possible position for the prefix meN- is in the head of VP, adjoined to the verbal stem. The other possibility is that it is in the head of PrP. Based on the first proposal, the prefix will raise with the verbal stem to the head of PrP due to the morpho-phonological pattern in Indonesian, where the prefix meN- should be attached to a verbal stem. In the second proposal, the raising of the verbal stem from V-to-Pr fulfills both the Case marking and the morpho-phonological requirements. Lacking evidence, this prefix may be argued to originate in the head of VP or in the head of PrP.

Having proposed an analysis for the verbal forms in Indonesian, I lay out some questions for further investigations, which may provide insight to the refining of this proposal.

6. Remaining questions and remarks

The so-called passive prefix di- in Indonesian has been argued to be a person marker (Guilfoyle, et al. 1992; Thomas 1978). If this is the case, its D-structure position would be

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7 In the Minimalist Program, it would be assumed that subject raises to IP, to check its NOM feature and due to strong EPP. For Indonesian, object cannot move higher than PrP, due to weak ACC feature (like English); thus checking does not take place until LF.
different from that of the active prefix \textit{meN-}. Where would the position of the passive prefix be in the D-structure? How would passive constructions be accounted for? The answer to these questions may also help determine whether the active prefix \textit{meN-} is base-generated in the head of VP or PrP.

In this study, I have assumed that auxiliaries in Indonesian are base-generated in the head of IP. Further account needs to be developed to see whether this is the case. The presence of negation and the occurrences of multiple auxiliaries may provide insight to this inquiry.

7. References


Local Economy and Optional Scrambling in Japanese

Eun Cho

1. Introduction

In this paper, I will argue that A scrambling in Japanese is driven by the [+multiple] nominal feature of v1 (Chomsky 1995) and [+multiple] EPP feature of T. Under this proposal, the optionality of Japanese scrambling naturally follows from the fact that (i) it is driven by the [+multiple] feature, and (ii) the matching feature is [+interpretable], because [+multiple] features do not have to enter more than one checking relation, and [+interpretable] features do not have to be checked. This conclusion challenges previous work by Fukui (1993) and Tada (1993), who maintain that scrambling is costless for the purpose of economy (because scrambled categories do not enter into the checking relation with the head), and therefore scrambling can take place without a motivation.

It will be also shown that the proposed analysis of Japanese Scrambling has an important implication regarding the notion of Economy. In particular, it will be shown that Local Economy (Collins 1996) is superior to Global Economy (Chomsky 1993 and 1994) in its prediction. Global economy falsely predicts that the scrambled sentence should be blocked by the non-scrambled one, because the derivation of the scrambled sentence is always longer than that of the non-scrambled one due to the scrambling operation, whereas Local economy predicts that both the scrambled and non-scrambled sentence are optimal, which is true. My analysis of scrambling also demonstrates that the [+/strong] and [+/multiple] feature are not in the sister relation but in the dominance relation. Namely, [+/strong] feature dominates [+/multiple] feature, and therefore the [+/strong] and [+/multiple] feature of a head X can induce the multiple overt movement. If they were in the sister relation, the extra overt movement as in scrambling could not occur, contrary to fact. Other puzzling problems such that A-scrambling does not show RM effect and that case marked DPs can under go A-scrambling can be easily accounted for under my analysis. Finally I will derive the residue of the proper binding condition effect found in the possessor raising construction from the economy principle 'No Vacuous Attraction'.

The organization of this paper is as follows. In section 2, I will show that scrambling is an instance of a movement(attraction), unlike Boskovic and Takahashi's (1995) claim. In section 3, I will present an analysis of A-scrambling where the landing site of it is a spec of v1 or T, and show that peculiar properties of A-scrambling can be easily accounted for.
under my analysis. In section 4, I will demonstrate how Local economy succeeds in accounting for the scrambling case where Global economy fails. In this section, I will also claim that the [+/-strong] feature dominates [+/-multiple] feature. Section 5 deals with some restrictions on scrambling found in the possessor raising construction, and I will explain that restriction on scrambling in terms of the economy principle. Concluding remarks come in section 6.

2. Scrambling as an instance of movement (attraction)

Unlike English, Japanese allows the variation for the order of constituents, as in (1b).


   b. Hon-o; John-ga t_i yonda.

There are two ways of approaching this free word order problem: base generation and movement approach.1

Recently, Boskovic and Takahashi (1995) argued for the base generation approach, claiming that hon-o (book) is base generated in the sentence initial position, as in (1b) and that scrambled NP hon-o (book) moves back into its base position, as in (1a), to get a theta role from the verb. In this section, I, however, will argue against their claim and show that scrambling is an instance of a movement (or attraction).

Apart from the fact that Boskovic and Takahashi (1995) have to stipulate that i) lowering movement is permissible and ii) the reception of theta roles counts as a licit reason for movement, which is certainly vague and dubious (not many precedents for this sort of movement trigger), their analysis faces some empirical problems. First, scrambling in Japanese shows subjacency effects:2

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1In the base generation approach, (1b) is not derived from (1a). Hon-o’ is base generated in the sentence initial position, in (1b). On the other hand, (1b) is derived from (1a) by the movement of ‘hon-o’, in the movement approach.

2All the Japanese data and the judgment on them in this paper come from Kyoko and some Japanese teachers, except for the examples which have been cited in the literature. (2b) is also bad in Korean.
(2) a. John-ga [inu-o motta] otoko-ni atta
    John-Nom [dog-Acc have] man-Dat met
    John met a man who has a dog.

b. *Inu-o [John-ga [t-o motta] otoko-ni] atta
    dog-Acc [John-Nom [t have] man-Dat] met

(2b) indicates that NPs can not be associated with a trace in the complex NP. It is not clear how Bosvikovic and Takahashi can account for the unacceptability of (2b); i) merge of hon-o (book) in the sentence initial position is legitimate, and ii) the LF lowering of hon-o (book) to the theta position does not violate any principles in their system. On the other hand, the movement analysis can easily explain the unacceptability of (2b): (2b) violates subjacency, because hon-o (book) is raised out of the complex NP. Whatever the actual explanation of subjacency effect may be, the subjacency effect is one of the classic diagnostics of movement. Therefore (2a) supports the idea that scrambling is an instance of movement (or attraction).

Secondly, Boskovic and Takahashi’s (1995) analysis can not explain the following contrast:

(3) a. John-ga hahayo-ga hon-o yonda
    John-Nom mother-Nom book-Acc read
    John’s mother read a book.

b. ?John-ga kinoo hahayo-ga hon-o yonda
    John-Nom yesterday mother-Nom book-Acc read
    Yesterday, John’s mother read a book.

c. *John-ga hon-o hahayo-ga yonda
    John-Nom book-Acc mother-Nom read
    John’s mother read a book.

---

3 Even though there is an empty operator movement in (2a) and (2b), I will ignore that trace for the convenience.

4 One may think that LF lowering movement may violate subjacency, but subjacency does not apply to LF movement (Huang 1982, etc.).
Adverbs can intervene between subjects, as in (3b), whereas arguments can not, as in (3c). Considering that adverbs do not move because they do not have any features which can enter a checking relation (Chomsky 1995), *kinoo* (yesterday) seems to be merged after the whole DP *John hahayo* is raised into the spec of T:

\[
(4) \quad \text{TP} \\
\quad \text{kinoo} \quad \text{T'} \\
\quad \text{DPi} \\
\quad \text{John} \quad \text{D'} \\
\quad \quad \text{hahayo} \quad \text{D} \\
\quad \quad \quad \text{T'} \\
\quad \quad \quad \quad \text{vP} \quad \text{T} \\
\quad \quad \quad \quad \quad \text{ti} \quad \text{v'} \\
\quad \quad \quad \quad \quad \text{VP} \quad \text{v} \\
\quad \quad \quad \quad \quad \quad \text{John} \quad \text{V} \\
\quad \quad \quad \quad \quad \quad \quad \quad \text{yonda}
\]

After *kinoo* (yesterday) is merged, *John* moves into the outer spec of T to check its case feature, in (3b). Why would then (3c) be bad if (3c) has the same derivation as (3b)? If *hon-o* (book) comes between subjects in (3c) as a result of merging of *hon-o* (book) into that position as Boskovic and Takahashi (1995) would argue, (3c) should be good as (3b) is, which is not.\(^5\) This accordingly demonstrates that *hon-o* (book) comes between subjects for a different reason from that which causes *kinoo* (yesterday) to come between subjects. That is, *hon-o* (book) does not intervene between subjects because it is merged there, contrary to Boskovic and Takahashi's claim.\(^6\) This fact also supports the idea that

\(^5\)LF lowering movement also does not violate any principles.
scrambling is an instance of a movement indirectly. Therefore, I will take the movement over the non-movement approach, and I will use the term *scrambling* as an instance of move $\alpha$, in this paper.

3. A-Scrambling driven by [+multiple] EPP feature checking\(^7\)

As an instance of a movement, Japanese A-scrambling has been problematic in the minimalist framework where movement is last resort, because i) scrambling is optional and ii) it is not clear why NPs scramble,\(^8\) unlike other well studied cases of move 'A' such as passives. In this section, I will provide the answers for those questions.

3.1 Optionality and Last Resort

Tada (1993)\(^9\) showed that Japanese A-scrambling is not triggered for Case reasons unlike other A-movement (for example passive). To explain this fact and the optionality of scrambling, he weakened the Last Resort principle as follows.

(5) Last resort principle allows movement of $\alpha$ without motivation only if nothing is gained by that movement.

Specifically, (5) says that $\alpha$ can move without a trigger if $\alpha$ does not enter into a checking relation. In other words, the Last resort principle does not apply to the scrambling operation because no feature is checked as a result of that movement. Fukui (1993) also attributes the optionality of scrambling to its being costless for the purpose of economy. That is, scrambling can take place without a trigger, because it is costless, unlike other movement. To explain the optionality of Japanese scrambling, Fukui (1993) and Tada

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6The contrast between (3b) and (3c) is discussed in the class. The generalization that we can get from this contrast seems to be as follows: nothing can move between multiple specs, but merge is allowed.

7In this paper, I will deal with only A-scrambling, and 'scrambling' means A-scrambling in this paper unless it is specified differently.

8That is, which feature is responsible for the attraction of NPs in case of scrambling?

9According to Tada (1993), i) clause internal scrambling demonstrates A-property, ii) clause initial scrambling shows both A- and A'-properties, and iii) long distance scrambling shows A'-properties. In this article, I will concentrate on the clause internal and initial scrambling which demonstrates A-properties.
(1993) basically stipulate that scrambling is a special type of movement in that no feature checking takes place by that movement, and they can not but weaken the Last resort principle. In this section, I will, however, provide an alternative solution to this optionality problem, which does not have to weaken the Last resort principle. I propose that Japanese A-scrambling is driven by [+multiple] nominal feature of v1 (in the double object construction), and by [+multiple] EPP feature of T.10

3.1.1 Clause Internal Scrambling

Let us consider clause internal scrambling first, as in (6b).

(6) a. John-ga Mary-ni hon-o ageta
    John-Nom Mary-Dat book.Acc gave
    Mary gave Mary a book.

b. John-ga hon-o_j Mary-ni t_i ageta
    John-Nom book.Acc Mary-Dat t gave

In (6a), Mary-ni (Mary-Dat) and hon-o (book) are both attracted by the strong nominal11 feature of v1 and v2 respectively, as in (7).12

10Ura (1996) made a similar proposal but my work (1995) is independently developed from his. In addition, his approach is very global, hence conceptually different from my proposal which argues for Local Economy.

11Ura (1996) argued that the nominal feature of v1 is weak based on (i).

(i) *Gakusei-ga_j [vp1 kinoo [vp1 san-nin_j hana-ni_k [vp2 kossori
    student-Nom yesterday three-CL flower-Dat secretly
    [vp2 jup-pon_k [vp mizu-o ageta]]].
    en-CL water.Acc gave
    Three students gave water to ten flowers yesterday.

He argued that the unacceptability of (i) shows that IO hana-ni can not move out of vp2 before spell out. Ura's argument, however, is not strong. My informants did not like (i)' either.

(i)' *Gakusei-ga hana-ni jup-pon mizu-o ageta.
    student-Nom flower-Dat 10-CL water.Acc gave

In (i)', nothing intervenes between IO hana-ni (Flower-Dat) and the floated quantifier associated with IO. That is, (i)' is bad, even though IO did not move before spell out. This seems to indicate that quantifier can not be floated when its host DP is inanimate. On the other hand, when the host DP is animate as in (ii), manner or time adverbs can intervene between IO and the floated quantifier associated with IO.
As a result of the attraction of Mary-ni (Mary-Dat) and hon-o (book), each v's nominal, case, and agreement features are checked as well as each DP's case and agreement features. That is, all the [uninterpretable] features are checked and therefore (6a) is convergent. v1's nominal feature, however being [+multiple], can attract an infinite number of DPs unless such attractions violate Equi Distance. Accordingly, v1\textsuperscript{13} in (6a) can attract hon-o (book) which is in the spec of v2, as in (8).

(ii) Sensei-ga gakusei-ni [vP2 kinoo/gandanimo [vP2 san-nin hon-o ageta]]

    teacher-Nom student-Dat yesterday/kindly three-CL book-Acc gave

A teacher gave a book to three students yesterday (kindly).

Accordingly, (ii) shows that IO moves out of vP2 before spell out. (iii) shows the same point.

(iii) Sensei-ga gakusei-ni [vP2 kinoo [vP2 san-nin dengwa-o kaketa]]

    teacher-Nom student-Dat yesterday three-CL telephone-Acc make

A teacher make a phone call to three students yesterday. (From Takashi)

\textsuperscript{12}I adopted Collins and Thrainsson's (1994) structure.

\textsuperscript{13}Because its nominal feature is [+multiple]
Even though the categorial feature of *hon-o* (book) is checked in the spec of v₂, that feature can be attracted again, because it is a [+interpretable] feature.¹⁴ This attraction also does not violate equi-distance, because *Mary-ni* and the trace in the spec of v₁ do not block this attraction, according to the definition of closeness (9).

(9) If B c-commands A and C is the target of raising, then B is closer to C than A unless B is in the same minimal domain as (i) C or (ii) A.

According to (9), *Mary-ni* or the trace in the spec of v₁ is not closer to the target, because they are in the same minimal domain of the target (i). Therefore (8) is a convergent derivation, and accordingly (6b), which is a result of (8), is perfect.

¹⁴[+interpretable] features can enter into checking relation multiply because they are not deleted even after they entered into the checking relation.
My analysis of scrambling can naturally account for i) the optionality of scrambling, and ii) its A-property.\textsuperscript{15} Clause internal scrambling has A-properties, because its landing site is the outer spec of v1, which is an A-position. Scrambling is optional, because it is driven by the [+multiple] nominal (or EPP) feature and its matching feature\textsuperscript{16} is [+interpretable]. As Collins (1994) and Ura (1994) pointed out, a [+multiple] feature must enter one checking relation, but it does not have to enter more than one checking relation if the derivation would converge without multiple checking. For example, [+multiple] case feature of T enters more than one checking relation if there is more than one DP which has to check its case feature, as in (10), or it can enter only one checking relation, as in (11).

(10) John-ga hahayo-ga te-ga kireida.  
John-Nom mother-Nom hand-Nom pretty  
John's mother's hands are pretty.

(11) John-ga hon-o yonda  
John-Nom book-Acc read  
John reads a book.

In (10), however, T must enter more than one checking relation. Otherwise the [-uninterpretable] case feature of the DPs could not be checked and the derivation would crash. That is, [+multiple] feature automatically enters multiple feature checking if there is more than one unchecked [-interpretable] feature, even though the [+multiple] feature itself does not have to enter more than one checking relation (if there is only one unchecked [-interpretable] feature).

In the case of scrambling, the [+multiple] nominal feature of v1 can enter more than one checking relation. Accordingly, v1 can attract hon-o (book)\textsuperscript{17}, in (6b), even though its nominal feature is already checked by Mary-ni.

\textsuperscript{15}Tada (1993) showed that clause internal scrambling in Japanese has A-properties.

\textsuperscript{16}Categorial Feature

\textsuperscript{17}In fact, the categorial feature of DP hon-o (book).
(6) a. John-ga Mary-ni hon-o ageta
    John-Nom Mary-Dat book-Acc gave
    Mary gave Mary a book.
b. John-ga hon-o_i Mary-ni t_i ageta
    John-Nom book-Acc Mary-Dat t gave

The [+multiple] nominal feature of v1, however, does not necessarily have to enter more than one checking relation as in (6a), because i) [+multiple] features do not have to enter multiple feature checking, and ii) its matching feature, being [+interpretable], does not have to be checked (or in this configuration, the categorial feature of hon-o (book) is already checked in the spec of v2), unlike (10). This is why scrambling can be optional.

3.1.2 Clause Initial Scrambling

The clause initial scrambling can be analyzed analogously to the clause internal scrambling.

(12) a. John-ga hon-o yonda
    John-Nom book-Acc read

    b. Hon-o John-ga t yonda
       book-Acc John-Nom t read

In (12a), the [+multiple] EPP feature of T attracts John which is generated in the spec of v, and EPP, case, and agreement features of T are checked off by that attraction. [+multiple] EPP feature of T, however, can enter more than one checking relation, even though it does not have to. Accordingly, T can attract hon-o (book)\textsuperscript{18} again, as in (12b). The structure of (12b) is as follows:

\textsuperscript{18}Categorial feature of hon-o
(13)\[ \begin{array}{c}
TP \\
\text{hon-o}_j \\
\text{John-ga}_i \\
\text{vP} \quad \text{T} \quad \text{[+strong]} \quad \text{[+multiple] EPP} \\
\quad \text{t}_j \quad \text{v}’ \\
\quad \text{t}_i \quad \text{v}’ \\
\quad \text{VP} \quad \text{v} \quad \text{[+strong]} \quad \text{nominal} \\
\quad \quad \text{t}_j \quad \text{V} \\
\quad \quad \text{yonda} \\
\end{array} \]

In (13), the object \textit{hon-o} (book), which is raised into the spec of \textit{v} by the strong nominal feature of \textit{v},\textsuperscript{19} is attracted again by the [+]multiple EPP feature of \textit{T}, and has moved into the outer spec of \textit{T}.

As you may notice, the clause initial scrambling as in (12) is optional for the same reason that the clause internal scrambling is optional; it is driven by [+]multiple EPP feature of \textit{T}, and its matching feature (categorial) is [+]interpretable. Therefore, the EPP feature of \textit{T} does not have to enter more than one checking relation (as in 12a), even though it can (as in 12b).

My analysis can also account for one mysterious fact about scrambling, namely that extraction out of the A-scrambled phrases is grammatical, as in (14).

(14) \[ [\text{cp OP}_i \quad [[\text{John-ga}_t \quad \text{katta to}_i]_j \quad [[\text{Bill-ga}_t \quad \text{omotteiru}]_j \quad \text{yormo}]_j]_j \quad \text{John-Nom} \quad \text{bought that} \quad \text{Bill-Nom} \quad \text{thinks than} \]

\begin{align*}
\text{Mary-wa} & \quad \text{ooku-no} \quad \text{hon-o} \quad \text{katta.} \\
\text{Mary-Top} & \quad \text{many} \quad \text{book-Acc} \quad \text{bought} \\
\text{Mary} & \quad \text{bought more books than Bill} \quad \text{thinks that John bought.}
\end{align*}

\textsuperscript{19}By this attraction, \textit{hon-o} (book) has its case feature checked off, and \textit{v} checks its strong nominal, and case feature.
In (14), the whole clause *John-ga ti katta to (John t bought-Comp) has scrambled into the clause initial position. From that scrambled clause, the null operator is extracted, but (14) is acceptable. If the landing site of scrambling is an IP adjoined position, as argued by many researchers, it is unclear why the extraction out of the scrambled clause is possible, considering that the adjoined position is an A' position, and extraction from an A' position is not possible. On the other hand, my analysis can naturally account for this problem. Under my account, the landing site of clause initial A-scrambling\textsuperscript{20} is not an IP adjoined (or TP) position but the spec of T, which is an A position. In addition, the extraction out of the subject position is not constrained by CED in Japanese\textsuperscript{21}. Accordingly, the extraction of the null operator out of the scrambled clause is possible, in (14).

In this subsection, I proposed that A-scrambling is driven by the [+multiple] nominal feature of v1 or [+multiple] EPP feature of T. Because scrambling is driven by the [+multiple] feature and its matching feature is [+interpretable], scrambling can be optional. I also argued that the landing site of A-scrambling is the spec of v1 or the spec of T. This claim is supported by the fact that the null operator movement out of the scrambled position is possible.

\textsuperscript{20}Tada (1993) showed that clause initial scrambling can be A- or A'-movement, unlike the clause internal scrambling, which is uniformly A'-movement. My analysis only holds for the A-scrambling. The clause initial A'-scrambling seem to be driven by some sort of operator feature, but I will not talk about the A'-scrambling in this paper. I will leave it for future research.

\textsuperscript{21}Only the extraction out of the adjunct is constrained by CED, as Kikuchi (1987) convincingly demonstrated.

(i) *[[OP, minna-ga [Paul-ga t, yonda at]-de sampo-ni dekaketa] yorimo] 
   everyone-Nom -Nom read after-at walking-for went-out than

   John-wa takusan hon-o yondeita
   John-Top many book-Acc have-read
   (lit.) John has read more books than everyone went for a walk after Paul read.

In (i), the null operator is extracted out of the adjunct, and therefore result in the violation of CED. On the other hand, the extraction of null operator out of the subject does not result in the violation of CED, as in (ii).

(ii) Paul-wa [[OP, [John-ga t, yonda kota]-ga akiraka-na]] yorimo 
    Paul-Topic Jon-Nom read fact-Nom clear-is than

   takusan hon-o yondeita
   many book-Acc have-read.
   (lit.) John has read more books than the fact that Paul read is clear.
3.2 Relativized Minimality

Another puzzling observation about the A-scrambling is that it does not show the RM violation effect, as in (15b).

(15) a. John-ga Mary-ni hon-o ageta
       John-Nom Mary-Dat book.Acc gave
       Mary gave Mary a book.

       b. hon-ōi John-ga Mary-ni ti ageta
           book.Acc John-Nom Mary-Dat t gave

Even though hon-o (book) has moved into the clause initial position over two A-specs (subject and the indirect object), (15) is perfect. That is, (15) does not show the RM violation effect.

This puzzling problem can be easily explained under my account, because my analysis allows one convergent derivation of (15b): hon-o (book) does not move into the clause initial position in one step. (i) hon-o (book) is attracted first by the [+multiple] nominal feature of v2 and accordingly it moves into the outer spec of v2 and checks its case and agreement feature there. (ii) After this attraction, the [+multiple] nominal feature of v1 again attracts hon-o (book), and it moves into the outer spec of v1. As a result of this attraction, Mary-ni and hon-o (book) are in the same minimal domain, and therefore neither Mary-ni nor hon-o (book) blocks each other's attraction. (iii) Finally, the EPP feature of T attracts hon-o (book) which is in the outer spec of v1, and as a result of this attraction, hon-o (book) moves into the outer spec of T. That is, hon-o (book) in (15b) is attracted successive cyclically:
In this derivation, each attraction of *hon-o* (book) is legitimate, because potential A-specs (indirect object and the subject), which are in the domain of the target of the attraction, are not closer to the target than *hon-o* (book), according to the definition of closeness (9). Therefore, (15b) is acceptable.

At this stage of the derivation (15), the EPP feature of T can attract another DP *Mary-ni*, i) because the EPP feature of T is [+multiple] and ii) *Mary-ni* is the closest category to the target. The result of this attraction is (16).

(16)  [IP Mary-ni  [I' hon-o  [I' John-ga  ageta ]]  ]
      Mary-Dat book-Acc John-Nom gave
      John gave Mary a book.
Let us consider another derivation (17), which can be derived from (15a):

\[
\begin{align*}
(17) \quad \text{Mary-}n_i & \quad \text{John-ga} \quad [vP1 \quad \text{hon-o}, \quad [v' t_i \quad [vP2 \ t_i \ \text{ageta}]],[vP1 \ t_i \ \text{gave}]
\end{align*}
\]

Mary-Dat \quad John-Nom \quad \text{book} \quad t_i \quad t_i \ \text{gave}

John gave Mary a book.

The derivation of (17) is identical to that of (15b) until the second step. At the second step of the derivation of (15b), however, Mary-\text{ni} is attracted by the [+multiple] EPP feature (instead of \text{hon-o}) in (17). This attraction is legitimate because \text{hon-o} (book) and John-ga do not block this attraction. Accordingly, (17) is acceptable. Analogously to the derivation of (16), EPP feature of T can attract another DP \text{hon-o} (book) at the stage of (17), and this attraction results in (18).

\[
\begin{align*}
(18) \quad \text{hon-o} & \quad \text{Mary-}n_i \quad \text{John-ga} \quad [vP1 \ t_i \quad [v' t_i \quad [v' t_i \ \text{ageta}]
\end{align*}
\]

book-Acc \quad Mary-Dat \quad John-Nom \ [\ \text{gave}

John gave Mary a book.

In this subsection, I have shown that my analysis of A-scrambling can account for all the possible word orders which can be derived as a result of A-scrambling. In particular, the direct object can scramble over the indirect object and the subject, because the direct object moves successive cyclically (the direct object is attracted successive cyclically).

3.3 Chain Condition

Another peculiar problem of A-scrambling is that it does not obey the chain condition in (19), even though it shows A properties.

\[
\begin{align*}
(19) \quad \text{If } C = (a1, \ldots, an) \text{ is a maximal CHAIN, then an occupies its unique theta-position and a1 its unique case-marked position (Chomsky 1981).}
\end{align*}
\]

This condition implies that an A-chain must have a unique case marked position as its head. In other words, only non-case marked DPs can undergo A movement. In A-scrambling, however, the head of the chain is not in a case position:

---

\(^{22}\text{John-ga does not block the attraction of Mary-\text{ni}, because it is in the minimal domain of the target, and hon-o does not block the attraction of Mary-\text{ni} because they are in the same minimal domain.}\)
That is, *hon-o* (book) in (20) does not have its case feature checked in the scrambled position. Rather, its case feature is checked in the trace position.

Two ways of approaching this problem have been proposed in the literature. Yoon (1991) argued that the Chain condition is not universal and should be discarded. Saito (1992) claimed that the chain created by scrambling is not an A-chain, even though it shows A-properties. In Saito's (1992) analysis, the head of the scrambling chain is an A' position at S-S, and that position is reconstructed as an A-position at LF. That is, the fact that the scrambling chain does not obey the chain condition leads people to either discard the chain condition or stipulate that the scrambled position is converted from an A' to an A position.

My analysis, however, gives a natural explanation for this problem, without positing any extra assumptions. Under my analysis, the case marked DPs can undergo A-scrambling, because A-scrambling in Japanese is driven not by a case feature but by a nominal or EPP feature. That is, not every A movement is driven by a case feature, and if a certain A-movement is not driven by a case feature, it is not surprising that the head of that chain is not in the case position, or that already case-marked DPs can undergo A-movement. This, in turn, seems to indicate that the chain condition only holds when A-movement is case driven.

4. Other Theoretical Implications
4.1 Local Economy

In the last section, I have shown that the optionality of A-Scrambling can be neatly accounted for under the assumption that i) the driving force of A-scrambling is the [+strong] [+multiple] EPP feature of v and T, and ii) the matching feature is [+interpretable]. A-scrambling in Japanese, however, raises another nontrivial question regarding the Economy Condition: Why does (21a) not block (21b)?

\[(21)\]
\begin{align*}
\text{a. } & \text{[TP John-ga} [vP hon-o [VP yonda]]} \\
& \text{John-Nom book-Acc read} \\
\text{b. } & \text{[TP Hon-o [T' John-ga} [vP t [VP yonda]]]} \\
& \text{Book-Acc John-Nom read} \\
& \text{John read a book}
\end{align*}
To see the problem concretely, let us compare the derivation of the non-scrambled sentence (21a) and that of the scrambled sentence (21b). First, the derivation of the non-scrambled sentence (21a) has the following steps:23

(22)  
  a. DO hon-o raises to the spec of v1  
  b. SUB John raises to the spec of T

Thus, the derivation of (21a) has two movement operations. The derivation of (22b), on the other hand, has three movement operation as follows:

(23)  
  a. DO hon-o raises to the spec of v1  
  b. SUB John raises to the spec of T  
  c. OBJ hon-o raises to the outer spec of T.

That is, the derivation of a scrambled sentence like (21b) always has more steps than that of an unscrambled sentence due to the scrambling operation (23c).

Global Economy (Chomsky 1993, 1994) predicts that (21b) is blocked by (21a), since only the derivation D which has fewer steps than the other derivations is chosen as the optimal one under the global economy. As I showed above, the derivation of (21b) is longer than (21a). Therefore, under the Global economy (21b) should be bad. (21b) is, however, as good as (21a), which is a real problem under the Global economy.

This problem, however, can be easily solved, if we adopt Local Economy (Collins 1996):

(24)  
Local economy

Given a set of syntactic objects Σ which is part of derivation D, the decision about whether or not an operation OP may apply to Σ (as part of an optimal derivation) is made only on the basis of information available in Σ.

---

23I will ignore the instances of pure merge and head movement, because they are common to the derivation of (22a) and (22b).
Under Local economy, i) no global information is available, and ii) every derivation D is optimal as long as every operation (and merge) is motivated (Collins 1996: Last Resort) and that operation does not violate Equi Distance (Collins 1996: Minimality). Every step in the derivation of (21b) is, in fact, motivated and does not violate Minimality, as (21a). Therefore, (21a) and (21b) are both optimal under Local economy, even though the derivation of (21b) is longer than that of (21a) globally.

This scrambling case, therefore, clearly shows that Local economy is superior to Global economy, and hence argues for the Local Economy.

4.2 Multiplicity and Strength

I have shown that it is the interaction between the [+strong], [+multiple] feature and the [+interpretable] feature which allows an optional scrambling in Japanese (and Korean). That is, [+strong], [+multiple] feature ensures that scrambling can take place before spell out, as in (25).

(25) a. John-ga hon-o yonda
    John-Nom book-Acc read

    b. [TP Hon-o [TP John-ga T [VPt yonda]]]
       D D EPP [+strong], [+multiple]
    John read a book.

One might question why the DO hon-o (book) moves before spell out (not at LF), given that the [+strong] feature is already checked off by hon-o (book) in (25). That is, if the strength and the multiplicity are in a sister relation in the feature tree as in (26),

(26) F
    / \     /
   /   \   /   
  Strength Multiplicity
     / \   /  \   /  
    /   \ /   \ /   
   [+strong] [-strong] [+multiple] [-multiple]

24See Collins (1996) for the full discussion.

25I borrowed this model of reasoning from Collins (1996)'s analysis of Locative and quotative inversion.
we then expect that the [+strong] EPP feature of T is checked by an overt movement of only one DP, and that the multiple checking relation is established at LF. Under this view, a [+strong] and [+multiple] feature of the head can not license an extra overt movement, even though it can license a multiple covert movement. This view, accordingly, falsely predicts that hon-o (book) in (25) cannot move before spell out, even though it can move at LF.

(25), however, clearly shows that a [+strong] and [+multiple] head can license multiple overt movement (even though it is not necessary). This fact seems to demonstrate that the [+/-strong] and the [+/-multiple] feature are not in a sister relation. Rather they are in a dominance relation as in (27).

(27)

```
                                     F
                                    /    \
        Strong                        Weak
            /     \                    /     \  
   [+multiple] -[multiple]        [+multiple] -[multiple]
```

That is, the [+/-multiple] feature is a daughter of [+/-strong] feature. Under this view, multiple overt movement is possible, if the [+multiple] feature is dominated by [+strong]. In (25), the [+multiple] feature is, in fact, dominated by the [+strong] feature of T. Accordingly, overt scrambling is possible. Why is the scrambling then not necessary? Because its matching feature is [+interpretable] as I mentioned earlier. If the matching feature is [-interpretable] as in the multiple subject construction, the multiple overt movement is obligatory. The full distribution of the feature interaction is as follows:

---

26[+strong] case feature. The case feature of multiple subject languages seems to be strong. Unless it is strong, the LF movement of FF (possessor) to T can not help creating an unbound trace in the spec of DP which is in the spec of TP, as in (i).

(i)

```
(i)  DP
     |  TP
     t_passor D'
      . D host-Nom T
           vP T
       FF(possessor) T
```

(I, however, am not sure this is a such a good case of overt multiple movement. I am trying to find another case.)
(28) a. F [strong],[+multiple]
    MF [-interpretable]: obligatory movement
    Multiple Subject
    MF [+interpretable]: optional movement
    e.g. Scrambling in J and K, Multiple NEG in West Flemish
b. F [strong], [-multiple]
c. F [weak], [+multiple]
d. F [weak], [-multiple]

5. Possessor Raising Construction and Scrambling

In the possessor raising construction, the host DP can not scramble over the possessor DP, as in (29).

(29) John-ga [ t te-ga] kireita  
    John-Nom hand-Nom pretty

(30) *[ t te-ga] j  John-ga  t j  kireita  
    hand-Nom John-Nom  pretty
    John's hand is pretty.

The unacceptability of (30) can be accounted for by the proper binding condition, because the host DP comes to have an unbound trace in it as a result of scrambling.

The status of the proper binding condition, however, is not consistent with the spirit of the minimalist framework, considering that it is an external output filter. In addition, the host DP in (29) can be topicalized, as in (31).

(31) [ t i te-wa] j  John-ga i  t j  kireita  
    hand-Topic John-Nom  pretty
    As for hand, John is pretty (lit.)

(31) is acceptable unlike even though the topicalized DP in (31) also has an unbounded trace in it. This contrast between (30) and (31) seems to show that the real reason of the unacceptability of (30) is not the violation of the proper binding condition. Accordingly, I will derive this proper binding condition effect from other well motivated conditions.
Let us consider first the derivation of (30): (i) the whole DP *John te* is attracted by the strong EPP feature of T, and has moved into the spec of T. By this attraction, *te* (hand)'s case, agreement, and categorial features, and T's EPP, case, and agreement features are checked off. (ii) the [multiple] case feature of T attracts *John*, and *John* moves into the outer spec of T, as a result of that attraction. So far, the derivation of (30) is identical to (29). (30), however, has one more step than (29). (iii) In (30), the [+multiple] EPP feature of T attracts '[t te]', and accordingly '[t te]' moves into the outermost spec of T as in (32).

(32)
```
TP
  \ [t_{i}\ te]-ga_{j} \rightarrow T'
    \ John-ga_{j} \rightarrow T'
      t_{i} \ T
        \ VP \ T
          t_{i} \ V
```

None of the steps in the derivation of (31) seem to violate any principle, in that each attraction renders T into a checking relation with DPs.

I propose the following principle, however, to account for the unacceptability of (31):

(33) No Vacuous Attraction
(i) Head X can attract Y iff that attraction establishes a new feature checking relation between X and Y.
(ii) Z is a new feature checking relation of X and Y iff a feature F of X enters the checking relation with Y for the first time.

(33) says that X can not attract Y if nothing new is gained by that attraction, even though that attraction renders X into a checking relation with Y, and it does not violate Equi Distance. The intuition behind of this principle is that once a feature F of X is checked against Y, F never attracts Y again because Y is not attractive to F of X any more. Now, I
can explain the unacceptability of (31) in terms of (33), without resorting to the proper binding condition. In (31), step (iii) violates (33), because T and '[t te]-ga' has already entered into a checking relation at step (i), where the EPP feature of T is already checked against the categorial feature of '[t te]-ga'. Accordingly, the [+multiple] EPP feature of T can not attract '[t te]-ga' again, according to (33). To put it in a different way, step (iii) is vacuous in that no new checking relation is established. On the other hand, (31) does not violate the No Vacuous Attraction principle.

(31) \[
\begin{array}{c}
\text{hand-Topic} \quad \text{John-Nom} \quad \text{pretty}
\end{array}
\]

As for hands, John is pretty. (lit.)

At each step of the derivation of (31), a new checking relation is established, as follows:

(34) i) Attract John te (by T): categorial, case, and agreement features of te (hand), and EPP, case, and agreement features of T are checked.

ii) Attract John (by T): categorial, case, and agreement features of John, and EPP, case, and agreement features of T are checked.

iii) Attract '[t te]' (by the head of Topic phrase): the operator feature of '[t te]' and the head of Topic phrase is checked.

In particular, '[t te]' enters into a new checking relation with the head of the topic phrase at step iii), unlike (30). This accounts for the acceptability of (31).

In this subsection, I have shown that the residue of the proper binding condition effect found in the possessor raising construction can be accounted for in terms of the condition No Vacuous Attraction.

6. Conclusion

In this paper, I analyzed A-scrambling as an A-movement driven by the [+multiple] nominal feature of v or the [+multiple] EPP feature of T, and I have shown that this analysis can give a natural explanation for the optionality of Japanese scrambling. The puzzling fact that case marked DPs can undergo A-scrambling also can be easily accounted for under my account, because this A-movement is not driven by a case feature but by a nominal feature. I also have demonstrated that the clause initial scrambling of the direct object over the indirect object and subject does not violate RM, because it is successive
cyclically attracted by v2, v1, and T. Finally I derived the residue of the proper binding violation effect in terms of the economy condition 'No Vacuous Movement'.

The theoretical implications of my analysis of scrambling are as follows: (i) Local Economy (Collins 1996) should be adopted, otherwise the scrambled sentence would be always blocked by the non-scrambled one (under the Global economy), given that the derivation of the scrambled sentence is longer than that of the non-scrambled one due to the scrambling operation, contrary to fact, and (ii) the [+/--strong] feature dominates the [+/--multiple] feature, and (iii) the proper binding condition can be discarded in the theory of grammar.

7. References
A Note on Extraction from Conditionals

Chris Collins

1. Introduction

Consider the following two conditional sentences:

(1) a. If the student does poorly, the teacher will fire the TA
    b. If the student does poorly, then the teacher will fire the TA

The only overt difference between these two sentences is the presence of then in (b). The question arises as to whether the (a) sentence has the same structure as the (b) sentence.

This paper examines a number of standard extraction tests which are applied to conditionals to determine their syntactic structure. The conclusion is that in conditionals where the protasis and the apodosis are "linked" by the word then there exists an extra barrier to movement. I will speculate on the source of the extra barrier at the end of the paper, using data on the order of constituents in conditionals and the selection of conditional clauses.

In this paper I will consistently use non-counter-factual conditionals, even though all the contrasts below can be found with counter-factual conditionals as well. Furthermore I will not offer rules of semantic interpretation for the structures I propose for the conditional.

In section 2, I will examine a number of extraction differences between conditionals with then and conditionals without then and conclude that in conditionals with then there is an extra barrier movement present. In section 3, I will examine the selection possibilities of conditionals in embedded contexts, and conclude that in conditionals with then there is a functional projection present that dominates the protasis, apodasis, and then. In section 4, I will return to the extraction facts and show how they follow from the analysis of the constituent structure of conditionals made in section 3.

* I wrote this paper in 1989. I am publishing this paper now with only minor editorial changes since a number of people have found it useful. Hopefully, its appearance in CPWL will make it more widely available. I hope to work on this topic once more in the near future.

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2. Extraction

Consider the following sentences:

(2) a. ?*It is the TA that if the student does poorly, the teacher will fire.
    b. ?*It is the TA that if the student does poorly, then the teacher will fire.

(3) a. ?Which TA did John say that if the student does poorly, the teacher would fire?
    b. ?*Which TA did John say that if the student does poorly, then the teacher would fire?

(4) a. This is the TA that if the student does poorly, the teacher will fire.
    b. This is the TA that if the student does poorly, then the teacher will fire.

For a large number of speakers there is a systematic contrast between the (a) and the (b) sentences above. A number of speakers do not get the contrast between the (a) and the (b) sentences. I will return to this fact, although I will offer no satisfactory reason why some people do not get the contrast. I have arranged the above sentences in order of the strength of the contrast of the (a) and (b) sentences, i.e., clefting produces a stronger contrast than long distance question formation and the latter produces a stronger contrast than relative clause formation.

The only difference between the (a) and (b) sentences above is the presence of then. This indicates that when then is present there is an extra-barrier to movement. In section 4, I will show how exactly the presence of then is responsible for the extra barrier to movement.

The (a) sentences are awkward perhaps because of the preposed “if” clause in combination with movement from the main clause leading to a small PCC (Path Containment Condition) violation. Note that preposed “if” clauses in embedded contexts are in general allowed as in the following two sentences.

(5) It is with absolute certainty that if the student does poorly, then the teacher will fire the TA.

(6) I know that if John comes home, Mary will be upset.
In the first sentence above, the conditional is embedded in a cleft construction. The PP “absolute certainty” is associated with the whole conditional and not with either the protasis or apodosis. In sentence (6) the conditional is embedded under the verb “know”.

Now consider another extraction from conditionals:

(7) a. It is if Bill comes home that Mary will leave.
   b. *It is if Bill comes home that then Mary will leave.

(8) a. It is if Bill comes home that John said Mary would leave.
   b. *It is if Bill comes home that John said then Mary would leave.

(9) a. It is if Bill comes home that John thought Mary would leave.
   b. *It is if Bill comes home that John thought then Mary would leave.

In the sentences above, the protasis has been clefted from the conditional. In all cases the clefting is worse if then is present. The (a) sentences represent adjunct movement, given the assumption that the protasis in a conditional without then is adjoined to either VP or IP (this is an assumption that I will return to and justify later in section 3). The (b) sentences are worse than the (a) sentences. This indicates that there is an extra barrier to government in the case of the (b) sentences. I will assume that the (b) sentences are fully unacceptable, and that therefore the contrast above should be accounted for as an ECP violation. This judgment can be disputed. If the (b) sentences were taken to be only slightly unacceptable then the analysis below would have to be changed slightly.

The next sentences examine whether there is a that trace effect when the protasis is extracted from the conditional.

(10) a. It is if Bill comes home that John said that Mary would leave.
    b. *It is if Bill comes home that John said that then Mary would leave.

The contrast between (a) and (b) seems comparable to the contrast between (9a) and (9b). Therefore it does not seem that the presence of that above adds another barrier to the movement or antecedent government of the protasis when only the then is present.

Another contrast that supports the claim that an extra barrier to antecedent government is added by the presence of then comes from the extraction of adjuncts. Consider the following paradigm.
(11)  a. How did John say that Bill would fix the car if Mary brought the tools?  
b. How did John say that if Mary brought the tools, Bill would fix the car?  
c. *How did John say that if Mary brought the tools, then Bill would fix the car?

(12)  a. Why did John say that Bill would be upset, if Mary left?  
b. Why did John say that if Mary left, Bill would be upset?  
c. *Why did John say that if Mary left, then Bill would be upset?

The (a) sentences above are examples of adjunct extraction from a conditional. The (b) sentences are examples of adjunct extraction from a conditional with a preposed protasis. In both cases the (b) sentences seem less acceptable than the (a) sentences. The (c) sentences are examples of adjunct extraction from a conditional with then. It seems to me, that whereas the (b) sentences are awkward, the (c) sentences are not at all acceptable. This would follow if antecedent government takes place under 0-subjacency and the then in some way adds a barrier.

Lastly, notice that it is impossible to extract the apodasis from a conditional construction whether or not a then is present.

(13)  a. *It is that Mary would leave that John said if Bill came home.  
b. *It is that Mary would leave that John said if Bill came home then.

In the next section I will examine the constituent structure of the conditional from another point of view, keeping in mind that the extraction facts of the above section indicate that an extra-barrier to movement is present when then is present. Finally, in section 4, I will come back to each of the extraction possibilities above and show how they follow from the structures postulated in section 3.

3. Constituent Structure of Conditionals
3.1 The Conditional Without Then

In this section I will propose an analysis of the structure of the conditional without then based in part on the above extraction facts. Consider the paradigm below.

(14)  a. If Bill leaves, I will too.  
b. I will leave, if Bill leaves.
The relative ease of preposing in the above sentences suggests that the protasis is optionally an IP adjunct (note that VP movement suggests that the protasis is optionally a VP adjunct as well).

Further support for the adjunct status of the protasis is offered by the following extraction facts.

(15)  
a. ?It is if the student fails that Bill said that the teacher would fire the TA.

b. **It is if the student fails that Bill wonders why the teacher will fire the TA.

The above sentences indicate that extraction of the protasis is not possible over a WH-island. The severity of the violation indicates that what is involved is the ECP. Therefore the protasis must be an adjunct.

For comparison, consider the analogue with then present to the sentence immediately above.

(16)  
**It is if the student fails that Bill wonders why Mary said that then the teacher will fire the TA.

This sentence seems as unacceptable as sentence (15b). This is not surprising since from sentences (7) - (9) we know that extraction of the protasis from a conditional with then is prohibited.

3.2 Word Order

To determine the constituent structure of conditionals with then, first consider some basic word order facts below.

(17)  
a. If John leaves, I will come home.

b. If John leaves, then I will come home.

(18)  
a. I will come home, if John leaves.

b. *Then I will come home, if John leaves.

The sentences above illustrate that when the then of a conditional is present then the order of the protasis and apodasis is fixed. Our goal is to account for the fixed word order above,
while keeping in mind that there must exist an extra barrier to movement to account for the extraction effects noted above.

One explanation is that *then* is the head of the conditional when present. There are several possibilities for the constituent structure of conditionals that are consistent with this idea. A conditional could be ternary branching with the protasis, the apodasis and *then* on each branch. This is inconsistent with Binary Branching, therefore suppose that that *then* is the head and the structure is not ternary branching. The only possibility consistent with this last assumption is that *then* has the apodasis as its complement and protasis as its specifier, as in the structure in figure (1).

```
  FP
 /   \
CP    F'
   /   \
F   IP
 / | \
then
```

**Figure 1: Functional Projection**

Here FP stands for functional projection. A number of particulars of this structure are open to debate. For example it could be that the complement to *then* is CP and not IP. I will address this issue in the next section on selection of conditional clauses. Note that the structure in Figure 1 will provide an extra barrier to movement from the embedded clauses and this could account for the extraction facts noted above. I will get back to the details of the extraction facts in section 4.

There is another structure that yields the word order effects a little differently from the one above. Suppose that *then* were actually in the SPEC of a functional projection dominating the apodasis, as in the structure in Figure 2.
In this structure the CP is the protasis and the IP is the apodosis. If this were the correct structure then the word order would be accounted for by positing an adjacency requirement between the *then* and the adjoined CP needed for the rules of interpretation. Again note that this structure provides the additional barrier for movement needed for the extraction data above.

This structure might be similar to the constituent structure of a Topicalization sentence on the assumption that the topicalized constituent is adjoined to CP and accompanied by the movement of an empty operator, as in Figure 3.

Both of these ideas are plausible and I will not attempt to choose between them, adopting the first analysis as a matter of concreteness. One potential piece of evidence suggesting the first analysis over the second is the sentences in (7-9). If the protasis was adjoined (in the sense of May 1985) to the FP, then extraction of the protasis from the conditional to the matrix clause would cross no barriers and there should be no difference between the (a) and (b) sentences in (7-9) above. Since there is a difference I provisionally take the first analysis of conditional to be correct where the protasis occupies the SPEC of the *then* projection.
3.3 Selection

In the following section, I will analyze the selectional possibilities with conditionals and use the results to further support the analysis proposed above that the conditionals with *then* involve a further functional projection. Consider the paradigm below.

(19)  
   a. Mary wonders who will get mad at the TA if the student fails.
   b. Mary wonders if the student fails who will get mad at the TA.
   c. Every parent knows if their child fails who will get mad at the TA.
   d. *Mary wonders if the student fails then who will get mad at the TA.

Sentence (a) above is an example of an embedded conditional without *then*. Sentence (b) above has the protasis preposed in the embedded conditional clause. Most speakers find (b) more awkward than (a), the question then arises whether (b) is just a case of a parenthetical *if* clause. Sentence (c) shows that this cannot be correct since bound variable anaphora is possible for a pronoun in the *if* clause (this test was suggested to me by D. Pesetsky). Sentence (d) shows that it is not acceptable to construct a sentence with the embedded question as the apodasis of a conditional with *then*.

There are a number of possible explanations for the sentence in (d) above. One suggestion is that the sequence *then who* is not allowed, so there is a *then-WH* filter. Another suggestion is that it is never possible to embed a question as the apodasis of a conditional with *then*. Both of these possibilities cannot be correct as the following sentence shows.

(20)  
   a. If Mary comes home, who will do the dishes?
   b. If Mary comes home, then who will do the dishes?

In the sentence above, a matrix question is embedded in the apodasis of a conditional with *then*. Therefore there can be no surface filter of *then-WH* sequences.

Another suggestion to account for (19d) is that *then* is the head of a functional projection that can only take an IP complement, as in Figure 1 above. If this were the case, sentence (19c) would be acceptable since there is no *then* that selects an IP complement. Sentence (19d) would be unacceptable since the embedded question is a CP and therefore does not meet the selectional requirements of *then*. The immediate objection to this analysis is the sentence in (20). Here *then* takes a matrix question complement, which might be
supposed to be a CP. The only way to maintain this account is to postulate that matrix questions are actually IP’s (see D. Pesetsky “Earliness” for evidence that supports this conclusion).

One last suggestion that would also account for the sentence (19d) is again to postulate the presence of a functional projection headed by then as in Figure 1 (or F in Figure 2). Given this figure, in sentence (19d) the sister to the verb wonder is the FP and not the embedded question. If we suppose that selection takes place under sisterhood, then in sentence (19d) wonder is not a sister to the embedded question. Therefore the selectional requirements of wonder are not met. This also explains the matrix question in (20) above; in a matrix question there is nothing selecting the FP dominating the matrix question.

Note that under either of the last two analyses above we had to postulate the existence of a FP. In one analysis it was postulated that then selected (c-selection) an IP, which implies that then is the head of its own projection. For concreteness I will assume the analysis where then takes an IP complement.

4. Extraction Revisited

The following section gives the details of an account of the non-extractability from conditionals containing then in the Barriers system. This is not meant to be a definitive account, it is only meant to show that the central insight that then gives rise to an extra barrier to movement can be given a concrete treatment in an existing framework.

Given the structure in figure (1) above and the extraction facts noted in section (1), if we suppose that then does not L-Mark its IP complement (the apodasis) then the IP is a BC for any constituent in the embedded IP. The dominating FP becomes a barrier by inheritance. If we assume that the most embedded tensed IP is a barrier for extraction (Chomsky, 1986, pg. 37) then any constituent extracted from the apodasis will yield a subadjacency violation. This accounts for the sentences in (2-4) above. As I mentioned above, there is a set of people that do not find any difference in extraction from the conditionals with then and without then. One possibility (pointed out to me by C. Tancredi) is that the (a) sentences in (2-4) above are structurally ambiguous between a structure such as that in figure (1) and an adjunction structure. Then it would be predicted that for certain people only the structure in figure (1) would be available for conditionals with and without then. For these people, it is predicted that the (a) and (b) sentences in (2-4) are both subadjacency violations.

This account supposes that the then does not L-Mark the subordinate IP. L-Marking is defined as follows: A L-Marks B iff A is a lexical category that theta-governs B. Therefore
that hypothesis that *then* does not L-Mark the apodosis would follow under one of two hypotheses. First, we could assume that the *then* does not theta-govern the IP, therefore it cannot L-Mark. This would be analogous to the fact that in the Barriers system, COMP does not L-Mark IP even when it is lexically filled with *that* or *if* or *whether*. Second, we could assume that the *then* theta-marks IP, and then stipulate that *then* is not lexical. This would be analogous to K. Johnson's (1988) treatment of prepositions in "Clausal Gerunds, the ECP, and Government." This would also be analogous to the treatment of VP dominated by INFL in the Barriers system.

To account for the sentences in (7-9) above, assume first that when the conditional is embedded, the COMP that it is embedded under does not L-Mark it. If we furthermore assume that the protasis in a conditional with *then* is not theta-governed by *then*, then it follows that extraction of the protasis clause as in (7-9) above will be prohibited since its trace will not be antecedently governed, FP being an inherent barrier. This will have the force of an ECP violation.

The structure in figure (1) also accounts for the data in (11-12), since the presence of *then* reflects the presence of another barrier to antecedent government.

The last extraction fact noted in (13) above could be blocked by stipulating that *then* does not theta-mark the embedded IP, in which case the trace of the moved IP would be neither antecedent nor theta-governed.

There are many other extraction facts to be noted about conditionals but the analyses above seem to capture the main extraction facts.

5. References
Quotative Inversion in French*

Tobey Doeleman

1. Introduction

Quotative inversion is illustrated in (1):

(1)  “Bonjour,” dit le petit prince.¹
     “Hello,” said the little prince.
     “Hello,” said the little prince.

Quotative Inversion (QI) in French refers to the inverted word order of the subject and finite verb in sentences in which there is a direct speech complement to the verb (a quote). In this paper, I will present and analyze data which illustrate the various forms of QI in French. These data have been collected from the French novels and children’s books listed in the appendix. The analysis of the data is based primarily on Collins’ (1996) analysis for QI in English, written in the Minimalist framework (Chomsky, 1995). Although English and French differ in some respects, I will argue that Collins’ analysis can be extended to account for the bulk of the French data, given the parametric differences between the languages, in particular the strong Verbal feature of the functional category Tense in French.

The organization of this paper is as follows. In section 2, after a short introduction to the relevant aspects of the Minimalist framework germane to this paper, I will briefly present Collins’ (1996) analysis of QI in English and then sketch the basic structure of QI in French this analysis suggests. I will then proceed to motivate this structure for French in sections 3, 4, and 5 by presenting data which indicate the positions of the principal constituents: the verb, the subject and the quote. In section 6, based on the preceding data

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¹ I would like to thank Chris Collins for originally encouraging me to investigate this topic and Magui Suher for helping me develop this paper. Their advice was invaluable. I would also like to thank Abigail Cohn and Sally McConnell-Ginet, as well as all of the reviewers, including Niken Adisasmito-Smith, Maria Blume, Eun Cho, Teresa Galloway, and Marek Przedziecki, for their useful comments and suggestions. I take sole responsibility for any and all errors.

¹ The French data in this paper have been gathered from various French novels and children’s books. The first number to the right of the quote indicates the reference number in the appendix and the second number
and parallels between QI and locative inversion and focus constructions, I will propose
certain modifications to the basic structure presented earlier. Finally, in section 7, I will
explore two remaining issues, inversion with control complements, and quotative
expressions containing both a pronominal and non-pronominal subject.

2. The Basic Structure of Quotative Inversion

Before presenting Collins’ (1996) analysis of QI in English, on which I will base my
analysis of QI in French, I will sketch aspects of the Minimalist Program (Chomsky, 1995)
which are relevant to this paper.

2.1 The Minimalist Framework

The Minimalist Program (Chomsky, 1995) makes reference to just two levels in the
derivation of a sentence, the Phonological Form (PF) and the Logical Form (LF). The first
refers to the articulatory-perceptual interface and the latter refers to the conceptual-
intentional interface. “Steps” in a derivation occur in reference to one of these two levels.
That is, a particular movement can be overt, in which case it is seen at PF, or covert, in
which case it occurs at LF.

A derivation begins with a numeration containing the fully inflected items from the
lexicon and the functional categories (e.g. Tense, VP, etc.) that will make up the sentence.
The derivation proceeds by merging items from the numeration into the derivation (by
projecting the functional categories or filling these categories with the lexical items) or
moving items within the derivation. Merging and moving are motivated by the need to
check features.

Both functional categories and lexical items have features. The formal features of lexical
items can be intrinsic or optional. The intrinsic features of “book”, for example, include
nominal, 3rd person, and minus human. The optional features for “book” are number and
case. The intrinsic features of “eat” are verbal and assign accusative case; optional features
are phi features and tense. The features of functional categories motivate the movement of
the lexical items. Chomsky (1995) claims, for example, that the Extended Projection
Principle can be reduced to a strong Determiner (D) feature of I, and overt Wh-raising can
be accounted for by a strong D feature of C (assuming Wh- is a variant of D).

Feature strength is a parameter of languages. Strong features need to be checked before
Spell Out (the point at which the derivation diverges in the directions of PF and LF) and

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refers to the page on which the quote is found. Where no reference number is given, the example has been
created by the author and presented to native speakers for judgment.
thus they force overt movement. Weak features can wait until LF to be checked (thus resulting in covert movement). A strong feature also induces cyclicity in the sense that its need to be checked does not allow a possible candidate to pass it up. Features are checked by adjunction (Spec - Head relation) or substitution. The checking domain, then, includes the Specifier position of the head.

One last comment about the Minimalist framework is that there is nothing that rules out the projection of multiple Specifier positions. These positions are taken to be equidistant to other positions in the structure.

2.2 Collins' Analysis of QI in English

I share Collins and Branigan's (1996) conclusion that there is a quotative operator which is coindexed with the quote, and that it is this operator which is generated in the complement position of the verb and which subsequently moves, and not the quote itself. Collins' (1996) presents the following arguments for this covert quotative operator: First, the possible discontinuity of the quote shows that the quotative expression is not directly integrated into the quote, but rather modifies it in the way parenthetical expressions modify the rest of a sentence. Moreover, there is a corresponding overt operator so in English, which possesses several of the properties attributed to the quotative operator (a nominal feature, no phi-features, and an indexation, or reference, to some earlier part of the discourse).

The basic derivation (from Collins 1996), illustrated in tree (2), is as follows: First the quotative operator (Op) moves from the complement position of the verb to the outer Specifier of Transitive Phrase (Spec, TrP), where its Case and Determiner features enter into a checking relation with the head of Tr. Next, the verb raises and adjoins to Tr to project the Spec, Tr into which the subject will merge. At this point, both the Operator and the subject, which is in situ in the Spec of Tr are equidistant from Spec, TP. (This is important for Collins' analysis, as either of them are then able to move up to Spec TP in English, resulting respectively in inversion or non-inversion - both of which are equally grammatical). The Operator then moves to Spec, TP where the strong D feature of T is checked, thus assuring that the sentence has a subject. The verb then raises and adjoins to T, checking the strong V feature of T. At LF, the formal features (FF) of the subject (Case and Phi features) raise and adjoin to T, where the nominal Case feature enters into a checking relation with T and the phi features enter into a checking relation with the agreement features of the verb (hence the nominative Case of the post-verbal subject and the subject agreement of the verb).
At PF, the subject remains in situ in Spec, TrP. This corresponds to the upper VP shell of other frameworks, and is thus consistent with the VP internal subject hypothesis. Thus quotative inversion is in essence the result of the presence of the Op in Spec, TP, which blocks movement of the subject to that position, and the strong V feature of T, which forces the verb to raise to T.

The structure of example (1) is given below.

I will now motivate this structure by presenting data which indicate the position of the principal constituents: the verb, the subject, and the quote.

3. The Position of the Verb

In this section I will present evidence that indicates that in QI in French, the verb raises from its base VP internal position, to a position to the left of the subject. I will begin this section with examples from Pollock (1989) which show that in normal declarative sentences in French, the verb raises to T. Next I will present examples of quotative inversion with auxiliaries and show that the past participle must also move up to the left of the subject. The nature of this movement is clarified by Kayne’s (1991) analysis of clitic placement, and by examples of QI with object clitics. This section concludes with further evidence for verb movement from data which illustrate the possible positions for adverbs.
3.1 Verb Movement in French

The obligatory movement of French verbs in tensed clauses argued by Pollock (1989) is explained by the strong V feature of T in French. The following sentences show this parametric difference between French and English:

(3) a. *John likes not Mary.  
   b. Jean (n’)aime pas Marie. 

(4) a. *John kisses often Mary. 
   b. Jean embrasse souvent Marie.

Example (3) shows that at PF, the main verb may not move up past NegP in English, but it must move in French. Example (4) shows that this is the case for verb movement in relation to certain adverbs as well. The conclusion is that the V feature is strong for French, but weak for English. Thus the movement of the verb to T is overt in French, and visible at PF, and covert in English (where movement takes place at LF). In the following section, I will argue that this parametric difference can explain QI data with auxiliaries.

3.2 Inversion with Auxiliaries

(5) a. “Si tu continues,” à crié Maixent, “tu retournes chez toi!” 1.71
    “If you continue,” has yelled Maixent, “you return to-the-place-of you!”
    “‘If you continue,’ Maixent yelled, ‘you’ll go home!’”

   b.* “Si tu continues,” à Maixent crié, “tu retournes chez toi!”

(6) a. “T’as vu mes lunettes?” à demandé Clotaire à Agnan. 1.10
    “You have seen my glasses?” has asked Clotaire to Agnan.
    “‘Did you see my glasses?’ Clotaire asked Agnan.”

   b.* “T’as vu mes lunettes?” à Clotaire demandé à Agnan.
Contrary to English (see the English glosses above), QI in French is possible with auxiliaries. Moreover, the past participle must move up from its VP internal position, to some position above the subject. Suñer (personal communication) suggests that it moves up to AspectP where its V feature enters into a checking relation with the strong V feature of the Aspect head. This movement is parallel to the movement of main verbs in the examples in the previous section and could be motivated by a general strong V feature for verbal heads in French. The subject then remains in spec, TrP since movement to Spec, TP is blocked by the presence of the quotative operator in this position. The structure of example (5) is given in the following tree:

(8) TP
    /   \
   Op   T'
    |   /
    T  AspP
     |   /
     a  Asp
         |  /
         TrP
         |  /
         crié
          |  /
          TrP
          |  /
          DP
          |  /
          Maixent
          |  /
          Tr
          |  /
          Tr'
          |  /
          VP
          |  /
          t_{tr}
          |  /
          t_{v}
          |  /
          t_{op}
          |  /
          V
          |  /
          DP

The exact origin of the auxiliary is controversial. Pollock (1989) has the auxiliary originating in the VP internal base position together with the verb. Belletti (1990), on the other hand, proposes an Aux Phrase which is above the VP. For the purposes of this
paper, it seems plausible to say that the Aux is merged into the derivation directly into T, where its verbal feature enters into a checking relation with T.

3.3 Inversion with Object Clitics

An alternative analysis that might be proposed is one in which the past participle raises and right-joins directly to T. (Adjunction would necessarily be rightward since the auxiliary precedes the past participle). The resulting structure would be as follows:

(9)  

\begin{center}
\begin{tikzpicture}[level distance=1.5cm, sibling distance=1cm, baseline=(current bounding box.center)]
  \node (TP) {TP}
  child {node (DP) {DP}
    child {node (Op) {Op$_i$}
      child {node (T) {T}}
      child {node (TrP) {TrP}}
    }
    child {node (T) {T}}
    child {node (V) {V}}
    child {node (DP) {DP}}
    child {node (Tr') {Tr'}}
    child {node (t$_{tr}$) {t$_{tr}$}}
    child {node (VP) {VP}}
    child {node (t$_v$) {t$_v$}}
    child {node (t$_i$) {t$_i$}}
    child {node (a) {a}}
    child {node (crié) {crié}}
    child {node (Maixent) {Maixent}}
  }
\end{tikzpicture}
\end{center}

This is inconsistent, however, with Kayne's (1991) analysis of object clitics, which he claims left-join to the auxiliary. The object clitic, a dative NP, has moved from a postverbal position (Kayne 1975) to a position preceding the auxiliary. The following examples of object clitics in quotative inversion serve to illustrate this:

(10) “Fait attention,” m'a dit Corentin.  
    “Do attention,” to me has said Corentin.  
    “'Pay attention, Corentin said to me.”

(11) “Hé, ça fait mal!” leur a demandé Geoffroy.  
    “Hey, that makes hurt?” them has asked Geoffroy.  
    “'Hey, does that hurt?' Geoffroy asked them.”
(12) “Écoute, Agnan,” lui a dit la maîtresse.
    “Listen, Agnan,” him has said the teacher.
    “‘Listen, Agnan,’ the teacher said to him.”

The structure which follows, corresponding to example (7), accommodates Kayne’s analysis of clitics:

(13)

That the movement of the past participle is not directly to T as proposed hypothetically in tree (9) is evidenced by the fact that adjunction is French is leftward, not rightward, as these constructions with object clitics show.

3.4 Inversion with adverbs

More evidence that the past participle does not move to T, as illustrated in tree (9), comes from data which illustrate the possible positions of adverbs. There exists a certain class of adverbs which can intervene between the auxiliary and the verb. The structure given in tree (9) cannot accommodate the following examples, in which the auxiliary and the past participle can be separated by an adverb:
(14) a. "Je ne suis pas une herbe," avait doucement répondu la fleur.  
   “I *ne* am not *a* weed,” had sweetly responded the flower.  
   “*I am not a weed,*” the flower had sweetly *responded.*

b. “Je ne suis pas une herbe,” avait répondu doucement la fleur.

(15) a. “Je ne suis pas une herbe,” avait vite répondu la fleur.  
   “I *ne* am not *a* weed,” had quickly responded the flower.  
   “*I am not a weed,*” the flower had quickly *responded.*

b. “Je ne suis pas une herbe,” avait répondu vite la fleur.

Other adverbs, however, cannot intervene as example (16) shows:

(16) a. “Ça recommence,” a dit tous bas Anne.  
   “That restarts,” has said all quietly Anne.  
   “*It’s starting again,*” Anne said very quietly.

b.* “Ça recommence,” a tous bas dit Anne.

The relative position of adverbs in quotative inversion provides additional evidence of the movement of the verb out of its base VP internal position. The most common position for adverbs in quotative inversion is immediately following the verb, as in example (16a) above, and examples (17) and (18) below. Example (19) shows that some adverbs may also appear after the subject.

(17) “Puis-je m’asseoir?” s’enquit timidement le petit prince.  
    “Can I myself sit?” inquired timidly the little prince.  
    “*Can I sit down?’ timidly inquired the little prince.”

(18) “Mon honorable ami,” dit enfin Kyoatsu à son compère, “dans ...”  
    “My honorable friend,” said finally Kyoatsu to his pal, “in...”  
    “*My honorable friend,’ Kyoatsu finally said to his pal, ‘in..’”
(19) "Hé les gars! Hé les gars!" a crié Bertin tout fier, "vous avez entendu?"

"Hey the guys! Hey the guys!" has yelled Bertin all proud, "you have heard?"

"Hey you guys! Hey you guys!" Bertin yelled proudly, 'did you hear?''

These data are consistent with the earlier examples of verb movement taken from Pollock (1989) in which the verb raises up past the adverb. I am leaving unanswered the question as to the exact position of the adverbs, but it's clear that the verb must move out of its base position since in constructions without auxiliaries (e.g. examples (17) to (19)), the adverb never precedes the verb. One possible analysis of adverbs is that most adverbs adjoin to TrP, with certain adverbs able to adjoin to Asp or AspP. The variability in position depending upon the class of adverb is noted by Belletti (1990) who suggests the use of Polarity Phrase, rather than NegP, in order to encompass the position of certain Italian adverbs such as already and always, which occur in the same position as not. This is also the case for French.

The data from section 2, taken together, provide strong evidence that in Quotative Inversion, the verb moves out of its VP internal position to some position above the subject, and the subject remains post verbal. I have argued that the verb moves to T, where the strong V feature of T is checked, and for constructions with auxiliaries, the past participle moves up to Aspect, where the strong V feature of Aspect is checked. Next I will present data which illustrate the position of the subject in various QI constructions.

4. Position of the Subject

Evidence from floated quantifiers and Heavy NP Shift in QI suggests that the subject does not move from its base VP internal position. This conclusion excludes subject pronouns, which will be shown to have the option of incorporating into the verb. This dichotomy between full subjects and subject pronouns suggests that movement is blocked for the full subjects. The formal features of the subject need to be checked at some point in the derivation; the incorporation of the pronouns is evidence that when the subject can move and check features, it does so.

4.1 Floated Quantifiers

A quantifier is generated as the head of a Quantifier Phrase (QP) which takes an NP complement. When the subject NP moves up to Spec, TP to check the strong D feature of T (i.e. to satisfy the EPP), the quantifier can either move up with the subject, or be stranded in its base position. The difference in the position of stranded quantifiers in
French and English follows from the strong V feature of T in French which forces the verb to raise to T. This difference between English and French is illustrated in the examples and corresponding trees below:

(20) a. [Tous mes copains] chantent. (quantifier moves with NP)
    b. [All my friends] sing.
    c. Mes copains chantent tous. (quantifier is stranded)
    d. * My friends sing all.
    e. *Mes copains tous chantent.
    f. My friends all sing. (quantifier is stranded)

(21)=(20f) TP
    My friends
    T
    TrP
    QP
    Q all
    Tr sing

(22)=(20c) TP
    Mes copains
    T
    TrP
    QP
    Q tous
    Tr chantent

In quotative inversion, the quantifier must immediately precede the non-pronominal subject, as in example (23a) below. Since the subject does not move out of Spec, TrP due to the presence of the Operator in Spec, TP, the quantifier can not be stranded:

(23) a. “C’est lui, m’sieur!” ont dit tous mes copains en montrant Papa.
    “It’s him, sir!” have said all my friends while indicating Papa.
    “It’s him, sir!” said all my friends indicating Papa.
    b. * “C’est lui, m’sieur!” ont dit mes copains tous en montrant Papa.
    c. * “C’est lui, m’sieur!” ont tous dit mes copains en montrant Papa.
This is evidence that in quotative inversion the subject remains in situ in Spec, TrP. If the subject could move, we would expect some form of quantifier stranding to be possible.

4.2 Heavy NP Shift

In the vast majority of cases of QI in French the subject comes before a dative complement. This is true even when we might expect heavy NP shift (HNPS). HNPS refers to the extraposition of a long or heavy Determiner Phrase (DP) in phrases where the verb has both a DP and a PP (or dative) complement. The following non-shifted examples were found in literature; the shifted versions were presented to native speakers for judgment.

(24) a. "Recommence, pour voir," a dit [le grand avec les dents] à Eudes. 5.78
   "Start again, to see," has said the big guy with the teeth to Eudes.
   "‘Let’s see you do it again,” said the big guy with the teeth to Eudes.

b. "Recommence, pour voir," a dit à Eudes [le grand avec les dents].

(25) a. “Dites,” a crié [le patron du golf miniature] à mon papa. 6.54
   “Say,” has yelled the boss of the golf miniature to my papa.
   “‘Say,’ yelled the boss of the miniature golf to my papa.”

b. “Dites,” a crié à mon papa [le patron du golf miniature].
   “‘Say,’ has yelled to my papa the boss of the golf miniature.”

The HNPS examples were judged to be perfectly acceptable by native speakers, but there was still a tendency to prefer the unshifted versions. This supports the idea that in the basic QI construction, the subject is not extraposed, but remains in situ in Spec, TrP.

While I have argued that non-pronominal subjects remain in-situ in Spec, TrP in QI in French, the same is not true for pronominal subjects.

4.3 Inversion with Subject Clitics

From Rizzi and Roberts’ (1989) analysis of Complex Inversion, subject clitics can incorporate into the verb to check Case and agreement features. The authors note that pronominals are the only elements in French which can undergo incorporation, so this option is not open for the full subjects in the previous examples.
(26) "Ah!" dis-je au petit prince, "ils sont bien jolies."
     "Ah!" said-I to the little prince, "they are very pretty."
     "'Ah!' I said to the little prince, 'they are very pretty.'"

(27) "J'ai été sotte," lui dit-elle enfin.
     "I have been stupid," 3sgDAT said her finally.
     "'I was stupid,' she finally said to him."

(28) a. "Chic!" pensa-t-il.
     "Great!" thought-T-he.
     '"Great! he thought.'

b. * "Chic!" pensa il.

No intervening material is possible between the verb and the subject pronoun, and
phonologically these verb plus clitic constructions are linked either through liaison, as in
examples (21) and (22) or an epenthetic [t] as in (22). These examples show that the
incorporation is obligatory. The structure is given as follows:

(29) \[
\text{TP} \\
\text{Op} \quad \text{T'} \\
\text{T} \quad \text{TrP} \\
\text{pensa-t-il} \quad \text{t_i} \quad \text{Tr'} \\
\text{Tr} \quad \text{VP} \\
\text{V} \quad \text{DP} \\
\text{t_v} \quad \text{t_{op}}
\]
Collins (1996) points out that inversion with nominative pronouns in English is often not judged to be grammatically perfect:

(19) "Mary has already eaten," said he/ ?I/*me/*him.

The unacceptability of accusative case shows that the FF(subj.) (the Case and Phi features) do move up to Spec, TP at LF, but the questionability for some speakers at least for inversion with the nominative pronouns is attributed by Collins to a general cross-linguistic fact that pronouns tend to have to move overtly, that is, before Spell Out. This is consistent with the French data, in which the pronoun does move overtly, through incorporation into the verb. In English, however, the impossibility of incorporation leaves the pronoun in situ at Spell Out and this explains the marginality of subject pronouns in example (30).

The absence of quantifier stranding and the scarceness of HNPS in QI in French suggest that the subject remains in situ in Spec, TrP. Moreover, the incorporation of subject pronouns is evidence that the subject would move to check Case and Phi features if this were possible. The data from section 2 and section 3 argue for an analysis in which the verb raises above the subject, and the subject remains in its base generated position. This is consistent with Collins' (1996) analysis of QI in English. Modifications to this analysis are warranted, however, on the basis of data presented in the following section, and will be proposed in section 6.

5. The Position of the Quote

(31) "Qui a dit ça?," a demandé le professeur. 6.46
   "Who has said that? has asked the teacher.
   "‘Who said that?’ asked the teacher."

(32) "Mes enfants," a dit le professeur, "mes chers petits..." 6.46
   "My children," has said the teacher, ‘my dear little...”
   "‘My children,’ said the teacher, ‘my dear little ones...”

(33) Le professeur a dit: "Eh bien, si vous êtes sages...” 6.42
   The teacher has said: "Uh well, if you are good...”
   The teacher said: "Well then, if you are good...”
As the above examples show, there are 3 possible positions for the quote: preceding the quotative expression (24), broken up by the quotative expression(25), and following the quotative expression (26). For the first two cases, the structure of the quotative expression in French is typically inverted, and for the last, it is not. In gathering the data for this paper, I found not one example of inversion when the quote followed the phrase. Nor did I find any examples of non-inversion for the first two cases when the subject was non-pronominal, despite the fact that native-speaker judgments of uninverted forms for (24) and (25) were grammatical though unusual. The analysis developed so far does not adequately explain why inversion is only present when all or part of the quote precedes the phrase, and why instances of non-inversion are rare in French, and are only to be found with pronominal subjects. These issues are addressed in the following section.

6. Some Modifications to the Analysis

In the basic structure presented earlier, it is the presence of the quotative operator in the Spec, TP which crucially blocks the movement of the subject to that position. This results in the inverted construction. In Collins' (1996) analysis for English, where inversion is optional, the Op remains in the intermediary position at Spec, TrP in the non-inverted form. The equidistance of the Op and the Subject to Spec, TP allows derivations in which either one can move up. But in French, the structure seems much more rigid. In order to incorporate the typical patterns of inversion and non-inversion, the analysis must be modified. One suggestion by Suñer (personal communication) is that it is focus which drives the inverted structure. So when all or part of the quote precedes the phrase, the Op has actually moved up to another functional projection, say Focus Phrase (FP), and the subject remains in situ, resulting in inversion. When the quote follows the phrase, the Op does not move up into FP and thus the subject is able to move to Spec TP.

One motivation for positing the FP rather than just saying that the Op moves to Spec TP, is that other examples of inversion in French crucially activate the CP level (i.e. beyond TP). This is the case for the most common type of inversion, that of Wh interrogatives:

(33) Quel livre a-t-il lu?
Which book has-T-he read?
Which book did he read?
Complex inversion is found in questions in which there is both a non-pronominal subject and a nominative pronoun as in the following example:

(34) Quel livre Jean a-t-il lu?  
Which book John has-T-he read?  
*Which book did John read?*

Rizzi and Roberts (1989) point out that complex inversion is incompatible with a filled C. If this were not the case, there would be nothing to prevent the preceding structure from being generated as a declarative sentence. According to Chomsky (1995), it is the Q-feature of C that licenses the raised wh-phrase.

For Quotative inversion, the circumstances are not so obvious. It is impossible to have a direct quote in an embedded clause, so this suggests that quotative inversion is also not possible with a filled C. For this reason, it may seem plausible that the operator is moving up to the CP level. But other types of focus constructions, such as locative inversion, are possible in embedded clauses, as the following example shows:

(35) I know that under the bed slept two cats.

For this reason, the FP seems to be the most likely candidate for the landing spot for the quotative operator. When all or part of the quote precedes the quotative expression, it could arguably be focus that causes the inversion, just as focus seems to motivate the inversion in example (35).

This leaves open the problem solved by the earlier analysis: what prevents the subject from raising to Spec, TP? Súñer has suggested (personal communication) that in focus constructions, the Spec, TP position is not projected. According to Chomsky (1995), it is the target that projects, and not the raised element. If the target, then, is the focus phrase, there is no motivation for the projection of Spec, TP. This is consistent with a general theory of language change that may explain the more rigid pattern of inversion in French versus the optionality of inversion in English. Perhaps the move toward SVO word order has motivated the projection of Spec TP in English, resulting in non-inversion, and the inverted form is an earlier structure in which FP is projected. This might explain why in French the non-inverted forms with pronominal subjects are found only in books written in a very casual style which in many ways reflects modern spoken French. Much more research is needed to develop the analysis such that it accounts for all the data.
7. Some Remaining Questions

In this section, I discuss two issues related to an analysis of Quotative Inversion in French: inversion with control complements inversion with double marking.

7.1 Inversion with Control Complements

I found only the following six examples of inversion with control complements, so I have included them all:

(36) “Je te fais mon ambassadeur,” se hâta alors de crier le roi.
     “I you make my ambassador,” 3-per hastened thus to cry the king.
     “I make you my ambassador,” the king thus hastened to cry.

(37) “Je t’ordonne de m’interroger,” se hâta de dire le roi.
     “I you order to me interrogate,” 3-per hastened to say the king.
     “I order you to interrogate me,’ the king hastened to say.”

(38) “On ne dit pas ‘l’haricot’, on dit...” a commencé à dire papa.
     One ne says not ‘l’haricot’, one says...” has started to say papa.
     “You don’t say ‘l’haricot,’ you say...” papa started to say.

(39) “C’est à cause de mon lit...” a commencé à expliqué le grand type.
     “It is because of my bed...” has started to explain the big guy.
     “It’s because of my bed...’ the big guy started to explain.”

(40) “Mais puisque je te dis que...” a commencé à dire le chef.
     “But since I you say that...” has started to say the chief.
     “But since I tell you that...’ the chief started to say.”

(41) a. “C’est un enfant difficile,” osa dire Anne.
     “It is a child difficult,” dared to say Anne.
     “He’s a difficult child,” Anne dared to say.

b. * “C’est un enfant difficile,” osa Anne dire.
These data are difficult to analyze for several reasons. First of all, intuitively it seems that the aspectual verb plus infinitive moves as a single chunk, but how can that be the case when an adverb can appear between them as in (29), or one of two prepositions, à or de, can appear between them as in (30) through (33)?

One possible solution is restructuring. Rizzi (1978) argued for a restructuring rule in Italian to account for the distinct behavior of modals, aspectuals, and motion verbs. Unlike other Italian verbs, these verbs allow clitic climbing, allow the direct object of an embedded clause to become the main subject in impersonal si sentences, and can optionally take the auxiliary “be” when the embedded verb requires “be”. The restructuring rule formulated by Rizzi reanalyzes a terminal substring V (P)V as a single verbal complex.

Picallo (1990) provides strong arguments that aspectuals in Catalan behave like modals, and are in fact restructuring verbs. Although she presents evidence from clitic climbing that does not apply to French, there is no evidence against the proposal that these verbs in examples (29) through (34) are restructuring verbs in French. In fact there is some evidence to support this theory. These verbs can’t take a tensed clause, and the preposition (or lack thereof) which comes between the aspectual and the infinitive in the above examples is completely determined by the aspectual. It has no semantic content. So a possible analysis for these phrases involves the aspectual being generated in InflP; it would always take a VP complement as suggested by Picallo.

7.2 QI with Double Marking?

When searching for data, I was quite surprised when I first came across the following constructions in which there is both a noninverted subject pronoun as well as a non-pronominal subject at the end of the phrase:

(42) “Eh bien,” il a dit M. Bougrain. 1.18
    “Well,” he has said Mr. Bougrain.
    “‘Well,’ Mr. Bougrain said.”

(43) “Tous chez vous! Tout de suite!” elle nous a dit la maman de Maixent. 1.75
    “All to-the-place-of you! All following!” she us has said the mom of Maixent.
    “‘All of you go home! Right away!’ Maixent’s mom said to us.”
(44) “C’est la gifle...” il a repondu celui qui avait les cheveux rouges.
“It’s the punch...” he has answered the one who had the hair red.
“‘It’s the punch...’ the one with the red hair answered.”

These forms could be evidence that subject pronouns in French are becoming agreement markers on the verbs. These constructions seem to be the inverted versions of Double Marking, an extremely common phenomena in Modern Spoken French, illustrated in the following examples.

(45) a. Moi je me suis mis à pleurer.
Me I started to cry.

b. Mais toi, j’ai pleuré à papa, toi tu m’as dit que tu a vendu des billet de tambola.
But you, I cried to papa, you you told me that you sold tambola tickets.

c. Clotaire il n’était pas tellement d’accord.
Clotaire he didn’t really agree.

d. La maîtresse elle a demandé à Agnan de lui apporter le papier.
The teacher she asked Agnan to bring her the paper.

e. Nous on a tous obéi.
We we all obeyed.

One rather controversial explanation for the increasing presence of these redundant pronouns in Modern French is that the clitic pronoun coreferent is an agreement marker which has taken over the function of the post-verbal inflections which are no longer realized in the spoken language. Ashby (1977) explains that in Old French, the verb, with its morphologically bound inflectional contrasts, was able to stand alone without the presence of subject pronouns. The use of subject pronouns was motivated by a desire for emphasis or by stylistic concerns (e.g. a preference for non-verb-initial word order and was strongly affected by the gradual loss of freedom of word order. This theory is consistent with Vance’s (1989) findings from texts from the 13th and 15th century: the change in the omission of the subject pronoun is correlated with the word order change
between Old and Middle French. In Modern Standard French, declarative sentences are almost without exception SVO.

The growing use of subject pronouns in Middle French was strongly correlated with the elimination of word final consonants and neutralization of some final vowel contrasts. So as the effectiveness of certain inflections on the verb was decreasing in the spoken language, the importance of the pronoun to mark person and number was increasing. For emphasis, it then became necessary to use another lexical element in addition to the subject pronoun. Ashby asserts that the subject pronouns were thus grammaticalized and subsequently suffered a loss of referential value. As this change progresses, he projects that the subject pronouns will become an indispensable component of the verb.

This view is consistent with certain grammatical tendencies in Modern Spoken French noted by Gadet (1989) in her work *Le Français Ordinaire*: a tendency toward a fixed word order of the form SVO and a tendency toward invariance concerning agreement and tense, as evidenced by the common use of *on* instead of *nous*. These tendencies provide some motivation for the change in the role of subject pronouns that results in double marking.

Perhaps one of the strongest arguments that subject pronouns are agreement markers rather than noun substitutes is phonological. There is an absence of phonological marking on these pronouns such that they do not occur in a stressed position in the phrase as their lexical coreferents do. Also, there is usually no pause or hesitation between the noun phrase and the subject pronoun, and the pronouns often undergo some sort of phonological reduction of the following nature:

(46) a. Toi tu as -> Toi t’as
   *You you have*

   b. Ma mère elle m’a dit -> Ma mère em’a dit
   *My mother she me told*

   c. Jean il vient -> Jean i vient
   *John he comes*

One alternative hypothesis is that double marking is pragmatically motivated by a desired emphatic, contrastive or topic-comment structure. Barnes (1985), however, provides a quite compelling argument against this hypothesis by presenting numerous examples of double marking which is not clearly pragmatically motivated. When double
marking appears in subordinate, nonasserted clauses, for example, it can hardly be attributed to a desire for emphasis or contrast.

The quotative examples in (34) to (36) could be analyzed as inversion of the verb and the non-pronominal subject, with the addition of an agreement marking subject pronoun. Since number and gender are still marked orthographically, the redundancy of the subject pronoun is quite striking in written form. It is my belief that the author is constrained by the strong literary tradition of inversion, but remains as faithful as possible to the spoken form by inverting the double marked phrase. That is, in order to make the story sound as natural as possible, the author is at some level aware of the prevalence of double marking in Modern Spoken French. The structure corresponding to example (34), assuming this theory of agreement marking, is given in the following tree:

(47)

```
( TP
   Op
   T'
   T
   AspP
   il T a
   Asp dit
   M. Bougain TrP
   Tr Tr'
   VP
   V DP
   t_v t_op
```

More evidence in support of this theory comes from the fact that despite the fact that the accusative case is found on pronouns in cases of double marking without nonpronominal subjects (e.g. "Lui il a un livre."), I found no examples of quotative expressions in which there were two pronominal subjects. A theory of dislocation (see Ronat, 1979) might predict the possibility of structures of the following type, of which I found no examples:
(48) “Bonjour,” il a dit lui.  
“Hello,” he said him.

This would be problematic in that the subject ostensibly in situ in Spec, TrP would have accusative case. This evidence is not conclusive, however, and it could still be argued that a prohibition against non-inverted forms restricted to non-pronominal subjects could motivate right dislocation and therefore structures like (39) would not occur. More data are needed to confirm either of these hypothesis.

Conclusion
I have presented various examples of Quotative Inversion in French, and I have shown how Collins’ (1996) analysis can account for much of these data. I have given evidence for the movement of the verb to T, the movement of the past participle to AspP, and, critically, the blocked movement of the subject out of its base generated position in Spec,TrP. A more in depth explanation is needed for how the position of the quote triggers inversion, and for why non-inversion is more acceptable for pronominal subjects. Some more theoretical questions remain as to the nature of the landing site of the quotative operator, and the analysis of QI with aspectuals/control complements and with double-marking or right dislocation of the subject.

8. References
Collins, Chris and Phil Branigan (1996) Quotative Inversion, ms.


**Appendix**

Context-Specific Cliticization Patterns in Modern Greek Noun Phrases

Kirsten Fudeman

1. Introduction

In this paper I consider data from Modern Greek noun phrases and argue that while clitics have as their domain a syntactic constituent, clitic placement is determined with respect to prosodic hosts. In this way, the present analysis supports much previous work on the topic, including Inkelas (1989), Zec and Inkelas (1990, 1991), Taylor (1990), Aissen (1992), Halpern (1992), and Hock (1996). In addition, I demonstrate that problematic data from Modern Greek are best explained when differences of register are taken into account. Three constraint hierarchies are proposed to account for the fact that some characteristics of clitic placement are limited by register — specifically, neutral, emphatic, and affectionate. The analysis is framed in Optimality Theory (Prince and Smolensky 1993, McCarthy and Prince 1993, 1995; for another optimality-theoretic analysis of cliticization, see Anderson 1995), and draws on previous work on cliticization, particularly that of Klavans (1985, 1995 [1980]), Inkelas (1989), and Anderson (1992, 1993), and on the prosodic hierarchy (Selkirk 1978, 1980, 1986, Nespor and Vogel 1982, 1986, Hayes 1989). A key assumption of this paper is that the content of clitics is present in the syntax as features, but that the realization and placement of clitics takes place in the morphological component of the grammar — a level which is distinct from both the syntax and the phonology, yet constitutes the interface between them. This view of morphology is consistent with both lexeme-based theories of morphology (Anderson 1992, Aronoff 1976, 1994, Beard 1995) and Distributed Morphology (Halle and Marantz 1993). For example, Aronoff (1994: 9) gives the following definition: "Morphology is ... the complex process by which abstract morphosyntactic representations are realized morphophonologically."

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This paper is organized as follows: In section 2 I present the core data set from Modern Greek (2.1), demonstrate that Greek possessive pronouns are clitics (2.2) and present my assumptions about the structure of Greek noun phrases (2.3). This is followed by a discussion of the prosodic hierarchy and how it applies to Greek in section 3. In section 4 I present an optimality-theoretic account of possessive pronoun clitics, accounting for the data in section 2.1 as well as some other forms that have been ignored or termed problematic in the literature. I conclude in section 5 and raise questions for future research.

2. Modern Greek Possessive Pronoun Clitics

2.1 Data

Modern Greek possessive pronoun clitics obligatorily follow the noun when there is no adjective present (1a,b). When an adjective modifies the noun, however, the possessive pronoun may optionally precede or follow the noun (1c,d). For some speakers of Greek, (1c) seems to be slightly marked in comparison with (1d); however, (1c) and (1d) are both typically considered acceptable and may alternate freely in a given individual’s speech:

(1a) i fili mas
    the friends our
    ‘our friends’

b. *i mas fili
    the our friends

c. i kalí mas fili
    the good our friends
    ‘our good friends’

d. i kalí fili mas
    the good friends our
    ‘our good friends’

The data in (1) are problematic for current syntactic theory, for example the Minimalist Program (Chomsky 1995), in which alternations in word order are generally ascribed to movement. In the Minimalist Program, all movement is driven by the need to check features, and no movement is optional. It is therefore unclear why just in those cases
where an adjective modifies the noun, the possessive pronoun may raise to a position above N.\(^{1}\) For a general discussion of why purely syntactic analyses are inadequate in a characterization of the properties of clitics, I refer the reader to Anderson (1995).

Sadock (1991: 70-72) gives a brief analysis of the Greek facts in (1) within his autolexical theory of cliticization, an approach which is similar in some respects to the one taken here. Recognizing that clitics have both morphological and syntactic properties, Sadock postulates two constraints (pp. 61-2). Ideally, clitics satisfy both; sometimes, however, a clitic violates one but conforms to the other. The first, the Linearity Constraint (LC) (see (28) below), prefers that lexemes projected on two dimensions (e.g., the morphology and the syntax) occur in the same linear order in both. The second, the Constructional Integrity Constraint (CIC), allows a lexeme to combine with a complex expression at one level (for example, an NP), and with only part of that complex expression at another. According to Sadock (1991), Modern Greek examples like (1a) and (1d) are examples of simple final clitics that attach to the last word of the NP, satisfying both the LC and the CIC; (1c) violates the LC but satisfies the CIC by attaching to a portion of the NP, a possibility that is allowed by the grammar of Greek.

Sadock’s autolexical approach captures the basic facts of Greek possessive pronoun cliticization, and this analysis will exploit the notion of constraints like the LC that relate grammatical levels. Unlike Sadock, however, I attempt to explain why, if (1a) and (d) satisfy both the LC and the CIC, (1c), with its violation of the LC, is even permitted. In addition, I address issues not covered by Sadock’s analysis, such as why certain cliticization patterns are allowed in one register but not others.

2.2 Tests for Clitchood

Nespor and Vogel (1986) establish that Modern Greek possessive pronouns are clitics through consideration of Stress Readjustment, a process that can be shown to occur only within prosodic words and which applies between a possessive pronoun and its prosodic host. This phenomena is illustrated in (2). The forms in (2a) display lexical or root stress, while the derived forms in (2b) show what happens when this lexical stress comes into conflict with a constraint requiring main word stress to fall on one of the final three syllables:

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\(^{1}\) As pointed out to me by V. Carstens, the notion of Equidistance (see Chomsky 1995: 355-58) can be successfully applied to the data in (1); however, Equidistance proves inadequate when dealing with noun phrases containing more than one adjective (see section 4.2).
(2) a. *me@álos* 'big'  
   *érxome* 'I come', *érxete* 'he/she comes'  
   *milisa* 'I spoke', *mílise* 'he/she spoke'

   b. *me@alíteros* 'bigger'  
   *erxómaste* 'we come'  
   *milisame* 'we spoke'

This constraint on primary word stress also holds within compound words, as shown in
(3) (examples in (3-5) are from Nespor and Vogel (1986: 112-113)):

(3) a. *kuklóspito* 'doll's house' < *kákla* 'doll' *spíti* 'house'

   b. *nixtopúli* 'night bird' < *níxta* 'night' *púli* 'bird'

Likewise, when a noun or adjective is followed by a possessive pronoun, a new stress
pattern is produced, suggesting that the pronoun together with the preceding noun or
adjective forms a single prosodic word, i.e., the possessive pronoun is an enclitic (4)²:

(4) a. o áν†ropos  
    the person

   b. o áν†ropós mas  
    the person    our

   'the person'        'our person'

(5a), when compared with (5b), shows that Stress Readjustment does not apply when the
pronoun that follows the noun is a dative pronoun (proclitic to the verb) rather than a
possessive pronoun:

(5) a. o dáskalos [mu to ípe]  
    the teacher   1SG it said

   *the teacher said it to me'*

   b. [o dáskalós mu] to ípe  
    the teacher   1SG it said

   *my teacher said it'*

   *the teacher said it to me'*

We can schematize the attachment properties of Modern Greek possessive pronouns as
follows, where \(\omega\) represents a prosodic word and Cl. stands for clitic:

(6) \(\boxed{\omega} \quad \text{Cl.} \quad \omega\)

² The fact that the new main stress in (4b) falls on the final syllable of ántropos and not the penult is due
to a constraint in Ancient Greek according to which, if the final syllable of a word was long, stress had to
fall on the penult or ultima, never the antepenult.
In addition to prosodic tests, we could have applied syntactic tests for clitichood to Greek possessive pronouns with equal success. For example, Greek possessive pronouns may not stand alone, and they may not be conjoined.

In addition to establishing that Greek possessive pronouns are clitics, it is important to establish the categories to which they may attach. As shown in (7-8), possessive pronouns may attach to both nouns and adjectives. In addition, they may attach to numbers (9-10), including 'one' which doubles as the indefinite article (the symbol '=' indicates cliticization). Whenever possible, I have attempted to choose examples in which the process of Stress Readjustment clearly indicates cliticization:

(7)  
   a. to me@álo para†iro  
       the big window  
       'the big window'

   b. to me@álo para†iró=mu  
       the big window=my  
       'my big window'

(8)  
   a. to prásino spíti  
       the green house  
       'the green house'

   b. to prasinó=mu spíti  
       the green=my house  
       'my green house'

(9)  
   a. énas filos  
       one friend  
       'a friend'

   b. énas=mu filos  
       one= his friend  
       'one of his friends'
(10) a. i téseris filli
       the four friends
       ‘the four friends’

b. i téserís=tu filli
       the four=his friends
       ‘his four friends’

(11) shows that Greek possessive pronouns may not attach to the definite article:

(11) a. ta vivlía=mu
       the books=my
       ‘my books’

b.* ta=mu vivlía
       the=my books

c.* mu=ta vivlía
       my=the books

The crucial fact here is that the definite article in Greek is proclitic — it does not have its own stress and thus is prosodically dependent on the following word.

The generalization that we can extract from (7-11) is the following: Possessive pronoun clitics must attach to a word with its own stress — i.e., a prosodic word. We return to this constraint in section 4.

2.3 Structure of Greek noun phrases

Given my assumptions concerning the morphology — that it is an autonomous level of grammar and the interface between the syntax and the phonology — I will take into consideration not only prosodic constraints on utterances, but also the underlying syntactic structure. I assume that NPs are embedded within NumP and DP (Abney 1986, 1987; Ritter 1988, 1991, Carstens 1991, 1993), and that adjectives are adjoined to NP. Following Carstens (1991, 1993), I have put possessive pronouns in Spec, NP, but my

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3 We cannot characterize the cliticization hosts to Greek possessive pronouns in terms of a minimal word constraint because hosts may be both monomoraic and monosyllabic, cf. noun χώρα ‘earth, ground, land’.
working assumption is that at the level of syntax, only features are present — not the
pronoun itself (this is not crucial to the analysis, but see, e.g., Halle and Marantz 1993).
This is shown in (12):

(12)    DP
       ├──
       │  └── D° NumP
       │     └── l
       │        └── o Num'
       │            └── Num° NP
       │                        ├── Adj NP
       │                        │   └── [2sg., gen.] N'
       │                        │       └── N° kατηγίτης
       │                        │
       │                        │  o kατηγίτης su ‘your teacher’

Note that the precedence structure of (12) does not correspond to the actual surface
word order. This will be clarified below.

My claim here will be that Greek is like English in that N° does not raise overtly to
Num° in order to check number features. Adjectives in both languages normally precede
the noun, suggesting that N° remains in situ. In languages like French, where adjectives
may follow the noun, I assume that N° raises to Num° overtly, as argued in, e.g., Valois
1991.4

4 Valois (1991) claims that some adjectives, like complete, are adjoined to NP, while other adjectives (e.g.,
his frequent-class) are adjoined to NumP. If this were the case, however, we might expect to find languages
in which nouns raise overtly to Num°, and in which adjectives of the frequent-class precede the noun, while
adjectives of the complete-class follow. To the best of my knowledge, no such language exists. For this
reason, I maintain that all adjectives are adjoined to NP; ordering restrictions on adjectives may be
attributable to scope.
3. The Prosodic Hierarchy

It was recognized as early as *SPE* (Chomsky and Halle 1968) that phonological processes are often delimited by boundaries that do not correspond to syntactic structure. Early work relied on the notion of boundary symbols, a view that has since been superseded by a view of prosodic structure first proposed by Selkirk (1978, 1980) and developed further in work by Nespor and Vogel (1982, 1986), Selkirk (1986), and Hayes (1989). Phonological processes such as tone sandhi or stress assignment can be shown to have as their domain the following prosodic constituents (the prosodic word can further be divided into the foot, syllable, and mora; these will not play a role in the present analysis):

(13) Prosodic Hierarchy

```
Utterance
  \|--
  Intonational Phrase
    \|--
    Phonological Phrase
      \|--
      Prosodic Word
```

These constituents, while not isomorphic with syntactic structure, are related to syntactic structure. For example, the phonological phrase is typically defined with respect to maximal projection edges in the syntax. This will be clarified below.

The hierarchy in (13) is accompanied by the Strict Layer Hypothesis (Selkirk 1984, 1986), which dictates that parsing at each level of the hierarchy be exhaustive (Nespor and Vogel 1986: 7):

(14) Strict Layer Hypothesis

a. A given nonterminal unit of the prosodic hierarchy, $X^p$, is composed of one or more units of the immediately lower category, $X^{p-1}$.

b. A unit of a given level of the hierarchy is exhaustively contained in the superordinate unit of which it is a part.

A number of researchers have demonstrated that the prosodic hierarchy is relevant not only to phenomena like sandhi and stress assignment (Selkirk 1986, Chen 1987, Bickmore 1990, Condoravdi 1990, Selkirk and Shen 1990) but also to the placement of items in the
morphology, particularly clitics (see references in section 1). Inkelas (1989), for example, shows that the Hausa particle *fa* attaches to a phonological phrase (see also Zec and Inkelas 1990, 1991). The conditions on the placement of *fa* are given in (15) (Zec and Inkelas 1990: 370):

(15) a. No utterance may begin with *fa.*

b. If *fa* immediately precedes any material, then that material must be (i) a branching maximal projection or (ii) intonationally emphasized.

The conditions of (15b) are illustrated by the examples in (16) and (17):

(16) a. *Ya sayi fa baban tebur.*
    he bought big table
    ‘He bought a big table.’

b. *Ya sayi fa teburin.*
    he bought table-DEF
    ‘He bought the table.’

c. *Ya sayi fa teburin jiya.*
    he bought table-DEF yesterday
    ‘He bought the table yesterday.’

In (16), the (a) example is well-formed: *fa* precedes the noun phrase [babban tebur] ‘big table’, a branching maximal projection. In (16b), *fa* again precedes a noun phrase, but one which consists of only one word. Syntactically, [NP baban tebur] ‘big table’ and [NP teburin] should not behave differently — each is a noun phrase. Prosodically, however, one is a phonological phrase, while the other is not. The third example, (16c) shows that it is not enough that *fa* be followed by two words; *teburin jiya* do not form a branching maximal projection, and therefore fail to meet the criteria of (15b).

The grammaticality of (17), due to its being emphasized, contrasts with (16b) above:

(17) *Ya sayi fa teburin.*
    he bought table-DEF (emphatic)
    ‘He bought the table.’
As explained by Inkelas, the conditions in (15) can be subsumed under a single prosodic constraint: Hausa *fa* must follow a phonological phrase. The phonological phrase in Hausa is defined as follows (Zec and Inkelas 1990: 370):

(18) Hausa Phonological Phrase Algorithm
a. Prominent elements are mapped into their own phonological phrases.
b. From the bottom up, branching nodes are mapped into phonological phrases.
c. No two phonological words on opposite sides of an XP boundary may be phrased together to the exclusion of any material in either XP.

In section 4, I demonstrate that possessive pronoun clitic placement in Greek can be described only with reference to the phonological phrase, as well. Before turning to that analysis, however, it is necessary to determine how the Greek phonological phrase should be defined.

According to Hayes (1989: 211), “[t]he rules that form [phonological] phrases refer to the X-bar system of the syntax ... they apply within maximal projections, adjoining material to the head.” In Greek, the phonological phrases appears to be demarcated by the right edges of maximal projections, a pattern which is basically like that of Italian (Nespor and Vogel 1982) and English (Hayes 1989). Evidence for this comes from location of pauses in careful speech (pauses are marked with the symbol `):

(19) a. i María l òen vlépi típota
the Maria NEG see-3SG nothing
‘Maria doesn’t see anything.’

        b. o kóstas l pliróni ton lo©ariazmó
the Kosta pay-3SG the bill
‘Kosta is paying the bill.’

As shown in (19a,b), in Greek there is a pause between subject and verb, but not between the verb and object. Pauses correspond to right maximal projection edges in the syntax: I suggest that while the right edge of the subject DP delimits one phonological phrase, the
phonological phrase delimited by the right edge of the IP\(^5\) encompasses the direct object. The syntactic structure corresponding to (19b) is given in (20):

(20) 

\[
\begin{array}{c}
\text{IP} \\
\text{NP} \\
\text{I'} \\
\text{I°} \\
\text{VP} \\
\text{V°} \\
\text{NP}
\end{array}
\]

\[
\begin{array}{c}
[[\text{ο Κόστας}] \text{πληρόνη} \, t] \\
\text{ton lo} \text{oriazmó}
\end{array}
\]

Condoravdi (1990), who examines various vowel deletion phenomena in Modern Greek, also concludes that the phonological phrase there is delineated by maximal projection right edges.

The situation with adjectives is more complicated. There is no pause between an adjective and the noun it modifies, suggesting that they form a prosodic unit:

(21) \[\text{kaló faiító}\]

\[
\text{good food}
\]

This is explained if we assume that AP adjuncts do not project right edges, at least for the purpose of creating phonological phrases. However, when two adjectives are present, speakers typically pause between them:

(22) \text{mia kalí ftaí tí tavérna}

\[
\text{a-ACC good cheap tavern}
\]

‘a good, cheap tavern’

\(^5\) The label ‘IP’ is not crucial. By maximal projection edges, I am referring to those of the extended projection in the sense of Grimshaw (1991) — for noun phrases, what matters is the right edge of the DP, for verb phrases, the outermost functional projection that is assumed to contain the verb phrase (IP, TP, etc.).
I hypothesize that the pause between the two adjectives in (22) is simply related to the fact that a phonologically-null conjunction is understood in that spot; indeed, an overt conjunction ke ‘and’ may be inserted between kalí and fíni. The null conjunction functions rather like the trace in familiar examples like, Who, do you want t̲o win? (*Who do you wanna win?), which makes to-contraction impossible. Similarly, the conjunction trace between kalí and fíni renders a pause obligatory, and makes it impossible for the two adjectives to belong to the same phonological phrase.

The Greek phonological phrase is defined in (23):

(23) Modern Greek Phonological Phrase Algorithm
   a. From left to right map all material up to and including the lexical head of a
      maximal projection into a phonological phrase φ (Condoravdi 1990: 79).
   b. Two elements separated by a phonologically-null conjunction may not belong to
      the same phonological phrase.

In the next section, I apply the prosodic hierarchy discussed in this section to an optimality-theoretic analysis of the Greek data presented in (1). First I provide some general background on the treatment of clitics.

4. An Optimality-Theoretic Analysis

While it has been noted, e.g. by Anderson (1992), that clitics display a wide range of behaviors and may, in fact, not represent a unitary phenomenon, it is possible to make certain generalizations. One widely accepted characterization describes clitics as being prosodically dependent on an adjacent word. Furthermore, the positions in which clitics occur seem to make up a limited set. Anderson (1992: 202) gives the following list (Klavans 1995 gives a slightly longer list, with eight types of clitics):

(24) a. Initial clitics (e.g., K*ak*ala Determiners — Anderson 1984).
   b. Final clitics (e.g. English -’s genitive).
   c. Second-position clitics (e.g. Warlpiri auxiliaries — Hale 1973).
   d. Penultimate position clitics (e.g. Nganhcara [Australia] pronominals — Klavans
      1985: 104f.).
   e. pre-Head clitics (e.g. Romance pronominal clitics, which typically attach at the
      front of the finite Verb; or before the infinitive if this is the only Verb).
f. post-Head clitics (e.g. Finnish -kin ‘unexpected’, which attaches to the finite Verb of S — Nevis 1985).

One way of accounting for the limited set of positions in which clitics occur is through a system of parameters. The behavior of clitics will differ from language to language, depending on which settings are specified for each parameter. Anderson (1993) suggests the following set of parameters (see Klavans 1995 for a similar set):

(25) (i) **Scope:** The clitic is located within some syntactic constituent (XP) which constitutes its domain.

(ii) **Anchor:** The clitic is located with reference to the first or last element of the constituent in which it appears.

(iii) **Orientation:** The clitic precedes or follows its anchor.

The approach of Anderson (1995) is to rephrase these parameters as constraints. I will employ the same strategy here. I propose that the domain of possessive pronoun cliticization in Modern Greek is the noun phrase. Being enclitics, possessive pronouns follow their anchor. As for the anchor itself, I will argue that prosodic constituents, not syntactic heads or constituents, are the relevant elements. In this way, my analysis differs from those of Anderson and Klavans.

In what follows, I first address the basic constraint hierarchy of the neutral register (section 4.1). Next, I consider data from two other registers, the emphatic and affectionate, showing that these registers admit examples not possible in neutral speech. The differences between the registers are explored in section 4.2.

### 4.1 The Neutral Register

To begin, let us formulate an alignment constraint (McCarthy and Prince 1993) that reflects the subcategorization frame of clitics discussed in 2.2. Namely, possessive pronouns in Greek are enclitics and must attach to prosodic words, which I define as words with their own stress:

(26) **ALIGN(CL, L; PRWD, R)**

The left edge of every possessive pronoun clitic is aligned with the right edge of some prosodic word.
Considering now the structure in (27), which yields a phrase in which the possessive pronoun is adjacent to the definite article, we see this constraint might come into direct conflict with LINEARITY (Sadock 1991: 61, 103; see McCarthy and Prince 1995 for a similar constraint):

\[ (27) \]

\[
\begin{array}{c}
\text{DP} \\
\text{D}^o \\
\text{to} \\
\text{NumP} \\
\text{[1sg., gen.]} \\
\text{NP} \\
\text{spiti} \\
\end{array}
\]

\textit{to spiti mu} 'my house'

\[ (28) \]

\textsc{linearity} (Sadock 1991: 103)

The associated elements of morphological and syntactic representations must occur in the same linear order.

Given my assumptions about syntactic structure, “linearity” may simply refer to asymmetric c-command.

As shown in (29), when $\text{ALIGN(CL, L; PrWD, R)}$ comes into conflict with $\text{LINEARITY}$, it is the alignment constraint that wins out. In all tableaux, the syntactic input (represented by $\Sigma$) is given in the upper left-hand box; for clarity I have chosen to represent all syntactic elements with the corresponding lexical item instead of feature matrices:

\[ (29) \]

\textsc{align}($\text{CL, L; PrWD, R}$) $\gg$ \text{linearity}

<table>
<thead>
<tr>
<th>$\Sigma = [\text{D}^o \text{to}, [\text{NumP} \text{mu spiti}]]$</th>
<th>ALIGN(CL, L)</th>
<th>LINEARITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. $\text{to spiti=mu}$</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. $\text{to=mu spiti}$</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. $\text{to mu=spiti}$</td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

(29a) is selected as the optimal candidate because it satisfies $\text{ALIGN(CL, L; PrWD, R)}$, even though this comes at the expense of violating $\text{LINEARITY}$. Candidates (29b,c) satisfy
LINEARITY, but only by fatally violating ALIGN(CL, L; PRWD, R) — fatal violations are denoted with an exclamation point (!). Areas of the tableau which are irrelevant to the final outcome are shaded.

As of yet, there is no constraint that will rule out any of the possible clitic positions shown in (30b), some of which are grammatical, but none of which match the intended utterance in which the possessive pronoun mu 'my' is associated with tin mitéra, as shown in (30a):

(30) a. i fotografía pu éxi i María apo tin mitéra mu
the photo that has the Maria from the mother my
'The photo that Mary has of my mother'

b. i fotografía (*=mu) pu éxi (*=mu) i María (*=mu) apó (*=mu) tin mitéra

I suggest that in order to rule out (30b) and similar examples, we appeal to the constraint in (31), which recognizes that clitics are located within some syntactic domain. I have chosen to frame this constraint as a correspondence constraint that requires material associated with one maximal projection in the syntax (here, the DP) to remain within the same maximal projection in the morphology. This constraint is based on the work of McCarthy and Prince (1995):

(31) MAX-IO(DP)\textsuperscript{6}
Every element contained within DP in the input has a correspondent in the output.

In (32) we see that all of the clitic positions shown in (30b) are ruled out if MAX-IO(DP) dominates ALIGN(CL, L; PRWD, R). Constraints like (31) presumably exist for other maximal projections as well, although it remains to be shown through future research whether such constraints always apply to the extended projection (DP, IP) versus the lexical projection (NP, VP) (see Grimshaw 1991):

\textsuperscript{6} I formulate this constraint with reference to the extended projection of NP, DP, in order to permit examples like i tesarís su fíli 'your four friends', where tesarís 'four' is presumably the head of NumP.
(32) \( \text{MAX-IO(DP)} \Rightarrow \text{ALIGN(CL, L; PrWD, R)} \)

'The photo that Maria has of my mother'

<table>
<thead>
<tr>
<th>( \Sigma \Rightarrow \text{fotografía pu éxi i María apó [\text{dp} \text{tin} [\text{np} \text{mu mitéra}]]} )</th>
<th>( \text{MAX-IO} )</th>
<th>( \text{ALIGN} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. i fotografía pu éxi i María apó [\text{dp} \text{tin mitéra}=mu]</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b. i fotografía=mu pu éxi i María apó [\text{dp} \text{tin mitéra}]</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. i fotografía pu éxi i María=mu apó [\text{dp} \text{tin mitéra}]</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>d. i fotografía pu éxi i María apó=mu [\text{dp} \text{tin mitéra}]</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>e. i fotografía pu éxi=mu i María apó [\text{dp} \text{tin mitéra}]</td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

Here, (32a) is selected as the optimal candidate because it satisfies both MAX-IO(DP) and ALIGN(CL, L; PrWD, R). Candidates (21b-e) all satisfy ALIGN(CL, L; PrWD, R), but incur fatal violations of MAX-IO(DP) because the clitic does not remain within the DP that sponsored it in the syntax.

Recall from (1) that when an adjective precedes the noun in Modern Greek, possessive pronoun clitics may attach to either the adjective or the noun (33):

(33)

a. \( \text{o dílos}=su \text{ ka\,igitís} \)
the shy your professor
'your shy professor'

b. \( \text{o dílos ka\,igitís}=su \)
the shy professor your
'your shy professor'

Before turning to an analysis of (33a), I would like to focus on the subset of speakers for whom only (33b) is grammatical. This was true for three of the eight Greek speakers I consulted. Note that in (33b), we might describe the category to which the clitic attaches in any of a number of ways. On the level of the prosodic word, the clitic attaches to \( [_{w} \text{ka\,igitís}] \). On a higher level, however, the clitic attaches to the constituent \( [\text{o dílos ka\,igitís}] \), which is both an NP and a phonological phrase (23). Recall from section 3 that the phonological phrase is precisely the constituent that the Hausa particle *fa
subcategorizes for. Let us assume that the same is true for the Greek possessive pronoun; evidence that this is the correct assessment will be presented in section 4.2 below. I have schematized attachment of the clitic to the phonological phrase (φ) in (34):

(34)  [[ ιφ (CL) ]φ

As we did in (26) above, we may formulate an alignment constraint reflecting the subcategorization frame in (34):

(35)  Align(CL, L; P-Phrase, R)

The left edge of every possessive pronoun clitic is aligned with the right edge of some phonological phrase.

For the subset of speakers for whom only (33b) is considered grammatical, I suggest that (36) represents the appropriate constraint interactions:

(36)  Align(CL, L; P-Phrase, R) \[\leadsto\]\ Linearity  

<table>
<thead>
<tr>
<th></th>
<th>Align(P-Ph)</th>
<th>Linearity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [ιφ o διλός=su kaïgitís]</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b. [ιφ o διλός kaïgitís]=su</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. [ιφ o=su διλός kaïgitís]</td>
<td>*!</td>
<td>*</td>
</tr>
</tbody>
</table>

Candidate (36b) wins out despite a violation of Linearity because it satisfies the more highly ranking constraint, Align(CL, L; P-Phrase, R). (36a) satisfies Linearity, but fails when it comes to satisfying the more important constraint on alignment to a phonological phrase. (36c) violates both Align(CL, L; P-Phrase, R) and Linearity, though only the former is fatal.

The alignment constraint in (35) will now equip us to account for the set of Greek speakers for whom both (33a) and (b) are grammatical. I propose that standard Modern Greek has both constraints on alignment that we have seen — one requiring that possessive pronoun clitics attach to a prosodic word, and one requiring that they attach to a phonological phrase. The latter is unranked relative to Linearity, a situation which leads to
optionality in clitic placement, as we will see directly below. It is possible for both alignment constraints to be satisfied simultaneously, when the right edge of a prosodic word corresponds with the right edge of a phonological phrase. The full hierarchy for standard Modern Greek (both the written and spoken varieties) up to this point is as follows:

(37) \[ \text{MAX-IO(DP)} \rightarrow \text{ALN(CI, L; PRWD, R)} \rightarrow \text{LINEARITY, ALN(CI, L; P-PHRASE, R)} \]

According to (37), LINEARITY and ALIGN(CI, L; P-PHRASE, R) are unranked relative to each other. This means that a violation of LINEARITY is no worse than a violation of ALIGN(CI, L; P-PHRASE, R), and vice versa. The interaction of the constraints is illustrated below; the tie between LINEARITY and ALIGN(CI, L; P-PHRASE, R) is denoted by a dotted line:

(38) \[ \text{ALIGN(CI, L; PRWD, R)} \rightarrow \text{LINEARITY, ALIGN(CI, L; P-PHRASE, R)} \]

<table>
<thead>
<tr>
<th>$\Sigma = [\text{dil\text{\textls{acute}}s su ka\text{\textls{acute}}giti}s]$</th>
<th>ALIGN (PRWD)</th>
<th>LINEAR</th>
<th>ALIGN (P-PHR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [o [dil\text{\textls{acute}}s]=su ka\text{\textls{acute}}giti\text{s}]]</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. [[o \text{dil\text{\textls{acute}}s ka\text{\textls{acute}}giti}s]=su]]</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. [o=su dil\text{\textls{acute}}s ka\text{\textls{acute}}giti\text{s}]]</td>
<td>*!</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

This tableau represents the state of affairs in standard Modern Greek, where both (38a) and (b) are considered grammatical. Their compliance with ALIGN(CI, L; PRWD, R) ensures that they be selected as equally optimal candidates here, while (38c) violates it fatally. The fact that (38a) violates ALIGN(CI, L; P-PHRASE, R) and (38b) violates LINEARITY is irrelevant here: since the two constraints are tied, neither candidate is better than the other.

The analysis presented so far will also be able to account for cases where a possessive pronoun clitic attaches to a number (cf. (9) and (10)). In the next section I turn to noun phrases with multiple adjectives.

4.2 Register-Specific Cliticization Patterns
It has been reported in the literature (see, e.g., Halpern 1992: 34-36) that when two adjectives precede a noun, the possessive clitic may attach to the noun or either of the two
adjectives. Attaching the possessive pronoun to the first adjective, however, is felicitous for only a subset of speakers:

(39)  
a. to nóstimó almiró xtapodáki=su  
     the tasty salty octopus=your.SG  
     ‘your tasty, salty octopus (dish)’

b. to nóstimó almiró=su xtapodáki  
   the tasty salty=your octopus

c. to nostimó=su almiró xtapodáki  
   the tasty =your salty octopus

In my work with native speakers, I found that (39a) and (b) were generally acceptable. (39c), however, was acceptable only with an emphatic reading: ‘Your TASTY, salty octopus.’ Note that in (39c), the clitic attaches to a phonological phrase (23) that is not isomorphic with a syntactic constituent.

In (40)-(42) I show that the facts in (39) hold true for a wide range of adjectives (see, e.g., Valois 1991). In many languages, including Greek, English, and French, adjectives meaning ‘probable’ and ‘frequent’ generally precede adjectives like ‘terrifying’ or ‘complete’. This is sometimes taken as indication that various classes of adjectives are adjoined to different maximal projections. However, these adjectives behave precisely the same with respect to possessive pronoun cliticization. Note that the (c) examples below are fine under an emphatic reading, but are judged to be questionable or bad under a normal reading:

(40)  
a. i piθaní télia apokatastasi=tís  
     the probable complete recovery =her
     ‘her probable complete recovery’

b. i piθaní télia=tís apokatástasi
   the probable complete=her recovery
c. i πιθανή=της τέλια αποκατάστασι
the probable=her complete recovery

(\^ emphasis on probable, ?/\* normal reading)

(41) a. i sixnés tromaktikés=tus isvolés
the frequent terrifying =their invasions
‘their frequent terrifying invasions’

b. i sixnés tromaktikés isvolés=tus
the frequent terrifying invasions=their

c. i sixnés=tus tromaktikés isvolés
the frequent=their terrifying invasions

(\^ emphasis on frequent, ?/\* normal reading)

(42) a. ta sixná enoxlitiká telfonimatá=tus
the frequent annoying phone calls =their

b. ta sixná enoxlitiká=tus telfonínmata
the frequent annoying=their phone calls

c. ta sixná=tus enoxlitiká telfonínmata
the frequent=their annoying phone calls

(\^ emphasis on frequent, ?/\* normal reading)

The (c) examples in (39-42) put us in a difficult position. Our constraint hierarchy should account for the fact that in neutral, non-emphatic speech, these examples are unacceptable. However, we also want to be able to explain their acceptability when the speaker is emphasizing the leftmost adjective. I propose that the explanation lies in the fact that two registers are involved.

Work in phonology has shown that registers within a language may differ quite systematically. Lavoie (1996), for example, demonstrates that polite speech in the Australian language Yindjibarndi is characterized by extreme lenition. In French, the more
formal the register, the more speakers make use of liaison, while in colloquial registers, it may be almost completely absent. In Modern Greek, it appears that the neutral register prefers that clitics attaching to the phonological phrase select the rightmost phonological phrase. In the emphatic register, this preference is absent. One way to represent these systematic differences in register is through different constraint hierarchies. Ideally, these hierarchies differ only minimally from one another, as I will show to be the case in Greek.

Recall that the second of the parameters listed in (25) for cliticization is ANCHOR — clitics tend to occur towards the right or left edge of their domain. Anderson (1995) represents this with an optimality-theoretic constraint EDGEMOST. We will do the same, limiting the scope of the constraint to cases involving alignment to a phonological phrase:

(43)  \[ \text{EDGEMOST(P-PHRASE, R)} \]

Possessive pronoun clitics select the rightmost phonological phrase.

The difference between the neutral and emphatic registers, I propose, is that EDGEMOST is fairly highly ranked in the former, but not in the latter. In the emphatic register, its effects are masked by other, more highly ranking constraints which I will not explore here. The constraint hierarchy for the neutral register up to this point is given in (44):

(44)  \[ \text{Neutral Register} \]

\[
\text{MAX-IO(DP)} \\
| \\
\text{ALIGN(CL,L; PRWD,R)} \\
| \\
\text{LINEARITY, } \text{ALIGN(CL,L; P-PHRASE,R)} \\
\text{EDGEMOST(P-PHRASE, R)}
\]

The tableau below shows how this hierarchy selects the optimal candidates under a neutral, non-emphatic reading when applied to inputs like [\text{to } \text{[\text{nπ}ό\text{morfo} č\text{eksipno} [\text{nπ}μu skili]]}] 'my beautiful (όmorfo), clever (éksipno) dog'. I have not included highest-ranking MAX-IO(DP) in the tableau; it would simply prohibit a candidate which deleted the

---

7 The explanation for why in some dialects of Greek only (33b) is grammatical may in fact be that these dialects have an edgemost constraint that refers to prosodic words as well.
possessive pronoun in order to avoid an alignment violation. Likewise, I have left out ALIGN(CL, L; PRWD, R) because it is unviolated by the candidates in (45):

(45) LINEARITY, ALIGN(CL, L; P-PHRASE, R) » EDGEMOST(P-PHRASE, R)

\[
\Sigma = \{\text{dp to } [\text{NP omorfó eksipnó [NP mu skilî]]}\}
\]

<table>
<thead>
<tr>
<th></th>
<th>LIN</th>
<th>ALN</th>
<th>P-PH</th>
<th>EDGEMOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [o to omorfó] [\text{[o ø eksipnô]=mu skilî]}]</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. [o to omorfó] [\text{[o ø eksipnô]=mu skilî]}]</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. [o\text{[o to omorfó]=mu skilî]} [\text{[o ø eksipnô skilî]}]</td>
<td>*</td>
<td>*</td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

Here both (45b) and (c) violate LINEARITY, but this is no worse that (45a), which violates ALIGN(CL, L; P-PHRASE, R). (45a,b) come out on top when their performance is measured against the lowest-ranking constraint, EDGEMOST. Both (45a) and (b) satisfy EDGEMOST by attaching to a prosodic word that is contained within the rightmost phonological phrase, but (45c) violates it fatally.

We can account for the acceptability of the (c) examples in (39, 40-42) with the constraint hierarchy in (46). It is virtually identical to the hierarchy in (44); the only difference is that EDGEMOST(P-PHRASE, R) is no longer among the constraints that are ranked highly enough to have an effect. Presumably, it is outranked by other constraints, the identity of which I do not explore here:

(46) **Emphatic Register**

\[\text{MAX-IO(DP)} \text{ » ALN(CL,L; PRWD,R)} \text{ » LINEARITY, ALN(CL,L; P-PHRASE,R)}\]

The effect of the hierarchy in (46) is illustrated in the tableau in (47). Again, MAX-IO(DP) has been left out of the tableau; were it present, it would rule out an example that deleted the possessive pronoun clitic:
(47) **ALIGN(CL, L; PrWD, R) » LINEARITY, ALIGN(CL, L; P-PHRASE, R)**

<table>
<thead>
<tr>
<th>Candidate</th>
<th>ALN PrWD</th>
<th>LIN</th>
<th>ALN P-PHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [₉ to omorfó] [₉ ἐκσίμησθο = mu]</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>skilf</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. [₉ to omorfó] [₉ ἐκσίμησθο = mu]</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. [₉ to omorfó] = mu [₉ ἐκσίμησθο skilf]</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. [₉ to = mu omorfó] [₉ ἐκσίμησθο skilf]</td>
<td>*!</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Candidates in (47a-c) are deemed equally optimal, even though they each violate one constraint. Crucially, the constraints they violate are on a par with each other; no one violation is worse than any other. (47d) fatally violates ALIGN(CL, L; PrWD, R), as well as the two lower-ranking constraints.

Halpern (1992) reports that in certain contexts it is possible to repeat the possessive pronoun. In my consultations with speakers, I found examples like (48) to be acceptable. These have an affectionate ring to them, and might be used in talking to a child or pet. I suggest that they belong to a special register which I label “affectionate”:

(48) to omorfó = mu skilf = mu
the beautiful = my dog = my
‘my beautiful dog’

In (48) it appears that a clitic pronoun has been copied or epenthesized, perhaps to emphasize the fact that the noun in question (here, a dog) belongs to the speaker. In the neutral register, this epenthesis does not occur. I propose that this difference between the two registers lies in the scope of the alignment constraint presented in (26), ALIGN(CL, L; PrWD, R), and in the tension between this constraint and another that disfavors epenthesis. This new constraint, proposed by McCarthy and Prince (1995) for phonology and applied here to the morphology, is given in (49):

---

8 It is also possible to get two definite articles, but this phenomena is not limited by register: *o γαίρος (o) papaδπουλος ‘George Papadopoulos’, *τι γαίνα (τι) γαίμη ‘the naked woman (ACC)’ (examples from Mackridge 1987: 195). I do not analyze such examples here. One possibility is that this is a strictly syntactic phenomena, and the elements of the noun phrase are showing agreement for definiteness.
(49) **DEP-IO**

Every element present in the output (i.e., the morphology) has a correspondent in the input (i.e., the syntax).

The constraint in (49) essentially prohibits epenthesis of lexical items. In the neutral register of Greek, **DEP-IO** is not violated in the case of possessive pronoun clitics. This can be explained by positing that **DEP-IO**, like **MAX-IO(DP)**, is undominated by the other constraints considered here. In the affectionate register, however, **DEP-IO** is indeed violable, but only under duress from a more highly-ranking constraint. This constraint, a reformulation of (26), is given in (50):

(50) **ALIGN**(PrWd, R; Cl, L)

The right edge of every prosodic word is aligned with the left edge of some clitic.

The interaction of (49) with (50) — characteristic of the affectionate register — is illustrated below:

(51) **ALIGN**(PrWd, R; Cl, L) ⊃ **DEP-IO**

<table>
<thead>
<tr>
<th>Σ = [{dp → [NP omorfo [NP mu skilí]]}]</th>
<th>AL(PrWd, R)</th>
<th><strong>DEP-IO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. to omorfo skilí = mu</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b. to omorfo = mu skilí</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>c. to omorfo = mu skilí = mu</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>d. to=mu omorfo=mu skilí</td>
<td>*!</td>
<td>*</td>
</tr>
<tr>
<td>e. to=mu omorfo skilí=mu</td>
<td>*!</td>
<td>*</td>
</tr>
<tr>
<td>f. to=mu omorfo=mu skilí=mu</td>
<td>*!</td>
<td>**!</td>
</tr>
</tbody>
</table>

Here (51c) is selected as optimal by the constraint hierarchy of the affectionate register because it avoids violating **ALIGN**(PrWd, R; Cl, L), even though this means one violation of **DEP-IO**. Although (51f) also satisfies **ALIGN**(PrWd, R; Cl, L), it is eliminated because it incurs one more violation of **DEP-IO** than does the winning candidate.

The final constraint hierarchies for each of the registers are as follows (I use a dotted line in (53-54) to show that **EDGEMOST** is present, but its influence is masked by other constraints whose identity was not explored here):
5. Conclusion

The preceding analysis takes a number of facts about word order in Modern Greek noun phrases and gives them a unified analysis. Optionality in clitic placement in examples with one adjective is shown to fall out from the tension between a prosodic constraint on clitic attachment, ALIGN(CL, L; PRWD, R), and LINEARITY, which favors maximal
correspondence between the order of elements in the syntax and the morphology. That clitics are generally associated with some syntactic domain is attributed to a second correspondence constraint, \textsc{Max-IO(DP)}. In the neutral register, possessive pronoun clitics may not attach to the leftmost phonological phrase within their domain. This is attributed to the interaction of \textsc{Align(Cl, L; P-Phrase, R)} and \textsc{Edgemost(P-Phrase, R)}.

Register differences in Greek are accounted for through minimally differing constraint hierarchies. For example, repetition of possessive pronoun clitics in affectionate speech is attributed to the dominance of \textsc{Align(PrWd, R; Cl, L)} over \textsc{Dep-IO}. In the emphatic and neutral registers, the scope of the alignment constraint is reversed, and it is dominated by \textsc{Dep-IO}. This renders epenthesis of morphological material, and hence repetition of the clitic, unacceptable. A characteristic of the emphatic and affectionate registers, specifically that they license an additional clitic position on the first of two phonological phrases, is attributed to the low rank of \textsc{Edgemost(P-Phrase, R)}.

This analysis makes several predictions about grammars, the validity of which must be tested through further research. First, the present analysis supports a large body of previous work that claims that while clitics belong to a syntactic domain, their host must be characterized in prosodic terms. In Greek the relevant prosodic constituents are the phonological phrase and the prosodic word. It remains to be seen whether or not clitics may unambiguously select for larger constituents, such as the intonational phrase. Aissen (1992), especially, presents convincing evidence that they indeed may. Second, alignment and correspondence constraints (McCarthy and Prince 1995), which have been shown to play an important role in phonology, are applied to the syntax-morphology interface. Lastly, my analysis of Greek supports the hypothesis that distinct registers may be characterized by slight differences in their morphologies; Optimality Theory has proven to be a possible vehicle for expressing this state of affairs. Ideally, the differences between the neutral, emphatic, and affectionate registers in Modern Greek are not limited to the facts I present here. I hope that future research will uncover the extent and type of differences between them, as well as related patterns in other languages.

6. References


Wh-Movement in ASL: The ‘Filled C’ Requirement

Teresa Galloway

1. Introduction

ASL and English use what at first seem to be very different strategies in forming wh-questions. ASL allows wh-in-situ as well as overt movement of the wh-word, and may even allow a second copy of the wh-word to appear sentence finally. English disallows wh-in-situ and employs do-support or subject-aux inversion in cases of object extraction. However, these strategies can all be related: both wh-doubling and do-support/subject-aux inversion can be attributed to a filled-C requirement in matrix questions.

2. Wh-Doubling in ASL and the structure of CP

When speakers of American Sign Language (ASL) form wh-questions, they may use one of several options. These options appear to be leaving the wh-word in-situ, moving the wh-word in some direction, and ‘wh-doubling,’ where the wh-word appears both sentence initially and sentence finally. The data in (1) and (2) below illustrate these phenomena, while the standard declarative sentence is of the form JOHN BUY BOOK with no tense marking on the verb. The lines occurring above the sentences indicate a mandatory co-occurring facial expression consisting of lowered eyebrows and pursed lips which has been glossed ‘wh,’ indicating that it always occurs when a wh-question is formed:

Non-doubling:

_______ wh

(1) a. WHO BUY BOOK

‘Who bought a book?’

Doubling:

_______ wh

(2) a. WHO BUY BOOK WHO

‘Who bought a book?’

* I would like to thank the members of the Research Workshop at Cornell University for valuable comments and suggestions for improving this paper. I am also indebted to Chris Collins for the original observations and suggestions which led to this analysis.
Non-doubling:

__________ wh
b. BUY BOOK WHO
   'Who bought a book?'

__________ wh
c. *WHAT JOHN BUY
   'What did John buy?'

__________ wh
d. JOHN BUY WHAT
   'What did John buy?'

Doubling:

__________ wh
b. *BUY BOOK WHO WHO
   'Who bought a book?'

__________ wh
c. WHAT JOHN BUY WHAT
   'What did John buy?'

__________ wh
d. *JOHN BUY WHAT WHAT
   'What did John buy?'

In (1a) through (1d) we see the non-doubled options for forming wh-questions in ASL. Examples (1a) and (1d) may be potentially analyzed as wh-in-situ, or else as movement to a wh-operator position on the right or left. Note that at least one of these two examples must be analyzed as wh-in-situ, assuming that wh-operators move to a fixed position. Even if both are analyzed as in-situ, the acceptability of (1b) seems to suggest that there is also overt wh-movement in ASL, and given the disputed grammaticality of (1c), this movement appears to be rightward. Examples (2a) through (2d) illustrate the wh-doubling phenomena. These examples do nothing to disprove the idea that wh-operators move to the right since they are compatible with either a rightward or leftward movement hypothesis. In fact, both analyses—rightward movement and leftward movement—have been proposed.

Aarons (1994), among others, claims that wh-movement is rightward and thus that the SPEC of CP is on the right. Consequently, she assumes (1a) is an example of wh-in-situ, and (1d) potentially movement. To explain the doubling phenomena, she claims that in sentences like (2a) and (2c) the first wh-word has been base-generated in a topic position adjoined to CP (Aarons, 1994):
The most compelling argument for Aarons’ point of view is that the grammaticality of (1c) is generally considered dubious at best. She argues that an analysis which claims wh-movement is leftward cannot account for the general acceptability of (1c), since the wh-word in this sentence is at the right edge, which is not its presumed base-generated position

Diane Lillo Martin et al. (1995) and Karen Petronio (1994) give just such an analysis. They claim that, just as in most other natural languages, the wh-word in ASL moves leftward from its argument position to the SPEC of CP. According to their analysis, the wh-double is base-generated in the right-hand head of C° for purposes of focus. They therefore consider (1d) wh-in-situ, and (1a) a possible example of wh-movement. (1b) is somewhat more problematic. Their claim is that the wh-word which appears sentence finally is actually a ‘focus-double’ even though there is no overt wh-word for it to be the double of. Instead, they assume that in some cases the moved wh-word may be contextually dropped, and that sentences like (1b) represent just such a case. Thus their structure for ASL wh-questions is as follows:

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1 There may be more than one significant dialect of ASL. A few of my informants preferred SOV word-order, and these same informants seemed to dislike the sentences containing doubled wh-words. This seems to point to an important dialectal difference—the dialect which is SOV may disallow overt wh-movement which would follow from linguistic tendencies of SOV-type languages.
Notice that both the rightward- and leftward-movement hypotheses assume that the head of CP is on the right. This is independently motivated by the distribution of relative clauses in ASL which may be optionally followed by the sign THAT (see Liddell, 1980 for a discussion). However, Lillo-Martin and Petronio claim further that the final wh-double in the above sentences actually occupies the right-hand head of CP. Their evidence for this comes from the fact that the final double is in a head position and not a spec since it is limited to a single word, never a wh-phrase (Lillo Martin et al. 1995):

(3) a. WHO CAR BREAK-DOWN WHO

‘Whose car broke down?’

(3) b. *WHO CAR BREAK-DOWN WHO CAR

‘Whose car broke down?’

As noted previously, the grammaticality of sentence (1c) is disputed. This poses a problem for Lillo Martin et al. and Petronio since their leftward-movement analysis would predict that it should be fine. And indeed, even for those speakers who accept (1c), (2c) is still preferred. Lillo-Martin and Petronio get around this potential problem by claiming that sentence final doubling for focus is a productive, and indeed prevalent phenomenon in other aspects of ASL syntax, and is thus preferred, but not necessarily
required. While this seems somewhat weak, Lillo Martin et al. and Petronio’s leftward analysis is bolstered by the fact that the sentence types Aarons uses as evidence for rightward movement of wh-subjects (1b) are apparently not allowed in embedded indirect questions (4a). Here the facial expression is no-longer ‘wh’ but ‘hn’ for head-nod:

\[ \text{hn} \]

(4) a. *ANN CURIOUS T BUY BOOK WHO
    ‘Ann is curious who bought the book’

\[ \text{hn} \]

b. ANN CURIOUS WHAT JOHN BUY t
    ‘Ann is curious what John bought’

Furthermore, they show that the controversial sentences with apparent leftward movement such as (1c) WHAT JOHN BUY become acceptable when embedded in a sentence such as 4b. Thus they claim that all movement is actually leftward. What seems to be rightward movement as in (1b) BUY BOOK WHO is actually the presence of the focus double—a property of matrix clauses only—with a ‘null’ wh-word.

I believe Petronio and Lillo-Martin’s analysis can be strengthened if we postulate a requirement that wh-movement triggers final wh-doubling while wh-in-situ prevents it. This requirement would rule out (1c) since such a sentence would necessarily be a product of movement, and as such would require the presence of the final wh-double. The lack of the sentence final double in this sentence is what makes it ungrammatical, not the leftward movement itself. Specifically, given Petronio and Lillo-Martin’s claim that the final double occupies the head of CP, wh-movement to the SPEC of CP in ASL

\[ ^2 \text{One of my informants categorically disliked the 4b sentence type in favor of the 4a type. But this could potentially be another manifestation of the dialectal difference discussed in footnote 1. In any case, it requires a reanalysis which I do not yet have.} \]
requires that the head of CP be filled. As I will show, there is evidence for postulating a requirement of a ‘Filled-C’ in wh-questions in other languages as well, notably English, French, and Indonesian.

3. Similarities to Do-Support and Subject-Aux Inversion in English

The data seem to show that wh-doubles in imbedded questions in ASL have a distribution similar to that of do-support in English wh-questions:

_English:_

- **Object extraction:**
  1. Who do you like t?
  2. *I know who do you like t.
  3. *You like t?
  4. I know who you like t.

_ASL:_

- **Object extraction:**
  1. WHO YOU LIKE t WHO
  2. *I KNOW WHO YOU LIKE t WHO
  3. *WHO YOU LIKE t
  4. I KNOW WHO YOU LIKE t

_Subject extraction:_

- **Subject extraction:**
  1. *Who does t like you?
  2. *I know who does t like you.
  3. Who t likes you?
  4. I know who t likes you.

(6) a. WHO YOU LIKE t WHO

b. *I KNOW WHO YOU LIKE t WHO

c. *WHO YOU LIKE t

d. I KNOW WHO YOU LIKE t.

The doubled wh-word is prohibited in embedded clauses in ASL (6b, 8b), just as do-support is in English (5b, 7b). Likewise, where we require do-support in English, in ASL we get the double wh-construction strongly preferred over the non-doubled (6a vs.6c). However, although we can’t get do-support in matrix subject extraction in English (7a)³

---

³Sally McConnell-Ginet has pointed out that (7a&b) are fine whenever there is emphasis on ‘does.’ However, as I discuss in a later section, an emphatic element intervening between the tense and the verb stem in these cases would force do-support, and so would be consistent with my analysis. Such an emphatic element—which would be manifested as stress on ‘do’—could occupy the same position as ‘not’ which also forces do-support. An analysis along these lines has been explored more fully by Laka (1990).
we still get optional doubling in ASL (8a/c). I will return to this discrepancy in a later section, but the evidence still suggests a strong similarity between the two phenomena.

If we consider ‘do’ to be an instantiation of the head of Infl (or T°) in English, and the doubled ‘WHO’ to occupy C° in ASL, the surface similarity doesn’t seem to have any structural basis at first. However, as I will discuss in the next section, Rizzi (1991) proposes that in English matrix questions there is obligatory I° to C° movement, so ‘do’ would actually occupy C°. If we posit some type of filled-C requirement for matrix questions in both ASL and English then this will give us a stronger reason why sentence (1c) is marginal instead of perfect: it fails the filled C requirement.

4. I° to C° movement in matrix clauses

Rizzi claims that for matrix clauses there is obligatory I-to-C movement in order to satisfy a wh-criterion, whereas in embedded questions this is not the case. This can account both for the word order facts in (4) and subject-aux inversion in (9) below:

*English: Rizzi (1991)*

**Object extraction**

(9) a. Who has Mary seen t?  
    b. *I know who has Mary seen t.
    c. *Who Mary has seen t?
    d. I know who Mary has seen t.

**Subject Extraction**

(10)a. Who t has seen you?  
    b. I know who t has seen you.

Despite the fact that the word-order facts in (10) for subject extraction seem compatible with I-C raising, he analogizes from the previous do-support data to claim that the
derivations given in (11) are disallowed. Thus in both cases I-to-C raising is incompatible with subject movement.

(11)  
   a. *Who$_i$ has$_j$ [t; t$_j$ seen you]?
   b. *I know [who$_i$ has$_j$ [t; t$_j$ seen you]].

His complete analysis for why the structures in (11) aren't found is somewhat involved, and in fact may be unnecessary if we adopt Bobaljik’s (1994) account of affixation (next section). By adopting Bobaljik’s theory of affixation, we can claim I$^o$ moves to C$^o$ in every case of matrix wh-questions in English, and thus get a more unified account of the phenomena.

5. Filled C in English

The fact that we don’t get ‘Who does t like you?’ (except in cases of emphatic stress, see footnote 2) is evidence for Rizzi that I-to-C has not occurred in subject extraction. But if Rizzi is right that I-to-C movement does not takes place when we have subject extraction in English, then our filled-C requirement is weakened. Indeed it does seem that C is not filled in examples such as ‘Who likes you?’ since the only available candidate appears to be the verb itself, and as Pollock (1989) showed, we don’t get V-to-I raising in English. Without V-to-I raising we can not reasonably expect the verb to fill C. However, we don’t necessarily have to posit that C be filled by an entirely free-standing word as in ASL; being filled by an affix will do. Bobaljik’s proposal for affixation by adjacency gives us a way to do this.

Bobaljik (1994) claims that I raises to C in every case of English wh-movement, but that we only get do-support when there is overt material intervening between INFL and the verb stem. This material can take the form of negation, emphatic so (and possibly other emphatic or focus morphemes), or as in the case of object extraction, the lexical
subject. His claim is that the tense morpheme in English affixes to the verbal stem whenever there is simple linear order adjacency, and that the intervention of other lexical items blocks this affixation process, requiring that the tense feature be realized as ‘do:’

(12) Adjacency of Infl and V → no do support

(13) Intervening material → do-support

By adopting Bobaljik’s analysis, we now have a unified filled-C theory, which is exceptionless even in cases of English subject extraction, unlike Rizzi’s chain-formation scheme. Wh-movement triggers the overtly filled C requirement, which in English is always satisfied by I-to-C raising. The Infl features in C are pronounced overtly as tense on the verb stem.

6. No filled C with wh-in-situ in ASL

As alluded to earlier, wh-questions in ASL can either be wh-in-situ or moved to the spec of CP. (1) and (2) are partially repeated in (14) and (15):
Wh-in-situ:  
(14)a. WHO BUY BOOK  
  b. JOHN BUY WHAT  
  c. *JOHN BUY WHAT WHAT  

Moved  
(15)a. WHO t BUY BOOK WHO  
  b. *WHAT JOHN BUY t  
  c. WHAT JOHN BUY t WHAT

In both (14a) and (15a) it is at first unclear whether wh-movement has taken place leftwards, or whether these are simply case of wh-in-situ. The only difference is the presence of the final double (15a). However if we take the final double in (15a) to indicate precisely that movement has taken place, then (14a) must be an example of wh-in-situ. Likewise, (14b) would be wh-in-situ, and (15c) its moved counterpart. Thus in matrix clauses, we have a perfect disjunction: wh-movement requires a copy or double in the head of C, whereas wh-in-situ prohibits it. This explains the ungrammaticality of (15b)—the wh-object in initial position means it must be analyzed as a case of overt movement yet there is no final double filling the head of C, so the derivation crashes. To restate, this analysis requires the following assumptions:

1. (14a) is a case of wh-in-situ, and not movement  
2. (15a) is a case of movement and not wh-in-situ  
3. The marginality of (1c)=(15b) indicates some sort of violation—that is,  
   wh-movement w/o doubling is problematic.

Assuming that (15a) is movement and not wh-in-situ seems like less of a stipulation when we consider the following data from French (from Rizzi, 1991):

(16)a. Elle a rencontré qui?  
   She has met who  
  (wh-in-situ without inversion OK)  
  b. Qui elle a rencontré t ?  
   Who she has met  
  (wh-extraction without inversion OK)  
  c. Qui a-t-elle t rencontré t?  
   Who has-t-she met  
  (wh-extraction plus inversion OK)  
  d. * A-t-elle t rencontré qui?  
   Has-t-she met who  
  (wh-in-situ plus inversion NOT OK)
What is important here is that in French matrix clauses wh-in-situ does not allow inversion ((16d) vs. (16a)). Since we are claiming that it is precisely the wh-movement which ‘triggers’ doubling in ASL and subject-aux inversion in English and now French, then this is exactly what we would expect to find. Thus we can claim that wh-doubling in ASL does not occur when we have wh-in-situ. It must therefore be stipulated that the filled-C requirement is an if and only if condition. That is, if wh-movement occurs then the head of C is filled, and the head of C may be filled only if there has been wh-movement. While this revised requirement fits the facts seen so far, I have as yet no explanation for the existence of the requirement itself.

However, our story is now consistent: wh-movement in ASL triggers the filled-C requirement, which is satisfied by the strategy of wh-doubling. The question is, how is the wh-doubling accomplished? It doesn’t seem to be simply a case of I-to-C raising as in English.

7. Problems with I-to-C movement in ASL

Whereas Rizzi posits I-to-C movement to account for English subject-aux inversion, in ASL the element found sentence-finally in C° does not seem to be an instantiation of $I^\circ$ (or $T^\circ$ or whatever). Rather, it seems to be a copy of the wh-element found in [Spec, CP]. Additionally, the ‘filled C’ criterion in ASL may also be met by a resumptive pronoun, or the non-specific wh-word ‘HUH’ (Lillo Martin et al. 1995):

\[
\underline{\text{wh}}
\]

(17a) WHO YOU SEE HUH

\[
\underline{\text{wh}}
\]

b. WHAT JOHN BUY HE

\[
\underline{\text{wh}}
\]

c. *WHAT JOHN BUY JOHN

Neither of these elements--pronoun or wh-word--would normally be found in $I^\circ$, but rather [Spec, IP] or [Spec, CP]. Furthermore, it is only the features of these spec positions

\[4\] With the exception of (16b) which seems anomalous since here we have wh-movement without inversion, which we need in order to fill C. Fortunately, Rizzi has an explanation for the grammaticality of (16b), which is somewhat involved, and I do not have room to recapitulate. His explanation would have to be tested to see if it still works given my assumptions. Interested readers are referred to Rizzi (1991).
which are copied in C—the lexical items themselves certainly cannot be moved there under any standard analysis, as specs shouldn’t move to head positions, and furthermore the evidence from (17c) shows that it can’t be the lexical item itself which is copied. ‘HUH’ can be thought of as the overt manifestation of the +wh feature in C°, much like the Japanese ‘ka,’ but we still have to account for the complete lexical duplication of WHO or WHAT in previous data. We know from (3) that this is not a case of movement, so I will follow Lillo Martin et al. and Petronio in claiming that these doubles are base-generated in C°, and may have all the features of the moved wh-word due to spec-head agreement. However, I make the additional claim that by base-generating this copied wh-word in C°, or by pronouncing the +wh feature as ‘HUH’, ASL is satisfying the requirement that C° be filled overtly.

Accounting for the resumptive pronoun is slightly more problematic, but we might be able to attempt this by appealing to spec-head agreement between Infl and [spec, I]. That is, the features of the subject in [spec, I] must agree with the features in I itself. We then posit optional I-to-C raising as in English, thereby moving these features to C°. In ASL these features are subsequently realized as a resumptive pronoun, since the features must be expressed overtly. It is of interest to note that there is no overt tense marking in ASL, so that having the I° features manifested in C° as a resumptive pronoun is not contradictory to any other data. Furthermore, although there is no overt tense in ASL, pronouns are pronounced as deictic signs which agree with a location in space, so they can just as easily be analyzed as pure agreement morphemes.

Although I-to-C movement is not the only way to fill C in ASL, it is one of the available options. This seems fairly neat, except for the fact that as I have demonstrated, the ‘filled-C’ requirement triggered by wh-movement is always satisfied by I-to-C movement in both English and French, but not, it seems in ASL. Since ASL doesn’t always rely on I-to-C raising, the parallel isn’t quite perfect—the head of C is always filled in matrix questions, but not always by the same strategy. It turns out that ASL is not the only language which can be analyzed as using a strategy other than I-to-C movement in wh-questions. The data in (18) and (19) are from Indonesian:

Indonesian:

(18) a. Siapa membeli buku?
    Who ACT-buy book
    ‘Who buys the book?’
b. *Siapa yang membeli buku?*
   Who COMP ACT-buy book
   ‘Who buys the book?’

(19) a. *Ali membeli apa?*
   Ali ACT-buy what?
   ‘Ali buys what?’

b. *Apa yang dibeli Ali?*
   What COMP PASS-buy Ali?
   ‘What did Ali buy?’

c. *Apa Ali membeli?*
   What Ali ACT-buy?

(18a) is like WHO BUY BOOK in ASL in that it could be potentially analyzed in one of two ways—in-situ or moved. However, if we assume that (18a) is always wh-in-situ, then the variant found in (18b) can be interpreted as a case of wh-movement forcing C to be filled, in this case with the complementizer yang. Likewise, (19a) is clearly wh-in-situ and (19b) is movement with C filled by the complementizer. (19c) indicates that filled-C is the only option when there has been movement of the wh-object. Consequently, ASL is not unique in using a strategy other than I-to-C movement in wh-questions.

8. Conclusion

In summation, there are several interesting parallels between ASL wh-doubling and English subject aux inversion which we now have a unified account for:

1. Both processes involve filling the head of CP—a claim supported independently by Rizzi for English, and Petronio and Lillo-Martin et al. for ASL.

2. Both phenomena involve matrix clauses only.

3. These phenomena occur when and only when there has been overt movement of the wh-word, backed up by data from French and Indonesian.
The clear conclusion is that overt wh-movement in matrix clauses requires that C be filled overtly in ASL, English, French and Indonesian. So it is certainly possible that the Filled-C requirement is universal. The possible exceptions—the lack of do-support when we have subject extraction in English, and the possible wh-in-situ analysis in some cases of ASL wh-doubling—have been re-analyzed as being consistent in conforming to the filled-C requirement as well. Even better, this analysis allows us to explain the marginality of the ASL sentence (1c) while still supporting the leftward movement hypothesis.

As we have seen, the languages looked at in this paper employ different strategies to satisfy the requirement that C be filled. English and French use I-to-C movement to fill C, while ASL base-generates a focus-double, and Indonesian uses an overt complementizer. It would be interesting to examine still more cases to determine if different strategies are used by other languages as well. It is conceivable that there are numerous possible strategies that a language may choose to use, and that these strategies are lexically controlled. That is, the reason English doesn’t use the complementizer ‘that’ to do the job as in * ‘Who that you like?’ could be that ‘that’ in English is specified as [-wh] and so this would crash because of faulty spec-head agreement. This is only a sketch of an explanation. Certainly if it is the case that Filled-C is a requirement cross-linguistically then it would be necessary to determine how and why it is that each language chooses the strategy it will use to satisfy it.

9. References

Nominative, Absolutive and Dative Languages

Luis López and Jennifer Austin

1. What is ergativity (or nominativity)?

The empirical goal of this paper is to provide a structural analysis of split intransitive case systems, or case systems that divide the subjects of intransitive predicates in two classes such that one class patterns with subjects of transitive predicates and the other, with objects. Through our analysis, we show that so-called split intransitive languages belong to a case system of their own, and are not a hybrid of nominative and ergative case systems. As a result, we conclude that the traditional contrast between ergative and nominative languages should be replaced by a three way distinction. Our system makes crucial use of the theory of clause structure in Collins and Thráinsson (1993) which includes functional categories between the two VP-shells. Since only their theory provides us with the appropriate structure to express our analysis, we provide further support for it. As a starting point, let us assume (as is standard) that there are two structural cases C1 and C2:

(1) IC1 bought the bookC2

Given this assumption, two choices are available for an intransitive subject. If C1 is chosen, we obtain the pattern seen in (2a), whereas if C2 is chosen, we obtain what is usually called an ergative language:¹

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¹ Thus, we equate nominative and ergative case, and absolutive and accusative case. This assumption is not universally held, for example see Bittner (1994) and Bittner and Hale (1994) Marantz (1984) and Murasugi (1992), among others. According to these authors, the absolutive argument would be the highest argument in the clause. However, we believe that the arguments presented in Bobaljik (1993) are convincing enough. First, Bobaljik shows that if the object is the highest argument in the clause, we should obtain cross-over effects that are the exact opposite of what we obtain in a nominative language, that is, the sentence in (i) should be grammatical whereas (ii) should be ungrammatical:

(i) whoı̃ does hisı̃ mother know tı̃?

(ii) whoı̃ tı̃ loves hisı̃ mother

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(2) a. NPC1 arrived nominative languages (English)
   b. NPC2 arrived ergative languages (Inuit, Tzotzil)

Following a suggestion in Chomsky (1993), Bobaljik (1993) proposes a formalization of the distinction between ergative and nominative languages, as represented in (3). First, he claims that there is a UG principle that forces at least one of the two structural cases to be checked. The structural case chosen as obligatory is a matter of parametric variation; this is called the Obligatory Case Parameter.

(3) a. Case X is obligatory checked
   b. Obligatory Case Parameter (OCP):
      case X is nominative nominative lgs
      case X is absolutive ergative lgs

In the Principles and Parameters theory that Bobaljik assumes, structural case is checked in the Spec of an agreement phrase. Consider (4), a structural representation of the nominative /ergative distinction according to Bobaljik. In (4a) we see that in nominative languages the subjects of monadic verbs have their features checked in the Spec of AgrP1, regardless of where they are base generated. In (4b), we can see that in ergative languages the subjects of intransitive verbs go to Spec,AgrP2, where they get absolutive case:

This is certainly not true of Basque (Ortiz de Urbina 1989) and, as far as we know, it has not been described of any other ergative language.

Secondly, binding of anaphora indicates that ergative arguments asymmetrically c-command absolutive arguments - a fact known since Anderson (1976), see Bobaljik's discussion. Bittner and Hale (1994) claim that this ability is dependent on the positions where the subject and object are base generated. Thus, even though in ergative languages the object raises to a higher position - spec,IP, in their system - the subject still c-commands and therefore binds the trace of the object. However, this doesn't fully capture the facts. In the passive example (iii), the DP in subject position binds the reflexive in the PP. Since the position where the object is generated is the lowest in the sentence, it can only bind the reflexive from the position where it moves:

(iii) John was persuaded by himself that he should visit his ex-wife.

Modulo reconstruction of topicalized material, it seems to us that binding theory, deemed an LF condition in the Minimalist Program of Chomsky (1993), should be computed according to the LF positions of the constituents involved.
In this analysis, nominative and ergative cases are checked in Spec,AgrP1, whereas absolutive and accusative cases are checked in Spec,AgrP2.

However, there are some recalcitrant languages which do not fit into this neat and clear paradigm. We are referring to split intransitive languages like Basque, in which the subject of unergative verbs gets ergative case (please excuse the notoriously confusing terminology.)

(5) a. NPC\textsubscript{2} arrive (unaccusative verbs)

b. NPC\textsubscript{1} work (unergative verbs)

It is clear that if some subjects of monadic verbs get C\textsubscript{1} and others get C\textsubscript{2}, then the predictions of the OCP are not borne out. The solution proposed by both Laka (1993) and Bobaljik (1993) is to claim that unergative verbs actually have a complement that gets absolutive case.

(6) NPC\textsubscript{1} work NPC\textsubscript{2}

Their argument is based on Basque, and we will focus our attention on Basque unergative predicates in section 6. But first we will present our own framework of analysis in section 2, and then show how it accounts for the case systems of nominative, ergative and split
intransitive languages in sections 3, 4 and 5 respectively. We conclude with a comparison of the clause structure adopted here to other structures with respect to the issues at hand, and show why our choice is preferable.

3. What is ergativity (or nominativity, or dativity)?

We propose to change the initial assumption that there are two structural cases and instead assume that there are three: nominative or ergative, dative, and accusative or absolutive. We will refer to them simply as C1, C2 and C3 respectively, as represented in (7).

(7) IC1 gave JohnC2 the bookC3

Since the assumption that dative case is structural is not standard, we include a few lines here to justify it. There are two original motivations for inherent case (Chomsky 1981:172). The first is the assumption that verbs only have one structural case to assign. Since in a sentence like (7) there is only one verb, there can only be one structural case. The second assumption is that dative case is always assigned to a certain thematic class of NPs, unlike structural case, which can be assigned to different types of NPs provided that they are in the right structural position; for example, nominative case is assigned to deep objects in passives and unaccusatives.

As for the first assumption, recent research on the structure of Double Object Constructions suggests that there is an abstract verbal head in ditransitive verbs, so that there are actually two verbs in (7) - cf. Bowers (1993), Chomsky (1994), Collins and Thráinsson (1993). In the course of the discussion, we will provide evidence against the second assumption and suggest that dative case is structural. First, we show that there are DPs that are not Indirect Objects or experiencers which occupy the same position that 'John' occupies in (7). This is the case in Icelandic, Inuit and Georgian, as we shall see in sections 3, 4 and 5. Second, there are typical candidates for dative case that unexpectedly get absolutive case in Basque, as we shall see in section 5. These two types of evidence receive a natural account under our theory, together with the assumption that dative is a structural case.

Other properties of datives seem to invite a parallel treatment with the nominative/ergative and absolutive/accusative cases. In some languages, such as Basque, the main clause predicate agrees with all three arguments, suggesting a spec-head
relationship between the dative argument and the predicate.\footnote{Precisely on the basis of the triple agreement Cheng and Demirdash (1993) and Laka (1993b) propose analyses of the IP structure of Basque that assume that dative case is structural.} In addition, Indirect objects can be DPs or complements of prepositions, as seen in the alternation between 'I gave John the book' and 'I gave the book to John'. The arguments that bear C1 and C3 also have oblique counterparts: in the case of C1, it is the by-phrase of the passive constructions; in the case of C3, it is the oblique object of antipassives.\footnote{Larson (1988) brings forth the similarities between the dative alternation and passive constructions.} This parallelism, in our opinion, suggests that C2 should be classed together with C1 and C3.

If dative case is structural, we have three choices for the subject of an intransitive verb, as seen below:

\begin{align*}
(8) \text{NPC1 arrive} \\
\quad \text{NPC2 arrive} \\
\quad \text{NPC3 arrive}
\end{align*}

We will show that all three of these choices are instantiated; that is, languages choose one or the other of these cases as unmarked. Concretely, English and nominative languages are C1 languages, Inuit and canonical ergative languages are C2 languages and Basque and the other split intransitive languages are C3 languages.

At this point, we need a theory of clause structure that provides a representation of these three cases. With this aim in mind, we adopt Collins and Thráinsson's (1993) theory, shown in (9):

\begin{align*}
(9) \text{[AgrP1 [TP [AgrP2 [VP1 [TP [AgrP3 [VP2 ]]]]]]]}
\end{align*}

In this theory, each of the available structural cases is checked in the Spec position of an Agreement Phrase. Moreover, V1 and V2 are viewed as two different verbs: V1 is an abstract predicate into which V2 incorporates (see also Bowers 1993 and Chomsky 1994). With respect to standard trees, it includes as a novelty an AgrP between the two VP shells. The need of some functional projection between the two VP shells has been put forward by Koizumi (1993), Travis (1992), and Zagona (1994) among others. Collins and Thráinsson argue extensively that such a complex structure is needed to account for Double Object Constructions (henceforth DOCs) in Icelandic. Their analysis of a DOC is as in (10):
We propose that (9) is the Universal Base. Adapting Belletti and Rizzi (1988) to our present framework, we also assume that the subjects of psych verbs are generated in the Spec of the lower VP. Having laid out our framework, it is time to reconsider Bobaljik's proposal in (3), repeated here:

(3) a. Case X is obligatorily checked  
   b. Obligatory Case Parameter (OCP):
      case X is nominative   nominative lgs
      case X is absolutive   ergative lgs

Obviously, principle (3a) it is too strong, as shown by the fact that in Basque neither ergative nor absolutive are strictly obligatory. We propose to replace it with the following principle:
(11) φ features must be checked

(11) is not a new principle. It is one of the basic assumptions of the theory: DPs are base generated with φ features - which, in our view, include case - and these φ features must be checked against a predicate in an AgrP (Chomsky 1993). This entails that at least one of the Spec,AgrP must be occupied. Thus, (11) is a consequence of (12):

(12) A Spec,AgrP must be filled

Therefore we have forced ourselves to derive our analysis of ergativity from independent assumptions and not from a specially designed principle. In the spirit of a maximally constrained theory, (11) should be preferred.

We further propose that the OCP be replaced by the Unmarked Agreement Parameter:

(13) Unmarked Agreement Parameter (UAP): one of the AgrPs is chosen as unmarked.

The UAP forces subjects of intransitive verbs to check structural case in the spec of the unmarked AgrP if it is at all possible. If not possible, the derivation does not crash; rather, another Spec,AgrP is targeted. As a matter of fact, there is a situation in which the UAP cannot be satisfied. Assume a language that has Agr3 as the unmarked one. In this language, satisfaction of the UAP leads to a violation of the Proper Binding Condition (PBC) (Fiengo 1977) if the subject of the unergative predicate is forced to check case in Spec,AgrP3:

(14)
The PBC has been subsumed under Economy by Collins (1994) and, since Economy is a fundamental principle of grammar, it cannot be violated. As a consequence, a higher Spec,AgrP is targeted. We will see that this is exactly the case in Basque. In summary, AgrP1 is unmarked in nominative languages, so C1 is checked. AgrP2 is unmarked for ergative languages, so C2 is checked. Similarly, C3 must be checked in Basque, if possible. We call these three types of languages Agr1, Agr2 and Agr3 respectively.

3. Agr1 Languages

Let us first look into Agr1 languages, or languages in which Agr1 is unmarked. As a result, subjects of intransitive verbs have their structural case checked in AgrP1. This includes the only argument of an unaccusative verb, of a psych verb or of a passive verb, thus deriving the effects of Burzio's generalization (see Laka 1993, Bobaljik 1993). Passive is simply defined as the construction in which the external theta role is not assigned to Spec,VP1 as usual; the fact that the object has its features checked in AgrP1 is a consequence of the UAP. Subjects of transitives also have their case checked in Spec,AgrP1. Another logical possibility, in which the subject is assigned the case associated with AgrP2 and the object is checked the case associated with AgrP1, would give rise to a minimality violation (cf. Chomsky 1993).

As for the object, several possibilities exist because in principle, two AgrPs are available.4 Evidence that AgrP2 is available in Icelandic is provided by Collins and Thráinsson (1993), who argue that so-called Object Shift in Icelandic moves objects to Spec,AgrP2 - we discuss this below. As for AgrP3, if we assume that Agr3 is the available one in Italian, we can provide a simple account for the well known fact that objects and subjects of unaccusatives can trigger participle agreement but subjects of unergatives can't:

(15)a. Maria già è arribat-a

Maria already has arrived-AGR

---

4 In our analysis of the role that AgrP3 plays we depart from Collins and Thráinsson's conception. In Collins and Thráinsson (1993) Agr3 is an inert or absent category in simple transitive predicates, unable to check case with an object - which forces it to raise to spec,AgrP2. However, we believe that it is possible for a language to check case and features in spec,AgrP3 and for another language to do so in spec,AgrP2. Indeed, we claim that a language may choose to distribute its arguments between the two AgrPs according to some semantic criterion, as we shall see.
b. *Maria già ha lavorat-a  
   Maria already has worked-AGR  
c. Maria già ha lavorato  
   Maria already has worked

Assuming that subjects of unergative predicates are generated in Spec,VP1, (15b) can be accounted for in terms of the PBC, in the manner specified above.

Let us examine object positions more carefully in light of Diesing's (1992) Mapping Hypothesis. According to Diesing, material in the VP is subject to a Novelty Condition (see Heim 1982) and maps into the domain of existential closure. Specific DPs which are not new but presupposed must raise out of the VP. We propose to extend Diesing's Theory to the present framework so that material dominated by VP1 is subject to Existential Closure. Nonspecific objects can't get out of VP1, so they must check $\phi$ features in Spec, AgrP3. Specific objects can check $\phi$ features in Spec, AgrP3 and scramble up, or they can check features in Spec, AgrP2. That is, only specific objects can check case in Spec, AgrP2, though both types of objects can do so in Spec, AgrP3.

This hypothesis gives us an interesting prediction: since specific objects and indirect objects may occupy the same syntactic position - Spec, AgrP2 - non scrambled specific objects could have syntactic and/or morphological characteristics that would make them resemble indirect objects rather than non-specific objects. We have found that this prediction is confirmed in Icelandic and Inuit.5 We postpone the discussion of Inuit for the next section to focus on Icelandic here.

5We have found two other languages in which this prediction seems to be confirmed too. In Hindi, the suffix -ko is attached to both indirect objects and specific objects:

(i)  a. Hum kitab-ko kharidte hain  
     We a/the book buy aux  
     'We buy a/the book'  
     b. Ram Mary-ko ek kitab dehta hai  
     Ram to Mary one book give aux  
     'Ram gives Mary one book'  
     (Ashish Malhotra p.c.)

Mahajan (1992) claims that specific objects in Hindi raise to spec,AgrOP. Given their morphological similarity with datives, we believe it is plausible to assume that they raise to spec,AgrP2.

Additionally, in Spanish specific human objects are preceded by the particle a, which also marks indirect objects:

(ii) a. María vio a Juan en una cervecería  
     María saw a Juan in a beer-bar  
     'María saw Juan in a bar'  
     b. María le dio a Juan un libro  
     María cl/dat gave a Juan a book  
     'María gave John a book'
In Icelandic specific objects and indirect objects pattern together with respect to the syntactic phenomenon of Object Shift. It is a well known fact about Icelandic that non-specific objects cannot shift (Holmberg 1986). Moreover, Holmberg's generalization - a restriction on Object Shift according to which, roughly put, DPs cannot shift if there is an auxiliary present, see Holmberg (1986) - applies to both specific objects and indirect objects. Examples are in (16). *Ekki* is taken to be the left-most edge of the VP, so everything to the left of it is out of the VP. (16a) and (16b) show how specific objects can shift. (16c) and (16d) show the same thing for indirect objects. Finally, (16e) and (16f) shows that, when there is an auxiliary, shift is not possible, either for indirect objects or for plain objects:

(16) a. Jón las ekki baekurnar  
   Jón read not the books  

b. Jón las baekurnar ekki  
   Jón read the books not  
   'Jón didn't read the books'  

c. Eg lána ekki Maríu baekurnar  
   I lent not Maríu the books  

d. Eg lána Maríu baekurnar ekki  
   I lent Maríu the books not  
   'I didn't lent Maríu the books'  

e. *Jón hefur leisið baekurnar ekki  
   Jón has read the books not  
   'John has not read the books'  

f. *Eg hef lánað Maríu ekki baekurnar  
   I have lent Maríu not the books  

(Collins and Thráinsson 1993)

Collins and Thráinsson have argued that object shift moves the DP to Spec,AgrP2. Following, Diesing, we assume that the specificity effects are due to the DP being out of VP1.

Before we end this section, we would like to mention another way of distributing objects in the two AgrPs, one which is relevant to our subsequent discussion of Basque. In Spanish, objects bearing a recipient theta role check case in Spec,AgrP2, the rest in Spec,AgrP3.
(17)  a. Juan loc3 vio  
      Juan him-saw  
b. Juan loc2 robó  
      Juan him-robbed

This distribution is permissible because the UAP has been satisfied by the subject and no UG principle is violated. This pattern will be relevant for our discussion of Basque.

4. Agr2 Languages

4.1 Inuit

In this section, we examine Agr2 languages, which are comprised of the 'canonical' ergative languages such as Inuit. In this type of language, the subjects of intransitives all get the same case, which is different from the case of transitive subjects. We suggest they get their case in Spec,AgrP2. Examples of intransitive predicates are in (18a) and (18b).

(18)  a. Jaani-Ø tikit-tuq  
      Jaani-Ø arrive-3rd  
      'Jaani arrives'  
b. Arnaq-Ø imngiq-tuq  
      A/the woman-Ø sing-3rd  
      'The/A woman sings' [Bok-Bennema 1991:47]

Transitive predicates can distribute their cases in two ways. If the object raises to Spec,AgrP2, then the subject must raise to Spec,AgrP1 because no other position is available. However, there is another logical possibility; if the subject raises to Spec,AgrP2, then the object can only go to Spec,AgrP3 or receive oblique case. This is what is referred to as antipassive construction, which can be defined as the mirror image of the passive. In the passive, the object checks the unmarked case in Spec,AgrP1, whereas in antipassives, the subject does so in Spec,AgrP2. Notice that the UAP correctly derives the fact that passive constructions cannot exist in ergative languages and that antipassives cannot exist in nominative languages (cf. Laka 1993).

Examples of Inuit antipassives are in (19c), which is a transitive sentence, and (19d), its antipassive counterpart:
In (19c) the subject is assigned ergative case and the object is assigned the zero morpheme that is called absolutive in the literature, and which we will simply call C2. Sentence (19d) is an example of the antipassive structure, where the subject gets C2 and the object gets the -mik morpheme. A note is in order concerning the suffix -mik. It is polysemic and it is sometimes described as instrumental or comitative. In (20) is an example of its comitative use:

(20) ila-y-nik        niri-qattaq-p-uNa
     my relative-mik(pl) I-eat-usually
     'I eat with my relatives'            [Johnson 1980]

On the basis of this type of example, it is usually assumed that -mik is uniformly an oblique case. If so, the Inuit antipassive would be a construction in which the object is demoted to an oblique relation. However, Bittner (1988) and Bok-Benema (1991) argue that Inuit antipassives follow a nominative case system and that -mik is an accusative case marker in antipassives. We find this proposal plausible, since, as Johnson (1980) says, (19d) does not mean 'a/the man sees with the woman' any more than (20) means 'I eat my relatives'. If Bittner and Bok-Benema are right, then it follows that there are three structural cases in Inuit, and this can only be accommodated in a configuration like the one we are arguing for in this paper. The transitive and the antipassive constructions are depicted below, in (21):
Finally, Inuit DOCs provide a striking confirmation for our proposal. If the subjects of intransitives and the objects of transitives check their case in AgrP2 rather than AgrP1 or AgrP3, then we predict that the indirect object of DOCs should get the same case. This is precisely what happens: in (22) the indirect object exhibits the zero morpheme that we claim to be associated with AgrP2.  

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(i) anguti-up titiraut-Ø nutarar-mut tuni-vaa
a/the man the pencil-Ø the child-all give-3rd:3rd
'the/a man gives the pencil to the child'

-mut has other uses and seems to have a general sense of directionality - see the discussion in Fortescue (1984). The literature assumes this is an oblique case.
(22) anguti-up titirauti-mik nutaraq-% Ø tuni-vaa
man-ERG the pencil-\textit{mik} the child-Ø give-3rd:3rd
'A/the man gives the child the pencil' \footnote{Johnson, 1980:12,16}

Another interesting prediction follows from our analysis. Recall that we proposed that objects in Spec,AgrP2 should get a specific interpretation because they are out of existential closure. Since we are claiming that absolutive case is checked in Spec,AgrP2, it follows that absolutive objects should have only a specific interpretation. Again this prediction holds, providing further support for our analysis. As Bittner (1988,1994) has noticed, objects bearing the -Ø case must be interpreted as specific. The parallel between the behavior of Icelandic and Inuit objects is striking and certainly calls for a unified analysis, which we provide by proposing that specific objects raise to Spec,AgrP2.\footnote{As Bittner shows, the absolutive object must take scope over all the sentential operators. The phenomenon is then more complex than a mere specificity effect because, as Enç (1991) remarks, a DP can be specific without taking scope over \textit{all} sentential operators. However, our claim that absolutive objects are specific still holds because specificity is a condition sine qua non for wide scope.}

4.2 Other Agr2 Languages

Iñupiat is another Eskimo language. Notice that it confirms the predictions of our analysis: since it is a canonical ergative language, it has AgrP2 as unmarked, and therefore the -Ø morpheme is checked with the subjects of intransitives and antipassives, objects of transitives and indirect objects of ditransitives.

(23) Iñupiat

a. Angun-% Ø aullaq-tuq Singiagrunq-mun
the man-Ø go-3rd Singiagruk-Allative
The man goes to Singiagruk

b. Angun-% savak-tuq tirrag-mi
The man work-3rd beach-at
The man works at the beach

c. Mari-m John-% qiñi-gaa
Mary-Erg John-Ø see-3rd:3rd
Mary sees John
d. Angun-Ø umiag-mik qiŋiq-tuq tirrag-mi
   The man a boat-mik see-3rd the beach-at
   The man sees the boat at the beach

e. Mari-m Pangalik-Ø qaitchu-uti-gaa maning-ñik
   Mary-Erg Pangalik-Ø gave-ben-3rd:3rd money-ñik
   Mary gave Pangalik the money [Seiler, 1978:1-11]

To give further support to our analysis, we have checked our predictions with another canonical ergative language which is not genetically related to Eskimo, namely Tzotzil (Aissen 1987, Haviland 1978). In Tzotzil, ergativity is not seen in the case marking of the DPs but rather in verbal agreement. So in (24a,b) we see that subjects of intransitives all share the same set of agreement markers on the verb. (24c) is an example of an antipassive, where the subject governs the verbal agreement marker that would normally be associated with the object. Finally, (24d) is a DOC and we can see that the indirect object triggers object agreement.

(24) Tzotzil
a. c- i- bat
   ASP-ABS1st - go
   I'm going
b. Ø- k'opoj-em
   ABS3rd-speak - perfect
   S/he has spoken
c. i- Ø- s- mil Xun li Petul e
   asp-ABS3rd-ERG3rd-Kill John the Peter
   Peter killed John
d. Petul i- Ø- mil-on (li Xun e)
   Peter asp-ABS3rd-kill-apas (the John)
   Peter killed (John) [Haviland 1978:255,272]
e. l- i- y- ak'-be tak'in li Sune
   Asp-ABS:1st ERG:3rd give-suff money the Sun
   Sun gave me the money [Aissen, 1987:104-124]
Our conclusion is that the case traditionally labeled 'absolutive' is the case checked at Spec,AgrP2. For this reason, we have chosen to refer to these as 'dative' languages, in the belief that our findings may be robust enough to warrant this departure from tradition.

5. Agr3 Languages

5.1 The Basque Case System

In this section we will show that the case pattern of Basque is different from Inuit and the other well behaved ergative languages. We will further show that this difference is a consequence of setting the UAP on AgrP3 rather than AgrP2. Since absolutive seems to be the unmarked case for this type of language, we call them absolutive languages.

First, we shall investigate the mechanics of an Agr3 language. We predict that since the lowest AgrP is the unmarked one, then objects, unaccusative subjects and subjects of intransitive psych verbs should check case in Spec,AgrP3 and get absolutive case. We can see this prediction is borne out in (25):

(25) a. Edu-k liburu-a-∅ erosi du
   Edu-ERG book-det-ABS buy aux
   Edu has bought the book

   b. ni eseri naiz
   I-ABS sit aux
   I sat

   c. Ni kezkatzen naiz
   I-ABS worry aux
   I worry

In contrast, the subjects of unergatives, which are arguments generated in the spec of the upper VP, cannot check their case features in Spec,AgrP3. In order to do so, they would have to lower, in violation of the PBC. Consequently, the subjects of unergative verbs need to target a higher AgrP. Although two AgrPs are available, these subjects always check their features in Spec,AgrP1, and check C1, called ergative case. This can be seen in example (26) below:

(26) Makina hon-ek funtzionatu du
    machine this-ERG function aux
    This machine has functioned
Regarding subjects of transitive verbs, two possibilities must be distinguished; subjects generated in the Spec of the upper VP go to Spec,AgrP1 to get C1. Subjects of psych verbs, generated in the Spec of the lower VP, go to Spec,AgrP2 to get C2, referred to as dative case.

(27)  a. Ni-ri zure oinetako-a-k-ø gustatzen zaizkit  
     I-DAT your shoes-det--ABS like aux  
     I like your shoes  
  b. Edurne-k liburu-a-ø erosi du  
     Edurne-ERG book-det-ABS buy aux  
     Edurne has bought the book

A remaining question is why the arguments generated in the Spec of the upper VP cannot go to Spec,AgrP2. It seems that in Basque, spec,AgrP2 is reserved for the subjects of transitive psych verbs. Basque, then, imposes a language-specific condition on the use of AgrP2, which can be done because it does not violate any principle and the UAP is satisfied by filling Spec, AgrP3. Thus, AgrP2 in Basque and Spanish (cf our example (17)) has identical properties; it is reserved for the same class of arguments, generated in the Spec of the lower VP.

Thus, Basque distributes its subjects, sending some of them to Spec,AgrP2, and others to Spec,AgrP1. This is not the only possibility available. The Georgian Perfective Series has an unusual split intransitive grammar (see Harris 1981, King 1994) in which objects and subjects of unaccusatives get what we would call absolutive case but subjects of transitives and of unergatives get dative case. This puzzling fact of Georgian grammar follows from our assumptions: given a choice between two AgrPs, this grammar sends its subjects to one of those positions, Spec,AgrP2.

Compare (25c) with (27a). Both the subject of "worry" and the subject of "like" are candidates for the position Spec, AgrP2. However, only the transitive subject gets dative case; this shows that the UAP is active in Basque and overrides the language specific preference for subjects of psych verbs to get their case checked in Spec, AgrP2. It further shows that dative is a structural case in Basque, in the sense that a candidate for dative case can only get it if the UAP is satisfied by some other argument. If dative were inherent, the UAP or any other structural condition should be irrelevant.
Now, recall what happened in Spanish. In Spanish, subjects of psych verbs, transitive or intransitive, must get nominative case, that is, C1. Nevertheless, objects with a recipient theta role get dative case, or C2. Notice that Basque is the mirror image of Spanish. In Basque, once absolutive case is checked by the object, subjects can be distributed in a dative class and an ergative class. In Spanish, subjects get nominative case and objects can be distributed in two classes: dative and accusative. As far as we know, this parallelism has not yet been noticed, and receives a natural account under our analysis.

Consider then the picture that emerges from our analysis. We have an inviolable principle, the PBC (ultimately, Economy). The UAP, a parameter that specifies unmarkedness with respect to several logical choices, can be overridden if it conflicts with this principle: we have seen an example of this when subjects of Basque unergatives raised to Spec,AgrP1 instead of lowering to Spec,AgrP3 (as in (26)). Finally, language particular constraints can be satisfied if they do not conflict with any of the above constraints. For example, the subject of an intransitive psych verb in Basque gets absolutive case because of the requirements of the UAP (as we saw in (25c)). However when the psych verb is transitive, the object gets absolutive to satisfy the UAP and the subject gets dative (as in (27a)). This shows that the requirement of the Basque language to send the psych arguments to spec,AgrP2 is only obeyed if the UAP has already been satisfied. To sum up, in our analysis there are inviolable principles, parameters that can only be overridden by those principles, and language particular specifics that fill in the gaps.

Our analysis makes further predictions with respect to DOCs in Basque. We predict that case distribution in DOCs should be very different from what is found in Inuit. In essence, since indirect objects in Basque get C2 and subjects of unaccusatives and objects of transitives get C3, it follows that indirect objects and direct objects should exhibit a different morphology. This prediction again is confirmed, as can be seen in example (28), and you are invited to compare this example with the Inuit and Tzotzil counterparts in (22) and (24e):

(28) Basque:
    Zu-ek guru liburu-a-k eman dizkiguzue
    You-ERG us-DAT book-det-ABS give have
    You guys have given us the books
5.2 The Basque Voice System

As we mentioned at the beginning of this paper, a number of linguists have assumed that split-intransitive systems are a hybrid of the other two systems, for instance Dixon (1994), (though Mithun (1991) and Addis (1993) are notable exceptions), while others argue that they are really ergative (Laka 1993, Bobaljik 1993). The hybrid view entails that since nominative languages have a passive voice in which the object gets C1 and that so-called ergative languages have an anti-passive voice in which the subject gets C2, then we should expect that Basque would have both a passive and an antipassive voice. On the other hand, if split-intransitive languages are actually ergative we would expect Basque to have an anti-passive voice but not a passive one. In fact, Basque has none of the above. The Basque passive voice is formed by detransitivising the auxiliary so that it only agrees with the object and by assigning the subject an ablative case; the object remains in the absolutive case, contrary to what happens in a nominative language:

(29) a. Mutila-k liburu-ak erosi ditu
    boy-ERG books-ABS buy aux
    'The boy has bought the books'
b. Mutila-k liburu-ak erosi dira
    boy-ERG books-ABS buy aux
    'The books are bought by the boy'

That antipassives do not exist in Basque has been noted before by the literature (Ortiz de Urbina 1989, Laka 1993). In (30) is an example of a failed antipassive:

(30) *Ni-Ø (liburu-z) erosi naiz
    I-ABS book-INST buy aux
    'I bought a book'

The absence of both passive and antipassive voices in Basque is predicted by our analysis. Passives should not exist because the UAP is set on Agr3 and raising an object to Spec,AgrP1 would violate it. Since no principle forces this raising of the object to Spec,AgrP1, it cannot happen. As for antipassives, they would entail a violation of the PBC in Basque. The reason is clear: if antipassive is the construction in which the subject gets the unmarked case, then a Basque antipassive would entail lowering of the argument generated in the Spec, VP1 to Spec, AgrP3.
Thus, we have fully derived the Case and Voice systems of the three types of languages we are exploring without adding anything to our Theory of Grammar except the UAP.

5.3 Other Agr3 Languages

To further confirm the predictions of our analysis, we present some Georgian sentences in (31). In the Georgian Aorist Series, subjects of unaccusatives and of unergatives get different cases, as in Basque in all tenses. This is seen in (31a,b). The morpheme -i is the absolutive marker. (31c) is an example of a transitive sentence. In (31d) we see that the indirect object does not get the -i case, but a very different one. Harris (electronic communication) has informed us that there is no antipassive in Georgian, exactly as our theory would predict.

(31) Georgian
   a. namcvar-i gamoczva
    pastry-ABS baked
   b. Nino-m daamtknara
    Nino-ERG yawned
   c. Ia-m pova satval-i
    Ia-ERG found glasses-ABS
   d. Nino-m acvena surateb-i Gia-s
    Nino-ERG showed picture-ABS Gia-DAT
    Nino showed Gia the pictures [Harris, 1982]

Finally, we have checked our predictions with Lakhota, another split-intransitive language with the invaluable help of David Rood, p.c. (see Legendre and Rood 1992). We found out that there is no antipassive in Lakhota. There is a prefix wa- that affects a transitive clause such that the object disappears but, crucially for us, the suffix that is coreferenced with the subject does not vary. This is shown in (32). In (32a) the verb thexila 'to love' has the affix -wa-, coreferenced with the omitted subject. In (32b), the prefix wa- makes the sentence intransitive without affecting the coreference with the subject:

(32)  a. the-wa-xila
    'I love her/him/it'
   b. wa-the-wa-xila
    'I am stingy' (I love stuff so much I won't give it away)
This follows naturally from our theory if -wa- is connected to Spec,AgrP1.

As for DOCs, Lakhota offers an interesting variation on the patterns we have found so far. The indirect object is coreferenced on the verb as if it were the object but the object becomes an adjunct (Rood p.c.) as seen in (33). We suggest that this pattern can be analyzed as in (34), where the Indirect Object occupies Spec,AgrP3 and the object is adjoined:

(33) wowapi ki chi- c?u
    book the 1SU/2OB give
    'I give you the book'

(34)

In conclusion, since we have found the same patterns in three languages that are genetically unrelated, we conclude that the predictions derived from our analysis hold.
6. The Structure of Basque Unergative Predicates

As we mentioned in the first section of this paper, Bobaljik (1993) and Laka (1993) claim that Basque's case system is exactly like that of Inuit, that is, that Basque is an ergative language. In order to account for the fact that the subjects of unergative predicates get ergative case instead of the expected absolutive, they argue that these predicates are actually transitive so that there is a second argument that receives absolutive case. This assumption also plays an important role in Bittner and Hale's (1994) theory of ergativity. Therefore, it seems relevant at this point to discuss the evidence presented for the transitive nature of unergatives. Our conclusion is that it is scanty. More importantly, none of these scholars has shown why the syntactic structure of Basque or Georgian unergatives is transitive, whereas that of Inuit is intransitive, an assumption which needed to be proven. There are two types of unergative verbs in Basque; we will consider them in two separate subsections.

6.1 Type 1 Unergatives

The first type, exemplified in (35) is a garden variety unergative, exemplified with dantzatu here.

(35) a. Emakume-a-k dantzatu du Type 1
     woman-det-ERG danced aux
     'The woman danced'

Laka points out that dantzatu' is a verb that takes an optional object, as shown in (36). From this evidence, she concludes that in (35) there is a cognate null pro. in dantzatu and in all the other type 1 unergatives.

(36) Emakume-a-k dantz za hau-ø dantzatu du
     woman-det-ERG dance this-ABS danced aux
     The woman danced this dance

However, not all type 1 unergatives can have a cognate object, as pointed out by Addis (1989) and Martínez (1993). For instance, in Basque a star can't sparkle a sparkle, even though the subject gets ergative case, as shown in (37):
Addis cites some twenty of these verbs, including: *korritu* 'run', *funtzionatu* 'work' (said of a machine), (from Addis 1993). Some of these words are recent borrowings from Spanish - like *bazílatu* 'flirt' (from Martínez 1993) -, indicating that this type of structure is productive. These verbs pose the following problem: why should they license a null pro but never an overt DP?

However, for the sake of argument, assume that evidence is found that there is an empty complement in unergatives that receives case. In this case, the question is why do the subjects of unergative predicates in Inuit get absolutive case? Why should pro in Basque, Georgian and Lakhota check case but not in Inuit? Our conclusion is that the proposal of a null complement in unergative predicates fails to distinguish between these two types of languages and doesn't capture the crucial differences in their respective grammars.

### 6.2 Type 2 Unergatives

Type 2 unergatives are light verb constructions. They are composed of the verb *egin* 'do' and a bare noun. With 'bare' it is implied that it does not have a determiner, which would normally be obligatory in this context. An example is in (38):

(38) Zu-k onto lán egin duzu Type 2
    You-ERG well work do aux
    'You have worked well'

Laka (1993) claims that the bare noun receives absolutive case which in Basque is a zero morpheme. She further claims that it is not incorporated but is an independent argument: thus, it is an eligible case checker, which explains why the subject gets ergative case. In her analysis, the bare noun is an NP in a VP internal position and checks absolutive case without moving to Spec,AgrOP. This is represented in (39a). Instead, we argue that the
bare noun is incorporated, as represented in (39b). If this noun is incorporated to the verb, it is not clear why the subject gets ergative case:

\[(39) \quad \begin{align*}
\text{a.} & \quad \text{Laka's proposal} \\
\text{b.} & \quad \text{Our proposal}
\end{align*}\]

Laka follows Hale and Keyser (1993) in arguing that unergative predicates are underlyingly or pre-syntactically transitive and the complement incorporates into the verb in the normal case. Further, she proposes that there is a parameter affecting unergative predicates such that in languages like English the complement incorporates whereas in languages like Basque it does not. Instead, we argue that the complement of a Basque unergative verb incorporates at a later stage than it does in English. Thus, incorporation occurs in both languages, but differs as to when it takes place. Since familiar parameters have been defined in similar terms - cf.: verb movement before or after spell-out (Pollock 1989), wh-movement before or after spell-out (Huang 1982) - our proposal fits naturally in the Principles and Parameters approach, whereas Laka's cannot be so easily accommodated.

Before we discuss our arguments for incorporation of the bare NP, notice that there is a class of examples that Laka does not discuss and that pose a serious problem for her approach. These examples are predicates formed of an adverb + egin ('do') and the subject of the sentence is in the ergative case:

\[(40) \quad \begin{align*}
\text{a.} & \quad \text{Txoria-k hega-z egin du} \\
& \quad \text{bird-ERG by flying do aux} \\
& \quad \text{'the bird has flown'} \\
\text{b.} & \quad \text{Oinazez bizi arren, aurrera egin zuen andra alargun hura-k.} \\
& \quad \text{in pain live although forward do aux woman widow that-ERG} \\
& \quad \text{'although she was in pain, that widow kept going'} \quad [\text{Aulestia, 1989:71}]}
\]
Since adverbs do not get any case whatsoever, it is hard to explain why the subject does not get absolutive case, as Laka's theory would predict.

Let us now present our arguments for incorporation of the NP. First, this bare noun cannot be used to answer a question, something that any other constituent can do. For example, the proper answers to (41a) are (41b) or (41c), but not (41d):

(41)   a. Zer egin duzu?
       What do aux-you
       'What have you done?'
   b. Lan egin
       work do
       'work'
   c. Lan-a
       work-det
       'a work (or job)
   d. ?? Lan.
       work
       'work' [Martínez, 1993:26]

(41d) suggests that the bare noun is not an independent syntactic constituent.

Two of these bare nouns cannot be conjoined, as seen in (42). This behavior is reminiscent of another well known example of adjoined arguments: Romance pronominal clitics. In (43a) we see that the Spanish object pronouns cannot be conjoined, whereas their English equivalents can.

(42)   *lan eta lo egin dut
       work and sleep do aux
       'S/he works and sleeps'

(43)   a. *Tu lo y la viste
       You him and her saw
   b. You saw him and her
The ungrammaticality of (42) can naturally be accounted for if the bare nouns lan and lo are incorporated into the verb.\(^8\)

Additionally, this bare noun has very limited mobility, in contrast with a normal constituent, which can be scrambled freely. In (44) we see how the DP lana, meaning 'work + det' can be scrambled to virtually any position.

\[(44)\]
\[a.\] Har-k lan-a-ø ondo egin du
   s/he-erg work-det-ABS well do aux
   'S/he did a work'
\[b.\] Lan-a hark ondo egin du
\[c.\] Egin du ondo hark lan-a
\[d.\] Hark ondo egin du lan-a

In contrast, in (45) we see that the bare noun cannot be moved freely and in particular, that nothing can stand between it and the verb. In fact, the bare noun can only occur in two positions: either adjacent to the verb or to the auxiliary.

\[(45)\]
\[a.\] Zu-k ondo lan egin duzu
   You-ERG well work do aux
   You have worked well
\[b.\] Nor-k egin du lan ?
   who-ERG done aux work
   'Who has worked?' ( Who has done work?) [Laka 1993:153]
\[c.\] Oso ondo egin duzu lan.
   very well done aux work.
   'You have worked very well.' [Laka 1993:153]
\[d.\] *?Lan exhean egiten dut.
   work home -at do aux
   'I work at home' [Laka 1993:163]

\[\text{\(^8\)Martínez-Arbeláiz (p.c.) points out that (i) is grammatical:}\]
\[(i)\] farre eta iseka egin dut
   laugh and joke do aux
   'We laugh and make merry'

We are not aware of any other examples. We believe that 'farre eta iseka' should be understood as an idiom in this context and that the grammar considers it a single NP. The important point is that it is not productive to conjoin bare nouns, which suggests an adjunction analysis of the bare noun to the verb.
e. *Lan oso ondo egin dute.
   work very well do they aux
   'They worked very well'

f. *Egin du Bilbon lan
   do aux in Bilbao work
   S/he worked in Bilbao'

Laka uses (45 a,b) as argument that this bare noun can move, hence that it is not incorporated. However, we believe it is plausible to assume that the bare noun has two possible adjunction sites. In this respect, its behavior is again reminiscent to that of Romance clitics. In (46), we see that in some tenses the pronominal clitic can attach to the tensed auxiliary or to the non-tensed main verb:

(46)   a. Juan la está comprando en la tienda
   b. Juan está comprándola en la tienda
       Juan is buying it in the shop

Laka provides two arguments for her claim that the bare noun gets absolutive case; we will consider them in turn. She points out that the bare noun may receive partitive case in a negative sentence, as shown in (47) (partitive case is the suffix -ik):

(47)   a. Lan egin dut
       work do aux
       'I have worked'
   b. Ez dut lan-ik egin
       neg aux work-part do
       'I haven't worked'                         [Laka 1993:153]

She assumes that partitive case is the negative counterpart of absolutive case:⁹ arguments that would bear dative or ergative case in a positive sentence cannot get partitive in a negative sentence. She concludes that the bare NP gets partitive case in a negative sentence, and therefore the bare NP should get absolutive case in a positive sentence.

---
⁹ It has other functions, irrelevant to our discussion.
However, it is not clear to us that (47b) is the counterpart of (47a). As a matter of fact, it could be the counterpart of (48), where instead of the light verb construction we have a full DP in a normal transitive predicate:

(48) Lana egin dut
    work-det do aux
    'I have done the/a work'

Moreover, (47a) can be negated leaving the bare noun unchanged:

(49) Ez dut lan egin
    not aux work do
    's/he did not work'

Therefore, (47) does not give us conclusive evidence that the bare noun gets absolutive case. What is needed is an example of a light verb that does not have a full DP counterpart. (50) and (51) provide such examples:

(50) a. Abokatu-Ø egin zen
    lawyer do aux
    'he became a lawyer'
    b. *Abokatu-a egin zen

(51) a. Irakazle-a-k alde-Ø egin du
    teacher-det-ERG region do aux
    'The teacher ran away'
    b. *Irakazleak alde-a egin du

Laka's prediction is that since the bare nouns in (50a) and (51a) have absolutive case they should be able to exhibit partitive case in a negative sentence. However, this prediction does not hold, as can be seen in (52) and (53):

(52) a. Ez zen abokatu-Ø egin
    not aux lawyer do
    'He didn't become a lawyer'
b. *Ez zen abokatu-rik egin

(53) a. Irakasleak ez du alde egin.
    teacher-Erg neg aux region do
    'The teacher hasn't run away'  [Martínez, 1993:31]

b. * Irakasleak ez du alderik egin.

Our conclusion is that bare nouns do not inflect for partitive in the negative. Therefore, (47b) is the counterpart of (48) and not of (47a). We claim that this is strong evidence that bare nouns do not have any case morphology whatsoever.

Finally, Laka shows that an absolutive argument can't be added to the egin+bare NP predicates. This is shown in (54):

(54)  *Amets hau amets egin dut
       Dream this dream do aux
       I have dreamt this dream  [Laka, 1993:154]

Laka argues that the reason for the ungrammaticality of (54) is that the bare noun gets absolutive case and, absolutive being a structural case, there cannot be two of those. The ungrammaticality of (54), however, admits an alternative explanation: though the bare noun does not receive case, it does get a theta role from the verb and, consequently, there is no theta role left for another argument. In this respect, the ungrammaticality of (54) is close to the ungrammaticality of (55a), as compared to the well-formedness of (55b):

(55)  a. *I work with a hammer with a screwdriver

b. I work with a hammer with my brother

We conclude that there are no convincing arguments to claim that the bare noun gets case. On the other hand, since the bare NP does not behave as a constituent should behave, there are good reasons to claim that this is an instance of noun incorporation. If it is incorporated, it is not clear to us whether it can check case or not. The claim that unergative predicates have a complement that receives absolutive case is unsubstantiated.
7. Functional Architecture and Split-Intransitive Languages

In this section, we discuss the theory of clause structure that we have chosen and compare to others that have been proposed by the literature. In particular, we will show that a simpler structure, or a structure without VP internal functional categories does not give us the results we need. Let us first consider the structure proposed by Chomsky (1991,1993):

\[(56)\]

\[
\text{AgrP1} \\
\text{TP} \\
\text{AgrP2} \\
\text{VP} \\
\text{DP} \quad \text{DP}
\]

It is clear that this structure can't provide an analysis of split-intransitive languages under the set of assumptions set up in section 2: in effect, if Agr2 is the unmarked one, what forces the subjects of unergative predicates to move to Spec,AgrP1? if AgrP1 is, why do subjects of unaccusative predicates check their case in Spec,AgrP2? Moreover, (56) does not incorporate the well motivated assumption that dative is a structural case.

Cheng and Demirdash (1993) and Laka (1993b) do propose a clause structure for Basque in which dative is treated like nominative or absolutive, and there are three AgrPs, but all of them are outside the VP. Their proposed structure is as seen below, where MP=Modal Phrase:

\[(57)\] [TP [AgrP DP-Erg [ MP [ AgrP DP-Dat [AuxP [ AgrP DP-Abs [ VP ]]]]]]]

This type of structure captures the aforementioned insight. However, it presents two problems. First, it is in no better position than (56) to analyze split-intransitivity. Second, if the Internal Subject Hypothesis is assumed, (57) would give rise to a massive violation of minimality.\(^{10}\) Notice that this second problem does not arise in the structure adopted for

\(^{10}\) This problem is acknowledged by Laka and Cheng and Demirdash. They suggest that arguments are generated in a position external to the VP.
our analysis, given the notion of equidistance, as discussed in Collins and Thráinsson (1993) extensively.

Koizumi (1993) adopts the simple structure of Chomsky (1993) but proposes that the lower AgrP be generated between the two VPs. This solution can account for split-intransitive languages, as shown in (58a), but it does not account for canonical ergative languages, because it would force the subject of an unergative to lower to Spec,AgrP2 (58b):

(58)  
\[ \text{a.} \]
\[
\begin{array}{c}
\text{AgrP1} \\
\text{TP} \\
\text{VP} \\
\text{DP} \\
\text{AgrP2} \\
\end{array}
\]
\[
\text{Basque unaccusatives and unergatives in Koizumi's model}
\]

\[ \text{b.} \]
\[
\begin{array}{c}
\text{AgrP1} \\
\text{TP} \\
\text{VP} \\
\text{t} \\
\text{AgrP2} \\
\text{DP} \\
\text{VP} \\
\end{array}
\]
\[
\text{Inuit unergatives in Koizumi's model}
\]

Therefore, it is clear that we need both the structure represented in (57) and that in (59), the first one to represent Inuit and the second one for Basque. Collins and Thráinsson's (1993) theory provides with exactly the right amount of structure that we need.

Finally, we would like to discuss Murasugi's (1992) approach, which is virtually the opposite of Bobaljik's though incorporating many common assumptions. Murasugi does not assume AgrPs; instead, she proposes a functional structure that includes a TP on the top that selects for a Tr(ansitive Phrase). Murasugi argues that ergative languages raise the object to Spec,TP and the subject to Spec,TrP, giving rise to nested paths:
(59)  a.  
\[
\begin{array}{c}
\text{TP} \\
\text{DP} \\
\text{TrP} \\
\text{DP} \\
\text{VP} \\
\end{array}
\]

Inuit transitive predicates in Murasugi's model

b.  
\[
\begin{array}{c}
\text{TP} \\
\text{DP} \\
\text{TrP} \\
\text{VP} \\
\end{array}
\]

Inuit intransitive predicates in Murasugi's model

In intransitive predicates, Tr is inert, so the subject raises to Spec,TP, obtaining the same case as the object. As for nominative languages, the arguments in transitive predicates move forming crossing paths in the familiar way and intransitives behave just like in ergative languages. Murasugi's, like all the other proposals, runs into trouble with split intransitive languages. That is, it would force the subjects of Basque unergative verbs to go to Spec,TrP, rather than Spec, TP (also see fn 1).

8. Conclusions

In this paper, we have provided a structural analysis for the case pattern of split-intransitive languages. Our analysis is based on parametric variation in the selection of an unmarked AgrP to check $\phi$ features, a parameter which we refer to as the UAP. Split intransitivity has been shown to be an independent case parameter, the result of choosing Agr3 as unmarked, and not a hybrid of the other two, which accords with the intuitions of some linguists who have worked on the topic (see particularly Mithun 1991). Crucially, our analysis rests on the assumption that there are three, and not two, structural cases, and on our adopting a structure that includes VP internal functional categories, as that proposed by Collins and Thráinsson (1993) for DOCs in Icelandic. Insofar as it is successful, our analysis provides independent corroboration for Collins and Thráinsson's approach.

10. References


Furniture and Equipment*

David Parkinson

1. Introductory remarks

In the program of research proposed in Hale and Keyser (1991), a serious attempt is made to reduce regularities in the syntactic behaviour of lexical items to principles stated at a lexical level of representation, which they dub l-syntax, and which is distinct from, but guided by many of the same principles as, the traditionally assumed levels of D-Structure, S-Structure, PF and LF. Since recent developments in the Principles and Parameters Theory, particularly the Minimalist Program (Chomsky 1991, 1992; Chomsky and Lasnik 1993; Lasnik 1993) have as central goals the elimination of conceptually unjustified levels of representation (specifically S-Structure and D-Structure) and the reduction of diverse phenomena such as movement and locality relations to more general principles of Economy and Full Interpretation, the postulation of a separate level of lexical representation can be considered a move away from arguably well-motivated principles of minimalism in syntactic theory, and one to be avoided unless demonstrably necessary. Certain principles tentatively proposed by Hale and Keyser to be operative in l-syntax but not in the syntax “proper” (i.e., that VPs are not predicates until D-Structure), as well as processes of readjustment between l-syntax and D-Structure (i.e., tree-pruning), suggest that this level of representation (as they characterize it) must be considered distinct from other levels of the syntax, at least pending a demonstration that these level-specific conditions are reflexes of more general Economy Principles (or can be otherwise reduced to such principles). At any rate, the disappearance of D-Structure and S-Structure as syntactic levels imposing particular conditions on representation does not directly imperil this program of research, since it may in fact turn out to be needed as a third interface level, complementing LF and PF by providing an interface with the lexicon. Better yet would be a demonstration that the principles by which lexical structure is mapped into the syntax can be maintained without forcing the postulation of a separate level of representation.

This paper presents a brief discussion of certain facts of verbal alternations in English,

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N. Adisasmito-Smith and T. Doeleman (eds.),
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and should be regarded as a preliminary and tentative attempt to incorporate Hale & Keyser's conditions on lexical representations into a program which is currently receiving a good deal of theoretical attention, namely the encoding in syntactic terms of much of what has been considered to result from lexical information (see Baker's (1988) Uniformity of Theta Assignment (UTAH) principle, and much work dedicated to the formalization of the notion of thematic hierarchy, particularly with regard to double object constructions: Larson 1988, Marantz 1992, Baker 1993, Collins & Thráinsson 1993, Kitagawa 1994). Although I will not be focusing here on double object constructions, the facts under discussion bear some relevance to the issues raised by such constructions, in that they aim at a principled means by which surface alternations of certain verbs can be made to fall out from the projection of argument structure into the syntax.

I will conclude by investigating one of the serious (and promising) consequences of the attempt to incorporate lexical structure directly into the syntax, without the mediation of a level of I-syntax: the schism between lexical and syntactic structure which allows for the insertion of "doubling arguments", as seen in cognate object constructions and certain cases in which the semantic content of an incorporated object can be elaborated or modified by the addition of an argument into the site of the trace of an incorporated head.

2. Statement of the problem

In this short discussion, I will look at a fairly small set of facts of English verb alternations, in hopes that these facts can be explained with reference to the conditions on Lexical Relational Structures (LRS) proposed by Hale and Keyser, in tandem with what I hope to be reasonable assumptions about the internal structure of the VP. In effect, I will simplify the structure of the VP considerably, more for purposes of exposition than in order to make any firm claims about the structure, but these proposals are consistent with more articulated theories of the internal functional structure of the VP (i.e., Collins and Thráinsson 1993, Travis 1992).

I will concentrate mainly on the classes of 'verbs of fulfilling' (which I shall refer to as furnish verbs) and the so-called 'equip verbs' of Levin (1993: 140-141),1 which exhibit alternations which we would hope to be explicable on the basis of their respective LRSs, in the same way that Hale and Keyser explain the transitive/inchoative/middle alternations of

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1. As listed by Levin, the members of these two classes are:
   (i) Furnish verbs: credit, entrust, furnish, issue, leave, present, provide, serve, supply, trust;
   (ii) Equip verbs: arm, burden, charge (with a task), compensate, equip, invest, ply, regale, reward, saddle.
verbs such as *shelve and tighten*. I will also discuss verbs such as *butter* and *pocket*, and verbs like *orphanto captain*, which suggest the presence of a predicational phrase (PrP; Bowers 1993) internal to the VP.

2.1 Furnish verbs and Equip verbs

The first alternation with respect to which I offer an analysis is called the Fulfiling Alternation by Levin (1993:65), and can be seen in the following sentences:

(1) a. The provisional government furnished the rebels with mortars.
    b. The provisional government furnished mortars to the rebels.

(2) a. The provisional government equipped the rebels with mortars.
    b. *The provisional government equipped mortars to the rebels.

The problem can be stated succinctly as follows: if it is the case that differences in the eventual syntactic behaviour of predicates can be explained on the basis of their LRSs, as Hale and Keyser suggest, we must come up with a satisfactory account of the way(s) in which the LRSs of these superficially similar classes of verbs differ. At first blush, the meanings of these verb classes seem to be virtually indistinguishable; both mean, roughly, “X causes Y to be in possession of Z”, yet facts such as those in (1) and (2) above are classic cases of syntactic behaviour which is not predictable on the basis of surface facts such as the number or types of arguments projected by particular predicates or the semantic content of the thematic roles they appear to possess. We should expect that these and other facts can be made to follow from plausible assumptions about the deeper lexical representation of their argument structures. In terms of the structurally encoded representation of thematic structure, we would expect that both classes of verbs are of the form given below, which can be glossed roughly as “NP1 brings about (V1) the event (V2) which gives rise to the state expressed by the relation encoded by the PP (NP2 goes to NP3, or NP3 comes to be in possession of NP2). This follows Hale & Keyser’s postulates about the way semantic relations are projected into syntax: the Spec of the highest VP, NP1, is the causer of an action (V1), whose semantic content is contained in V2. The nature of the resulting state brought about by the complex caused event is represented by the PP.
I will follow Hale & Keyser in assuming that the Spec of the lower VP (the inner subject position) is unavailable for the projection of lexical material, except in the case when it selects a (predicative) AP, although we will see that it is crucial to the analysis that this position be available for movement of arguments out of the PP.²

Before even entering into the details, the problem we face should be apparent: if both *furnish* and *equip* verbs have the structure in (3), how can we derive the difference in syntactic behaviour? In particular, in what sense can we say that the semantics of *furnish* verbs differs from that of *equip* verbs? I believe that a clue is offered by the alternations in (4, 5). Note that the verbs in (4), i.e., verbs of the *furnish* class, do not allow a resultative nominalization with accompanying possessor, where the possessor is to be construed as the goal argument of the verb. In contrast, verbs of the *equip* class allow this alteration.

(4)  
a.  
i. The company entrusted Smithers with the payroll.  
ii. *The payroll was Smithers' entrust/entrustment.  

b.  
i. The bailiff served Gregory with a subpoena.  
ii. *A subpoena was Gregory's serve/service.

² This use of the Spec of the lower VP as a target of NP-movement is, in effect, a consequence of the incorporation of l-syntactic principles into s-syntax, since it will help to effect the projection of the arguments into the positions they must occupy in the syntax, without recourse to operations of tree-pruning. We would hope that these operations can be eliminated altogether in the most minimal of theories; whether this is in fact possible is well beyond the scope of this discussion.
c.  i. Merrianne provided Wilbur with room and board.
    ii. *Room and board was Wilbur’s provide/provision/providement.

(5) a.  i. The company burdened Smithers with the payroll.
    ii. The payroll was Smithers’ burden.

b.  i. Merrianne compensated Wilbur with room and board.
    ii. Room and board was Wilbur’s compensation.

c.  i. The bailiff rewarded Gregory with a kiss.
    ii. A kiss was Gregory’s reward.

On the face of it, these facts may not seem particularly significant, but I will argue that equip verbs, unlike furnish verbs, are ultimately derived from the incorporation of a nominal head through the $P^0$ and into the nested VP projection, and that this minimal structural difference can explain the subtle difference in syntactic behaviour. A brief glance at the verbs of the former class (see fn. 1), with the exceptions of invest, ply, and regale, all allow nominalizations of the kind shown in (5), whereas none of the verbs of the latter class do (with the possible exception of present, if the noun present, instead of presentation, is taken to be the nominalization of the verb). 3

Another way in which these two classes of verbs differ is shown in the possibility of omitting the with phrase of the equip verbs, but not of the furnish verbs. (I place these verbs in the passive simply to make the sentences more felicitous.)

(7) Equip verbs
   a. Bert was well equipped (with plenty of duct tape).
   b. Katharina came armed (with a tattered copy of Mao’s Little Red Book).
   c. Roderick has been compensated (with a pension).
   d. Vortimer was amply rewarded (with a gold watch).

3. As Chris Collins points out, the semantics of the nominal use of present do not match that of the verbal use: We presented a gold watch to Boris ≠ A gold watch was Boris’ present. It is important, if this analysis is to have any generality and theoretical interest, to demonstrate that such noun-verb alternations can receive a principled account in all cases in which they are attested (and that exceptions can be accounted for; i.e.
*The Smithers account was Elliot’s saddle). The denominal verbs examined in close detail by Hale & Keyser, particularly the location and locatum verbs, are suggestive of the validity of these correlations, but there does not seems to be a perfect correlation in all cases. Future work in this area is clearly needed to investigate these facts in depth.
Furnish verbs

e. Margarita was credited *(with saving Bruno’s life).
f. Olga was presented *(with a full set of wooden teeth).
g. Kaspar was trusted *(with Olga’s wooden teeth).
h. Norma Desmond was left *(with only her sad memories).

The structure I would like to propose for the verbs of the equip class is given in (8).

(8)

```
VP
  /\        /
 NP    V'   VP
  \   /   /  
   V  VP  V'  PP
     /  /    
    V  P    NP
   /       /
  John    equip
```

A rough gloss of the semantic relations encoded in a structure of this type, which is virtually identical to that proposed by Hale & Keyser for the location and locatum verbs, might be “bring about the event which causes John to be with equip(ment)”; this structure is the basis of sentences such as those in (9):

(9)  a. We equipped John with a camera.
     b. *We equipped a camera to John.

Setting aside for the moment the obvious problem of the location of the with phrase in the structure in (8), the immediate questions are how we can derive these sentences (or, at least, the grammatical (9a)), given the structure in (8), and how this differs from the
structure of verbs of the *furnish* class. I am assuming that the lack of nominal correlates for verbs of the latter class is given by the fact that they do not ultimately derive from nominal heads; instead, I propose that they are derived by means of the incorporation of the preposition into the lower $V''$, and from there on into the upper $V''$. Crucially, the fact that incorporation does not take place from the NP complement to the preposition gives the desired result. The structure I assume for the *furnish* verbs is given in (10), and the relevant alternation is given in (11):

\[ (10) \]

\[
\begin{array}{c}
\text{VP} \\
\text{NP} \\
\text{V} \\
\text{V'} \\
\text{VP} \\
\text{V''} \\
\text{V} \\
\text{PP} \\
\text{NP} \\
\text{P} \\
\text{NP} \\
\text{camera} \\
\text{John} \\
\end{array}
\]

\[ (11) \]

a. We furnished John with a camera.
b. We furnished a camera to John.

What needs to be explained here is why the possibility exists for both the NP specifier and the NP complement of the PP to surface as direct objects in the case of the *furnish* verbs, and why there is only one possible direct object in the case of the *equip* verbs (the specifier).

Given the structural assumptions I have made, these results are straightforwardly derived. We will first examine the *equip* verbs. Given incorporation of the $N^o$ head of the complement of $P^o$ into $P^o$ and ultimately up into the higher $V''$, we have the derived structure
in (12), after movement of the NP specifier of $P^o$ into the inner subject position, which I take to be the canonical VP-internal position of the direct object.\(^4\) (Details of the adjunction structure formed by successive-cyclic head movement are glossed over here.)

(12)

\[\text{At this point, we have derived sentences of the type seen in (7) (omitting the material in parentheses), which is in effect the minimal full satisfaction of the argument structure of the verb; we must now account for the appearance of the optional with phrase. As we will see in §2.4 in the case of cognate objects, this involves the replacement of the trace of the NP (or DP) complement of $P^o$.\(^5\) The circumstances under which this replacement are licensed will, I hope, become clearer later on in this discussion, but for the moment I will stipulate that such replacement of a trace is subject to two (admittedly vague) conditions:}\]

\[\text{4. This relaxation of Hale & Keyser's stricture regarding the inner subject position may be taken to be the outcome of the fact that, once incorporation has taken place in predicate formation, there is no further need to reserve this position solely for subjects of predicative APs. It is possible, given the lack of motivation (in the sense of Economy of Derivation) for this NP-raising to the inner subject position, that the NP can move directly into Spec of AgrQ at LF to receive Case.}\]

\[\text{5. I am indebted to Chris Collins for making a suggestion regarding trace replacement whose details I have altered slightly, while maintaining (I hope) the spirit of the original insight.}\]
(13)  i. the phrase which replaces an incorporated phrase must bear the “is a” relation to the phrase it replaces;

ii. only a full (and vacant) phrase can be the target of replacement.

The oblique Case-marked phrase *with NP* in the structure in (12) will occupy the site of the vacant PP, its specifier having moved up to Spec of the lower VP, its complement and head having incorporated into the upper $V^o$. In this case, the semantic content of the Case-marker *with* parallels the postulated semantic content of the null preposition incorporated into the complex predicate *equip*, given the gloss “cause NP$_1$ to be with NP$_2$."

Following closely the assumptions laid out here for the *equip* class of verbs, we can derive the desired results for the *furnish* verbs on the basis of the proposed structure in (10). Since, in these verbs, the semantic content of the verb derives from incorporation of $P^o$ into the lower $V^o$, then into the upper $V^o$, and crucially not from incorporation ultimately from the complement position of the PP, we can derive the (intermediate) structure in (14), after incorporation has taken place. Under the terms of Chomsky’s (1992) principle of equidistance of movement with respect to Relativized Minimality, the inner subject position is a possible target of movement for either NP: the specifier or the complement of $P^o$. If the former raises to the inner subject position, we derive *We furnished a camera to John*; if the latter, we derive *We furnished John with a camera*. Either NP argument of $P^o$ is available for assignment of accusative case, and the NP left behind inside the PP must get Case from a prepositional Case marker.
Note that, under these assumptions, the inner subject position serves as an "escape hatch" for movement of the complement of P\(^o\), since this is the only position which is equidistant, in Chomsky's sense, from both it and the specifier of P\(^o\). If we assume this structure, this intermediate movement is necessary in order for the derivation to converge, since waiting until LF to move directly up into Spec of Agr\(_O\) will not be an option for this NP. The reason for this is that crossing the specifier of P\(^o\) will constitute a violation of Relativized Minimality (Rizzi 1990). This is not an issue in the equip class of verbs, since there is only one argument NP which must move out of the VP; to do so, it must cross only the specifier of the upper VP (which I am assuming to be the base-generated subject position).

A further elaboration which is suggested by these comments, and one which provides a somewhat more coherent account of the nature of the prepositional Case marker of the NP which does not receive accusative Case in Agr\(_O\), is the following: assume that both possibilities in (15) are available for the projection of the PP, and that in fact the null preposition does not incorporate into the verb in either case, but is spelled out in order to assign Case to the NP complement of P\(^o\).
The stipulation that the preposition does not incorporate captures the fact that in these cases the inner subject position will remain unavailable as an intermediate landing site for the complement of $P^o$, and allows us to maintain Hale & Keyser's condition on the projection of this position. It remains to be worked out to what extent this condition on projection of lexical material into this position is to taken as a prohibition on movement through it. I will continue to assume that movement through this position is fine, once lexical material has been inserted into its appropriate positions within the articulated VP.

2.2 Butter and pocket verbs
Two more classes of verbs that I will claim are derived from incorporation of nominal heads in the same way as equip verbs, are what Levin (1993:120-121) calls butter and pocket verbs. The point here which is relevant to the preceding discussion is the availability of the position from which noun incorporation takes place for doubling with a cognate object of the preposition (with in the case of the butter verbs, and a locative preposition in the case of the pocket verbs):

(16) a. James buttered the toast.
    b. James buttered the toast with margarine.

(17) a. Amelia pocketed the change.
    b. ?Amelia pocketed the change into her left pocket.

Recalling that the relevant structure of these constructions is as given in (18), and that we have adjusted our initial assumptions so that the NP specifier of the preposition does not
need to move out of the PP, we need to say something about the position and the nature of the cognate phrase.

(18)

First of all, it is not clear to me that there is as clear a distinction as Levin suggests between these two verb classes, with regard to the possibility of insertion of a cognate phrase. There are members of the pocket class which quite freely allow a cognate locative phrase:

(19)  
   a. We bottled the wine into mason jars.  
   b. The police trapped the criminals in the abandoned mine.  
   c. Rosa skewered the meat on straightened coat-hangers.

   and members of the butter class which allow a cognate direct object with difficulty:

(20)  
   a. ?We tarred the road with asphalt.  
   b. ?The mechanic chromed the car's metalwork with zinc.

It seems that pragmatic factors play a large part in determining when a cognate phrase can
appear in the context of these verbs. In particular, the more inherently restricted the class of objects referred to by the incorporated noun, the less likely it is to find an appropriate cognate noun phrase. Thus, while any number of substances can be used, for example, to \textit{perfume} or \textit{grease} something, there are few (if any) replacements for nouns such as \textit{brick} or \textit{bronze} (all are verbs of the \textit{butter} class). The difference in behaviour between these two verb classes might derive from something no more interesting theoretically than the fact that substances are more replaceable with other substances than locations are with other locations. Since verbs of the \textit{pocket} class are derived by means of the incorporation of the location phrase in the complement of PP, the inherent specificity of these location nouns (i.e., \textit{garage, archive, jail, kennel}, etc.) reduces the options available for the semantic content of the cognate phrase.

2.3 Economy of Derivation and cognate phrases

It is a well-known fact that, with a small number of exceptions (i.e., 20a), cognate phrases (objects 20b), locative (20c) and instrumental phrases (20d)) cannot be identical to the semantic content of the verb they double.

(21) a. Lisa sang a song.
    b. ??Amanda dreamed a dream.
    c. ??Rupert pocketed the change into his pocket.
    d. ??Walter hammered the nail with a hammer.

I would like to propose that these facts can receive a straightforward Economy explanation, based on Chomsky's (1992) notion of Last Resort. The idea is very simple: given that the replacement of a trace of an incorporated NP with an NP of identical semantic content adds nothing to the interpretation of the sentence, while adding an additional step of lexical insertion to the derivation, it is blocked. Under more recent conceptions of the lexical interface with syntax, such as the Merge and Move of Chomsky (1995), this becomes more difficult to account for, since strict cyclicity is strongly enforced. If we assume a copy theory of movement, the violation becomes more apparent, since this replacement will in actuality consist of the replacement of the N\textsuperscript{n} with itself. It is unquestionably the case that modification of the semantic content of the replaced phrase leads to much more acceptable structures:
(22) a. Amanda dreamed a pleasant dream.
b. Rupert pocketed the change into his trousers pocket.
c. Walter hammered the nail with a ball-peen hammer.

While the details of the process of trace (or copy) replacement remain to be worked out, we could characterize the difference between the marginal sentences (20b-d) and (21a-c) in terms of the difference between replacement of the entire NP (or DP) in the case of modified cognates, and replacement of N° in the unmodified cases. Since modification of some kind is needed in order to add semantic content, thus avoiding the violation of Last Resort incurred by a vacuous operation, only the entire maximal projection can be replaced.⁶

2.4 Orphan verbs and captain verbs

Two more classes of verbs that are derived by incorporation of a nominal head are those referred to by Levin (1993:184) as orphan and captain verbs; these provide an interesting challenge to the analysis laid out above, and require some additional assumptions about the syntactic representation of argument structure. Verbs of the former class, orphan for example, have a meaning that can be glossed as “cause someone to become an orphan”, suggesting that an embedded PP will not be appropriate to convey the needed semantics. This comes out clearly in the following contrast:

(23) a. Louis saddled the horse with a blanket.
b. The accident crippled Janet (*with a paraplegic).

These verbs, unlike location and locatum verbs, do not admit a cognate phrase which gives additional information on the nature of the incorporated N°. I propose that the predicational nature of the semantics of these verbs can be captured if we assume that the lowest embedded phrase is PrP (Bowers 1993), as in constructions such as:

---

⁶ Of course this is not the whole story, as pragmatic conditions on interpretation intervene as well, ruling out gibberish sentences like #Amanda sang a newt.
(24)  a. The accident made [PrP Janet e a cripple].
     b. I consider [PrP William e a fool].

The reason for this is that the semantics of verbs of this type are difficult to account for under the radically restricted proposals of Hale & Keyser, who have so far been looking at verbs involving change of position and movement, notions inherently suited for expression via a prepositional phrase. Adopting this assumption, we can represent the semantics of the \textit{orphan} verbs as in (24), which can be glossed "NP\textsubscript{1} brings about the event which causes NP\textsubscript{2} to be/become an orphan."

(25)

\begin{center}
\begin{tikzpicture}
  \node (V) at (0,0) {V};
  \node (VP) at (-1,-1) {VP};
  \node (NP\textsubscript{1}) at (-2,-2) {NP\textsubscript{1}};
  \node (V') at (-3,-3) {V'};
  \node (V'') at (-4,-4) {V'};
  \node (V''') at (-5,-5) {V'};
  \node (PrP) at (-6,-6) {PrP};
  \node (NP\textsubscript{2}) at (-7,-7) {NP\textsubscript{2}};
  \node (Pr') at (-8,-8) {Pr'};
  \node (Pr) at (-9,-9) {Pr};
  \node (NP) at (-10,-10) {NP or orphan};
  \draw (V) -- (VP);
  \draw (VP) -- (NP\textsubscript{1});
  \draw (NP\textsubscript{1}) -- (V');
  \draw (V') -- (VP);\draw (VP) -- (V'');
  \draw (V'') -- (V''');\draw (V''') -- (PrP);\draw (PrP) -- (NP\textsubscript{2});\draw (NP\textsubscript{2}) -- (Pr');\draw (Pr') -- (Pr);
  \draw (Pr) -- (NP);
\end{tikzpicture}
\end{center}

Why it is that doubling of the incorporated noun is apparently not possible in these verbs is unclear to me, but seems to reflect the closure of the predicational relation to further modification. Whereas it is possible to further modify the semantic content of the incorporated object of a preposition, the predicational relation inherent in these verbs does not allow such modification.

Verbs of the \textit{captain} class are interesting in that their semantics reflects a pure state, and not the bringing about of the state in question. \textit{Ahab captained the Pequod} does not mean "Ahab brought about an event that had as its outcome the fact that the Pequod came to have a captain", but means "Ahab acted in the capacity of the captain of the Pequod", and this is reflected in the stativity of the verb:
(26)  a.  *Ahab captained the Pequod instantly.
   b.  The accident crippled Janet instantly.
   c.  Ahab captained the Pequod for three years.
   d.  *The accident crippled Janet for three years.

(Bad under the intended reading, not the one in which Janet is crippled for three years as a result of the accident.)

The structure I propose for these verbs is given in (27), where the eventual subject of the verb is base-generated in the position of predicational subject, from which it will eventually raise into Spec of VP; furthermore, I depart from Hale & Keyser's minimal assumptions about the internal structure of predicates in capturing the "NP of NP" relation inherent in these verbs by means of the specifier of the NP whose head incorporates.

(27)

![Diagram](image)

There are a number of questions raised in this structural proposal, i.e., why it is that, once incorporation of N° has taken place through Pr° and into V° (rendered equidistant by formation of the chain [v [V Pr], t]), the NP in the specifier of the embedded NP cannot raise into the specifier of VP, yielding the ill-formed structures underlying the sentences in (27).
    b.  *The soccer match refereed Smithers-Jones.
    c.  *Dow Chemical is sponsored by this radio broadcast.

The somewhat strange situation of having the direct object of the verb base-generated in the specifier position of an embedded NP, where it will receive accusative Case (in the absence of tree-pruning operations which might repair this structure) suggests that the correct representation of these structures might likewise involve a nested VP structure dominating PrP and NP. This would have the desired result that the object would be able to raise only as far as the specifier of the lower VP, given base-generation of the subject in the specifier of PrP.

(29)

This seems a somewhat *ad hoc* move, however, and it is possible that a more principled account of these verbs can be given.
3. By way of a conclusion

In this brief sketch I have only been able to lay out the broadest outline of what I hope might turn out to be a refinement of the proposals of Hale and Keyser’s somewhat provocative research program. The notion that what appear to be somewhat arbitrary alternations involving morphological, syntactic, and semantic properties of verbs, might be reducible to structural principles, is interesting indeed. As always, further research is needed in order to establish the precise nature of the constraints operative at this level of representation; only if these differ in a crucial manner from those operative elsewhere in syntax can we continue to call this 1-syntax. I have argued for one way in which 1-syntax might be more like “plain” syntax than was assumed by Hale & Keyser, namely, the presence of PrP in a class of verbs whose semantics involve subject-predicate type meanings. Thus, the paradox might arise that the more the very bare-bones system of Hale & Keyser has to be elaborated, the more it can account for, but the more it embodies what we already assume to be the principles and formal entities of syntactic theory. Unless, somewhere along the way, there can be shown to be real differences in the nature or behaviour of the primitives of this theory, the very success of such a program might be its own undoing. Nonetheless, this line of research is interesting in its own right, as a serious attempt to limit the representation of argument structure in the syntax.

4. References


Adjunction, Coordination and their Theoretical Consequences*

Eun-Young Yi

1. Introduction

In Korean the affixal conjunction morpheme -ko 'and' appears on the first conjunct in so-called coordinate structures like (1) and (2). (1) shows that the verb in the first conjunct is not tensed, but is interpreted under the scope of the tense of the last conjunct. This type of coordination pattern is referred to as a tenseless coordination. It has been shown that there are three types of tenseless coordinations: shared object-conjunction, shared subject-conjunction, and separate subject-conjunction (Yoon 1993). These are shown in (1a), (1b), and (1c), respectively.

(1) a. Tenseless Shared Object Coordination

Chelswu-ka pap-ul mek-ko chiwu-ess-ta
Chelswu-Nom rice-Acc eat-and2 clean-Past-Dec
'Chelswu ate and cleaned the meal.'

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1 I will use terms such as the first conjunct and the second conjunct while I discuss the classical symmetrical coordination analysis for -ko construction in section 2, even though I will eventually reject the analysis.

2 Throughout this paper, I will use and for the gloss of -ko without committing to any of the syntactic analyses for and in English.
b. Tenseless Shared Subject Coordination

Chelswu-ka pap-ul cis-ko kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-and soup-Acc cook-Past-Dec
'Chelswu cooked the rice and some soup.'

c. Tenseless Separate Subject Coordination

Chelswu-ka pap-ul cis-ko Yongho-ka kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-and Yongho-Nom soup-Acc cook-Past-Dec
'Chelswu cooked the rice and Yongho cooked some soup.'

In the examples in (2), the first and last conjuncts both have their own tenses. These coordinations, in which conjunct tenses are independent, are referred to as tensed coordinations.

(2) a. Tensed Shared Object Coordination

Chelswu-ka pap-ul mek-ess-ko chiwu-ess-ta
Chelswu-Nom rice-Acc eat-Past-and clean-Past-Dec
'Chelswu ate the meal and he cleaned it up.'

b. Tensed Shared Subject Coordination

Chelswu-ka pap-ul ci-ess-ko kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-Past-and soup-Acc cook-Past-Dec
'Chelswu cooked the rice and he cooked some soup.

c. Tensed Separate Subject Coordination

Chelswu-ka pap-ul ci-ess-ko Yongho-ka kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-Past-and Yongho-Nom soup-Acc cook-Past-Dec
'Chelswu cooked the rice and Yongho cooked some soup.'
It has been considered that -ko occupies the same position as English and in phrase structure, and that it conjoins two VPs or IPs just like and in English. In this paper, I will show that the classical symmetrical structure which has been claimed for and in English fails to explain various behaviors of the -ko construction in Korean. I will propose an alternative analysis which views the -ko construction as adjunction.

-Ko coordination provides interesting answers to questions regarding clausal structure, such as: (i) the underlying and surface phrase structure positions of tense and the verb; and (ii) the mechanism of associating tense with verbs. Yoon (1993, 1994), based on the classical symmetrical coordination analysis for -ko construction, disputes V-to-I movement. The adjunction analysis for -ko coordination makes it possible to retain a 'standard' theory of Verb Movement to I.

This analysis also has implications for the general analysis of apparent coordinate structures in head-final languages. It has been widely observed that head-final languages tend not to use independent conjunction words like English and as coordinators, but rather use "gerundive" or "participial" suffixes like Korean -ko. If the analysis argued for in this paper is representative, this may be because apparent coordination structures in head final languages with affixal tense are in general actually adjunction structures.

This paper is organized as follows. In section 2, I will first demonstrate how the classical symmetrical analysis for coordination cannot account for various data in the -ko construction. Among others, Yoon's (1993, 1994) arguments, the most recent and explicit, will be examined and eventually refuted. The discussion will include scrambling, right-dislocation, LF wh-movement, NPI licensing, scope of negation, and anaphor binding data.

Section 3 introduces and justifies the adjunction analysis for -ko coordination. It will show how it can account for the data that the classical symmetrical analysis for coordination has difficulty to explaining.

2. The Classical Symmetrical Coordination Analysis

Under the classical symmetrical coordination analysis for -ko construction, the first conjunct and the second are symmetrically conjoined. More specifically, Yoon (1993,
1994) claims that tenseless object shared-coordination is V'-coordination, and other tenseless coordinations fall into the category of VP-coordination, while all tensed-coordinations are classified as IP-coordination. (3a) shows V'-coordination, (3b) and (3c) VP-coordination, and (3d) IP-coordination.

(3)  

a. Tenseless Shared Object Coordination (V'-coordination)

```
CP
  IP
    C
  VP
    I
    ess
  NP
    VP
      NP
      V''
      V' ko V'
```

b. Tenseless Shared Subject Coordination (VP-coordination)

```
CP
  IP
    C
  VP
    I
    ta
    ess
  NP
    VP
      VP ko VP
      NP
      V NP V
```
c. Tenseless Separate Subject Coordination (VPSC-coordination)

\[
\begin{array}{c}
\text{CP} \\
\text{IP} \\
\text{IP} \\
\text{IP} \\
\text{NP} & \text{VP} & \text{NP} & \text{VP} \\
\text{NP} & \text{V} & \text{NP} & \text{V}
\end{array}
\]

\[
\begin{array}{c}
\text{IP} \\
\text{IP} \\
\text{IP} \\
\text{IP} \\
\text{NP} & \text{VP} & \text{NP} & \text{VP} \\
\text{NP} & \text{V} & \text{NP} & \text{V}
\end{array}
\]

d. Tensed Coordination (IP-coordination)

Since it is often assumed that raising a verb to tense occurs in all languages at some level of representation, the analyses of tenseless coordinations have to explain how and why only the verb in the last conjunct in a tenseless coordination associates with tense, in apparent violation of the Coordinate Structure Constraint (CSC) (Ross 1967).

(4) Coordinate Structure Constraint (CSC)

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

\footnote{Alternatively, verbs are inserted in the syntax fully inflected, and the verb raises and adjoins, overtly or at LF, to various functional heads above the VP, “checking off” its inflectional features until none remains. Even on this analysis the problem of raising out of coordinate structures remains. Note that the CSC}
Yoon (1993, 1994) proposes that Tns/Infl in Korean is a syntactic clitic which has the property of attaching to elements on the periphery of the constituents it combines with syntactically. Thus, he argues that Tns/Infl is an enclitic on VP in Korean. Under Yoon's approach, -ko occupies the position of English 'and', but behaves like a phrasal affix with regard to the first conjunct. This proposal implies that any head-final language with an affixal conjunction morpheme on the first conjunct like the Korean -ko cannot be a V-raising (or T-lowering) language. To evaluate the hypothesis of Tns/Infl in Korean being a syntactic clitic as the mechanism of associating tense with verbs, this coordination analysis of -ko should be examined.

2.1. Scrambling

2.1.1. Scrambling out of the Second Conjunct

Let us first consider scrambling out of the second conjunct. The classical symmetrical coordination analysis predicts that scrambling out of a single conjunct should be bad since it violates the CSC. However, the extraction of an argument out of the second conjunct is possible as shown in (5a), (5b), (6b), and (7b). In (5a) the object kwuk-ul is extracted out of the second conjunct to adjoining VP position, and in (5b), (6b), and (7b) to all the way to the front of the first conjunct.

(5) Tenseless Shared Subject Coordination

a. Chelswu-ka [VP kwuk-ul [VP pap-ul cis-ko] [VP t拮kkuli]]-ess-ta
   Chelswu-Nom soup-Acc rice-Acc make-and cook-Past-Dec
   'Chelswu made rice and cooked SOUP.'

appears to apply at LF as well, as will be discussed in section 2.4.
b. **kwuki-ul** [IP Chelswu-ka [VP [VP pap-ul cis-ko] [VP tį kkuli]-ess]-ta
  soup-Acc Chelswu-Nom rice-Acc make-and cook-Past-Dec
  '(lit.) Soupį, Chelswu made rice and cooked tį.'

(6) Tenseless Separate Subject Coordination

a. *[VP [VP Chelswu-ka **kwuki-ul** pap-ul cis-ko] [VP Yongho-ka tį kkuli]]-ess-ta
  Chelswu-Nom soup-Acc rice-Acc make-and Yongho-Nom cook-Past-Dec
  'Chelswu made rice and Yongho cooked SOUP.'

b. **kwuki-ul** [VP [VP Chelswu-ka pap-ul cis-ko] [VP Yongho-ka tį kkuli]]-ess-ta
  Chelswu-Nom rice-Acc make-and Yongho-Nom cook-Past-Dec
  Past-Dec
  'Chelswu made rice and Yongho cooked SOUP.'

(7) Tensed Shared/Separate Subject Coordination

a. *[IP Chelswu-ka **kwuki-ul** pap-ul ci-ess-ko] [IP (Yongho-ka) tį kkuli-ess-ta]
  Chelswu-Nom soup-Acc rice-Acc cook-Past-and (Yongho-Nom) cook-Past-Dec
  'Chelswu cooked rice and Yongho made SOUP.'

b. **kwuki-ul** [IP Chelswu-ka pap-ul ci-ess-ko] [IP (Yongho-ka) tį kkuli-ess-ta]
  Nom rice-Acc cook-Past-and (Nom) cook-Past-Dec
  'Chelswu made rice and Yongho cooked SOUP.'

To account for these possible extractions, Yoon proposes a relaxation of the ATB constraint on extraction on the basis of certain semantic conditions. He claims that an ATB violation can occur where the conjuncts can be interpreted sequentially, and where the scrambled NP binds its trace. Yoon's motivation for this semantic account is from
English examples from Goldsmith (1985) and Lakoff (1986), which are shown in (8a) and (8b).

(8) a. What did John go to the store and buy t?
    b. *What does John like apples and hate t?

Yoon claims that the ATB violation can occur in (8a) because the two actions in (8a) are sequential, whereas it cannot in (8b) because this is not the case.

He stipulates that when each conjunct is independently specified for tense in Korean, the conjuncts are non-sequential; therefore an ATB violation cannot occur, and this is why (7a) and (7b) are bad. (He marks (7b) as ungrammatical, which is different from my judgement.) He also claims that conjuncts in tenseless coordination are interpreted sequentially, and this is why the ATB violation is allowed in the tenseless coordinations in (5a), (5b), and (6b). The reason (6a) is bad, even if it is tenseless; therefore an ATB violation can occur, is because the object has scrambled into the VP of the first conjunct, failing to c-command its trace, thus violating the Proper Binding Condition.

This semantic explanation, first of all, fails to capture the difference in acceptability between (7a) and (7b). I consulted many Korean speakers, but they did not find (7b) as bad as (7a). That is, (7b) is marginally acceptable, whereas (7a) is ungrammatical. It seems that, in the case where an object NP is extracted from the second conjunct to the left of the -ko clause containing a separate subject, the result is degraded. I will offer an explanation for this later in section 3.

Secondly, Yoon's semantic account cannot explain the extraction of an adjunct out of the second conjunct. Given Yoon's claim that an ATB violation can occur only where the conjuncts can be interpreted sequentially, and where the scrambled NP binds its trace, it is predicted that as long as the scrambled NP binds its trace, extraction of an adjunct out of a single conjunct in a tenseless coordination is grammatical; whereas a similar extraction in a tensed coordination is ruled out, since he assumes that conjuncts in tenseless coordinations are interpreted sequentially, whereas those in tensed coordinations are not. Contrary to this prediction, extraction of an adjunct out of the second conjunct to the
front of the sentence in all types of coordinations induces ungrammaticality. This is shown in (9). There, the presence of -ess 'Past' makes the examples tensed ones, and Mary makes them separate subject coordinations.4

(9) Tenseless/Tensed Shared/Separate Subject Coordination
a. Locative PP
   *Discoį-eyse [John-i cip-eyse swukcey-lul ha-(yss)-ko
   at Nom house-at homework-Acc do-(Past)-and
   (Mary-ka) tį chwumchwu-ess-ta]
   Nom dance-Past-Dec
   ‘[In a disco]į, John did his homework at home and (Mary) danced tį’

b. Temporal PP
   *8 siį-ey [John-i 5 si-ey swukcey-lul ha-(yss)ko
   8 o'clock-at Nom 5 o'clock-at homework-Acc do-(Past)-and
   (Mary-ka) tį nol-ass-ta]
   Nom play-Past-Dec
   ‘[At 8 o’clock]į, John did his homework at 5 o'clock and (Mary) played tį.’

c. Manner Adverbial
   *cengsengsulepkeyį [John-i pap-ul yelsimhi ci-(ess)-ko, (Mary-ka)
   With care Nom rice-Acc with effort cook-(Past)-and Nom
   tį kwuk-ul kkuli-ess-ta.
   soup-Acc boil-past-dec
   ‘[With care]į, John cooked rice with effort, and (Mary) made soup tį.’

4Throughout this paper, the presence of the bracketed -ess 'Past' makes the examples tensed ones, and the presence of the bracketed subject in the second conjunct makes them separate subject coordinations.
In summary, the classical symmetrical coordination analysis cannot account for the argument/adjunct asymmetry found in the extraction out of the second conjunct. Without any stipulation, it cannot explain the possible argument extraction out of the second conjunct, although it correctly predicts the ungrammaticality of adjunct extraction out of the second conjunct. Moreover, any stipulation to attempt to explain the possible extraction of an argument will have to explain why extraction of an adjunct in the same kind of coordination is not possible.

2.1.2. Scrambling Out of the First Conjunct

Next, let us consider extraction out of the first conjunct. The extraction of an argument NP out of the first conjunct is grammatical, whereas that of an adjunct PP is out. These are shown in (10a) and (10b), respectively.

(10) Tenseless/Tensed Shared/Separate Subject Coordination

a. Argument Scrambling

\[ \text{umakj-ul [John-i [Mary-ka t\_i tul-(ess)-ko (Joan-i) swuukcey-lul music-Acc Nom Nom hear-(Past)-and Nom homework-Acc ha-yss-ta-ko] sangkakha-n-ta. do-Past-Dec-Comp think-Prest-Dec 'lit. Music\_j, John thinks that Mary listened to t\_i, and (Joan) did her homework.'} \]
b. Adjunct Scrambling

*Diacoj-eysy [John-i [Mary-ka ti chwum-ul chwu-(ess)-ko (Joan-i) disco-at Nom Nom dance-Acc dance-(Past)-and Nom cip-eysy konghui-lul ha-yss-ta-ko]  sayngkakha-yss-ta6 house-at study-Acc do-Past-Dec-Comp think-Past-Dec '[At a disco], John thought that Mary danced ti, and (Joan) studied at home'

Since the classical symmetrical coordination analysis predicts that extraction of both an argument and an adjunct out of the first conjunct is bad due to the CSC, it fails to explain not only the grammaticality of argument extraction, but also the argument/adjunct asymmetry.

2.1.3 Summary

We have seen in this section that extraction of an argument out of both the first and the second conjuncts to the front of the sentence is possible, whereas that of an adjunct is not. The classical symmetrical coordinate analysis cannot account for the possible argument extraction, since it predicts that any movement out of a single conjunct violates CSC, therefore is not allowed. Any attempt to account for this apparent non-ATB movement, under this analysis, also has to explain why, then, adjunct extraction is allowed.

2.2 Right-dislocation

2.2.1 Right-dislocation Out of the Second Conjunction

Right-dislocation of an argument out of the second conjunct is grammatical, as shown in (11).

---

5(10b) shows that scrambling of a locative PP is ungrammatical. Temporal PPs and manner adverbials behave in the same way as locative PPs with respect to this scrambling. I will, henceforth, demonstrate only one type of an adjunct among locative PPs, temporal PPs, and manner adverbials to show behavior of various adjunct extractions when the same argument holds with the other types of adjuncts.

6With the interpretation that the disco is the place where John thought, (10a,b) are acceptable.
(11) Argument Right-dislocation

a. Tenseless Shared Subject Coordination

na-nun [John-i ku chayk-ul ilk-ko ej mek-ess-ta ko]
I-Top Nom that book-Acc read-and eat-Past-Dec Comp
sangkakha-n-ta, cenyekj-ul
think-Pres-Dec dinner-Acc
'(lit.) I think that John read the book and ate ej, dinnerj.'

b. Tenseless/Tensed Separate Subject Coordination

?na-nun [John-i ku chayk-ul ilk-(ess)-ko Mary-ka ej mekessta ko]
I-Top Nom that book-Acc read-(Past)-and Nom eat-Past-Dec Comp
sangkakha-n-ta, cenyekj-ul
think-Pres-Dec dinner-Acc
'(lit.) I think that John read the book and Mary ate ej, dinnerj.'

Since right-dislocation in Korean respects Subjacency, we can conclude that movement is involved, rather than base-generation of the right-dislocated NP in (11) (Choe 1987). This is shown in (12).

(12) *John-i [ti ku chayk-ul ilk-(ess)-ko tj mek-un salami-kwa] mannako sipehanta	nom that book-Acc read-(Past)-and ate-Comp person-with meet want
cenyekj-ul
dinner-Acc
'(lit.) John wants to meet with the person who read the book and ate ej, dinnerj.'

Like scrambling, right-dislocation out of the second conjunct also shows an argument/adjunct asymmetry. That is, while right-dislocation of an argument out of the

---

7The same judgement holds for the tensed shared object and subject coordinations. I will, henceforth, demonstrate only tensed separate subject coordination among tensed coordinations when the same judgement
second conjunct is grammatical, as shown above in (11), that of an adjunct is not, as shown in (13).

(13) Adjunct Right-dislocation

*John-i [Mary-ka micangwen-eyse meli-lul calu-(ass)-ko (Joan-i) ti]
    Nom Nom beauty salon-at hair-Acc cut-(Past)-and Nom
caymiisskey nolassta ko] sangkakha-n-ta, disco-eyse
with interest played Comp think-Pres-Dec at
'(lit.) John thinks that Mary got her hair cut in a beauty salon, and (Joan) played
around with interest ej, [at the disco]i.'

The classical symmetrical coordination analysis fails to account for the grammaticality of the argument right-dislocation out of the second conjunct as well as the argument/adjunct asymmetry for the same reason as the scrambling data in section 2.1.

2.2.2 Right-dislocation Out of the First Conjunct

The right-dislocation out of the first conjunct follows the same pattern as the scrambling out of the first conjunct discussed in section 2.1.2. While an argument right-dislocation out of the first conjunct is degraded at worst as in (14b), an adjunct right-dislocation out of the first conjunct is completely ungrammatical, as shown in (15).

holds for the other tensed coordinations.
(14) Argument Right-dislocation
   a. Tenseless Shared Subject Coordination
      John-i [Mary-ka ti kkuthnay-ko pap-ul mek-ess-ta-ko]
         Nom   Nom finish-and meal-Acc eat-Past-Dec-Comp
      sangkakha-n-ta, swuhak cwukceyi-lul
         think-Presnt-Dec math homework-Acc
         'John thinks that Mary finished ti, and ate the meal, [math homework]i.'

   b. Tenseless/Tensed Separate Subject Coordination
      ??John-i [Mary-ka ti kkuthnay-(ess)-ko Joan-i pap-ul mek-ess-ta-ko]
         Nom   Nom finish-(Past)-and Nom meal-Acc eat-Past-Dec-Comp
      sangkakha-n-ta, swuhak cwukceyi-lul
         think-Presnt-Dec math homework-Acc
         'John thinks that Mary finished ti and Joan ate the meal, [math homework]i.'

(15) Adjunct Right-dislocation
   *John-i [Mary-ka ti kongbwuha-(yss)-ko (Joan-i) cip-eysey
         Nom   Nom study-(Past)-and (Nom) home-at
      ca-ss-ta-ko ko] sangkakha-n-da. hakkyo-eysey
         sleep-Past-Dec-Comp think-Presnt-Dec school-at
         'John thinks that Mary studied ti, and (Joan) slept at home. [At school]i.'

Again, the classical symmetrical coordination analysis must explain why argument right-dislocation is grammatical, unlike the impossible adjunct right-dislocation.

2.3 Clausal Scrambling and Right-Dislocation

Another piece of evidence against the classical symmetrical coordination analysis for Korean -ko construction comes from clausal scrambling and right-dislocation data. Under the classical symmetrical coordination analysis, it should be impossible to extract the first
conjunct with -ko. Such extraction results in severe ungrammaticality in English, as shown in (16b).

(16) a. I think John sang and Mary danced.
    b. *[John sang (and)]j I think tį ((and) Mary danced.]

However, in Korean we can easily find sentences where the first conjunct is scrambled or right-dislocated with -ko. (17) and (18) are examples where the first conjunct is scrambled with -ko, and (19) examples where it is right-dislocated with -ko.

(17) Clusal Scrambling
    [Nolay-lul pwulu-ko]j Chelswu-ka tį [vP cwum-ul cwu]-ess-ta
    song-Acc sing-and Chelswu-Nom dance-Acc dance-Past-Dec
    ‘Chelswu sang a song, and danced.’

(18) Long-distance Clausal Scrambling
    a. Tenseless Shared Subject Coordination
    [[vP Nolay-lul pwulu]-ko]j nay-ka Chelswu-ka tį [vP cwum-ul cwu]-ess-ta-
    song-Acc sing-and I-Nom Chelswu-Nom dance-Acc dance-Past-Dec-
    ko sayngkakha-n-ta.
    Comp think-Pres-Dec
    ‘I think that Chelswu sang a song, and danced.’
b. Tenseless Separate Subject Coordination

dance-Past-Dec-Comp think-Pres-Dec
'I think that Chelswu sang a song, and Yongho danced.'

c. Tensed Separate Subject Coordination

dance-Acc dance-Past-Dec-Comp think-Pres-Dec
'I think that Chelswu sang a song, and Yongho danced.'

(19) Clausal Right-Dislocation
a. Tenseless Shared Subject Coordination

Chelswu-ka ti cwum-ul cwu-ess-ta. [[[vP Nolay-lul pwulu]-ko]i Chelswu-nom dance-Acc dance-Past-Dec song-Acc sing-and
'(lit.) Chelswu t danced. [sing a song and]i.'

b. Tenseless Separate Subject Coordination

ti Yongho-ka chwum-ul chwu-ess-ta. [[[vP Chelswu-ka nolay-lul pwulu]-ko]i Yongho-Nom dance-Acc dance-Past-Dec Chelswu-Nom song-Acc sing-and
'(lit.) ti Yongho danced. [Chelswu sang a song and]i.'
c. Tensed Separate Subject Coordination

$t_i$ Yongho-ka chwum-ul chwu-ess-ta. [[[IP Chelswu-ka nolay-lul pwulu-ess]-ko]
Y-Nom dance-Acc dance-Past-Dec Chelswu-Nom song-Acc sing-Past-and
'(lit.) $t_i$ Yongho danced. [Chelswu sang a song and]i.'

According to the classical symmetrical coordination analysis, (17) and (18a) are examples where the first VP-conjuncts are scrambled with -ko, (18b) is an example where the first VP-conjunct with the separate subject is scrambled with -ko, and (18c) is an example where the first IP-conjunct is scrambled with -ko. (19a), (19b), and (19c) show examples of right-dislocation of the first conjuncts with -ko. All of them should be unacceptable under the classical symmetrical coordination analysis.

2.4 Wh-question

Wh-questions in coordination structure are interesting since they involve the movement of a wh-phrase out of a conjunct(s), i.e. LF wh-movement in the case of Korean, since Korean does not exhibit overt Wh-movement, but covert movement.

May (1985) notices that the CSC holds at LF in English:

(20) Some professor admires every student and despises the Dean.

In (20), since CSC holds at LF, the object of the first conjunct, every student, cannot move and adjoin to IP. This is why the subject some professor has only wide scope reading.

Korean shows all types of -ko coordination where the wh-phrase is in only one conjunct. (21) shows all possible occurrences of wh-phrase in subject or object position of either the first or second conjunct. All of them are grammatical.
(21) a. Wh-subject in the second conjunct

Chelswu-ka chwum-ul chwu-(ess)-ko **nwu-ka** nolay-lul hay-ss-ni?
Chelswu-Nom dance-Acc dance-(Past)-and who-Nom song-Acc do-Past-Q
'(lit.) Chelswu danced, and who sang a song?'

b. Wh-object in the second conjunct

Chelswu-ka chwum-ul chwu-(ess)-ko (Yongho-ka) **mwuess-ul** mek-ss-ni?
Chelswu-Nom dance-Acc dance-(Past)-and (Nom) what-Acc eat-Past-Q
'(lit.) Chelswu danced, and what did he/(Yongho) eat?'

c. Wh-subject in the first conjunct

**Nwu-ka** chwum-ul chwu-(ess)-ko Chelswu-ka nolay-lul pwulu-ess-ni?
Who-Nom dance-Acc dance-(Past)-and Chelswu-Nom song-Acc sing-Past-Q
'(lit.) Who danced, and Chelswu sang a song?'

d. Wh-object in the first conjunct

Chelswu-ka **mwues-ul** ha-(yss)-ko (Yongho-ka) nolay-lul pwulu-ess-ni?
Chelswu-Nom what-Acc do-(Past)-and (Nom) song-Acc sing-Past-Q
'(lit.) What did Chelswu do, and he/(Yongho) sang a song?'

Assuming that the CSC also applies at LF in Korean, the examples shown in (21), where the wh-phrase is in a single conjunct, are problematic under the classical symmetrical coordination analysis, since non-ATB movement of the wh-phrase to Spec of CP at LF violates the CSC.

2.5 Scope of Negation and Neg Interpretation

The scope of negation in Korean is the c-commanding domain of Neg. Therefore, the scope of negation in coordinate structures where the negation appears after the verb in the final conjunct (final Neg, henceforth) enables us to determine the c-commanding relation between the first and the second conjuncts. In addition, even when two conjuncts are
under the same scope of negation, Neg interpretation can provide a clue about the structural relationship of the first and the second conjuncts. This follows from the fact that the association of Neg with the conjuncts differs depending on the structural relations of conjuncts, which in turn induces different Neg interpretation. In this section, I will show that the coordination analysis incorrectly predicts Neg interpretations in tenseless coordinations, which is a strong piece of evidence against the coordination analysis.

The coordination analysis correctly predicts the scope of final Neg and Neg interpretation in tensed coordinations. Since tensed coordinations have IP-conjunction structure, the scope of final Neg extends over only the final conjunct.

(22) Tensed Coordination

Chelswu-ka  pap-ul  mek-ess-ko (Yongho-ka)  ppang-ul  mek-ci anh-ass-ta
Chelswu-Nom rice-Acc eat-Past-ko (Yongho-Nom) bread-Acc eat-Cl Neg-Past-Dec
'Chelswu ate rice and (Yongho) did not eat bread.'

(23) IP-coordination

```
      ...IP
        /   \
       IP   IP
         /   /
        I'   I'
           /
          NegP I NegP I
            /
           Neg'  Neg'
             /
            VP   Neg  VP   Neg
```

However, the coordination analysis does not predict the correct Neg interpretations in the case of tenseless coordinations. Under the symmetrical coordination analysis, since tenseless coordinations are analyzed as VP-conjunctions, there are two theoretically
possible positions where NegP can be postulated. The first possibility is that Neg appears above each VP, and those two NegPs are conjoined, as shown in (24). There, both NegP moves to Tense across-the-board. In this case, tenseless coordinations are predicted to have an interpretation in which both the first and the second conjuncts are false ($\neg VP1 \land \neg VP2$), since each VP1 and VP2 has its own NegP.

(24) $\neg VP1 \land \neg VP2$

\[
\begin{array}{c}
\text{IP} \\
\quad \text{I'} \\
\quad \text{NegP} \\
\quad \text{NegP} \\
\quad \text{Neg} \\
\quad \text{Neg' } \\
\quad \text{VP1} \\
\quad \text{Neg} \\
\quad \text{VP2} \\
\quad \text{Neg} \\
\quad \text{ATB}
\end{array}
\]

The second possibility is that NegP appears immediately dominating a conjoined VP, as shown in (25). In this case, the scope of negation extends over the first and the second conjunct ($\neg (VP1 \land VP2)$); therefore, it is predicted that tenseless coordinations have an interpretation in which either the first or the second conjunct is false ($\neg VP1 \lor \neg VP2$).

(25) $\neg (VP1 \land VP2) = \neg VP1 \lor \neg VP2$

\[
\begin{array}{c}
\text{NegP} \\
\quad \text{Neg'} \\
\quad \text{VP} \\
\quad \text{Neg} \\
\quad \text{VP1} \\
\quad \text{ko} \\
\quad \text{VP2}
\end{array}
\]
However, neither of predictions is borne out in a tenseless shared subject coordination or a tenseless separate subject coordination.

(26) a. Tenseless Shared Subject Coordination

\[
\text{Chelswu-ka } \text{pap-ul} \text{ mek-ko kwuk-ul kkuli-ci anh-ass-ta}
\]
\[
\text{Chelswu-Nom rice.Acc eat-ko soup.Acc cook-CLI Neg-Past-Dec}
\]

(i) \(\neg VP1 \wedge \neg VP2 \Rightarrow\) not available

\[
\text{pap-ul mek-ci-to anh-ko, kwuk-ul kkuli-ci-to anh-ass-ta} \Rightarrow \text{FALSE}
\]
\[
\text{rice.Acc eat-CLI also Neg-and, soup.Acc cook-CLI also Neg-Past-Dec}
\]

'Chelswu did not eat rice, nor cooked soup.'

(ii) \(\neg VP1 \Rightarrow\) not available

\[
\text{kwuk-ul kkuli-unkes-man ha-yss-ta} \Rightarrow \text{FALSE}
\]
\[
\text{soup.Acc cook-Comp-only do-Past-Dec}
\]

'cooked soup only.'

(iii) \(\neg VP2 \Rightarrow\) available

\[
\text{Pap-ul mek-nukes-man ha-yss-ta} \Rightarrow \text{TRUE}
\]
\[
\text{rice.Acc eat-Comp-only do-Past-Dec}
\]

'ate rice only.'

b. Tenseless Separate Subject Coordination: the same as (26a)

\[
\text{Chelswu-ka } \text{pap-ul} \text{ mek-ko Yongho-ka kwuk-ul kkuli-ci anh-ass-ta}
\]
\[
\text{Chelswu-Nom rice.Acc eat-ko Yongho-Nom soup.Acc cook-CLI Neg-Past-Dec}
\]

Therefore, we can conclude that tenseless shared/separate subject coordination cannot have a symmetrical coordination structure. This strongly suggests that the so-called -ko conjunction in Korean cannot be coordination structure like and in English.
2.6 NPI Licensing

An NPI in Korean is licensed when it is c-commanded by Neg.

(27)  John-un amwukekto mek-ci anh-ass-ta
       John-Top anything eat-Cl Neg-Past-Dec
       'John didn't eat anything.'

However, NPI is not licensed even when it is c-commanded by Neg unless both NPI and Neg are in the same IP (Clause-mate condition, Choe 1987). Unlike English, an NPI, for example, down inside a CP complement of V is not licensed, as shown in (28). That is, it is generally agreed that there is no Neg-raising or lowering in Korean.

       I-Top John-Nom anything eat-Past-Dec-Comp think-Cl Neg-Past-Dec
       'I didn't think that John ate anything.'

A Subject NPI, however, is licensed by Neg in the same IP, although it is not licensed by Neg at overt syntax.

(29)  a.  Amwuto ice cream-ul mek-ci anh-ass-ta
       anyone ice cream-Acc eat-Cl Neg-Past-Dec
       'Noone ate ice cream.'

Assuming that the subject is reconstructed into VP-internal subject position at LF, and NPI-licensing takes place at LF, we can generalize that NPI in Korean is licensed by c-commanding Neg in the same IP. Phrase structure, especially the position of an IP boundary, and c-commanding relation, can be determined by the NPI licensing test. I assume the following structure for Neg (Park 198?, Yi 1993, among others).
The coordination analysis has difficulty in explaining NPI licensing in several cases of tenseless coordinations. In a tenseless shared subject coordination, the coordination analysis correctly predict that subject NPI is licensed by the final Neg. However, it fails to explain why object NPI in the first conjunct is not licensed by the final Neg, since object NPI in the first conjunct of a tenseless shared subject coordination is licensed by the final Neg in the same clause, as illustrated in the tree structure in (32):

(31) Tenseless Shared Subject Coordination

a. Subject NPI

\textbf{Amwu-to} pap-ul mek-ko swul-ul masi-ci anh-ass-ta

Anyone-Del rice-Acc eat-and alcohol-Acc drink-CI Neg-Past-Dec

'There is no one who drank after he ate the meal.'
b. Object NPI

*Chelswu-ka amuwkek-to mek-ko swul-ul masi-ci anh-ass-ta
Chelswu-Nom anything-Del eat-and alcohol-Acc drink-CI Neg-Past-Dec
'(inteneded) Chelswu did not eat anything and did not drink alcohol.'

(32) ... NegP
    /   \                  \neg'
   /     \                /   \neg
  /       \              /     \vP
 /         \            /       \Neg
|           |          |         |Subj. NPI|  \v'
|           |          |         |         |   \VP
|           |          |         |         |     \v
|           |          |         |         |       \ko
|           |          |         |         |         \VP
|           |          |         |         |           \Obj. NPI

In addition, the coordination analysis fails to explain why both the subject NPI and the object NPI in the first conjunct are not licensed by the final Neg in a tenseless separate subject coordination. In both of the possible phrase structures of a tenseless separate subject containing NegP, shown in (34a) and (34b), both the subject NPI and the object NPI in the first conjunct is c-commanded by Neg in the same clause; therefore they should be licensed.
(33) Tenseless Shared Subject Coordination

a. Subject NPI

*Amwu-to pap-ul mek-ko Chelswu-ka swul-ul masi-ci
Anyone-Del rice-Acc eat-and C-Nom alcohol-Acc drink-CI
anh-ass-ta
Neg-Past-Dec
'(intended) Noone cooked rice and Chelswu did not drink alcohol.'

b. Object NPI

*Chelswu-ka amwukek-to mek-ko Yongho-ka swul-ul masi-ci
Chelswu-Nom anything-Del eat-and Yongho-Nom alcohol-Acc drink-
anh-ass-ta
Neg-Past-Dec
'(intended) Chelswu did not eat anything, and Yongho did not drink alcohol.'

(34) a. ...NegP b. ...NegP

\[ \text{Neg'} \quad \text{NegP} \quad \text{ko} \quad \text{NegP} \quad I \]

\[ \text{vP} \quad \text{Neg} \quad \text{Neg'} \quad \text{Neg'} \quad I \]

\[ \text{vP} \quad \text{ko} \quad \text{vP} \quad \text{vP} \quad \text{Neg} \quad \text{vP} \quad \text{Neg} \quad I \]

\[ \text{Subj. NPI} \quad \text{Subj. NPI} \quad \text{Obj. NPI} \quad \text{Obj. NPI} \quad \text{ATB movement} \]

Notice that in both tenseless shared and separate subject coordinations, NPIs inside the first conjunct—the object NPI in the tenseless shared subject coordination in (31b), and the subject and the object NPIs in the tenseless separate subject coordination in (33a,b)—are not licensed by the final Neg. This appears to be related to a fact discussed in the
previous section, namely that the final Neg is not associated with the first conjunct in the tenseless shared and tenseless separate subject coordinations. However, since this should not be the case under the coordination analysis, it still cannot explain the cases in which NPI licensing by the final Neg fails.  

Yoon (1993) also discusses the NPI licensing test. He discusses cases in which NPIs are in subject position in the first conjunct, but leaves out the discussion of tenseless separate subject coordination, which presents a problem for his symmetrical coordination analysis, as shown in (33a) above. In the case of NPIs in object position, he does not use NPIs such as *amuwkekto* meaning 'anything', whose appearance in tenseless coordinations induces ungrammaticality he cannot explain, as shown in (31b) and (33b). Instead of *amuwkekto* 'anything', he uses NP-*pakkey* meaning 'NP-only', which is also an exceptive NPI in Korean and makes the sentence affirmative when it is licensed by Neg. Consider (35) which is cited from Yoon (1993).

(35) Tenseless Shared Object Coordination

John-i  pap-pakkey mek-ko chiu-ci anh-ass-ta
John-Nom rice-only  eat-and  clean-CI  Neg-Past-Dec

'It is only the meal that John ate and did not clean up afterward.'

Yoon claims that (35) is grammatical because it is V'-coordination, so the Neg in the second conjunct licenses the NPI in the first conjunct. However, if the Neg takes scope over both first verb *mek*- 'eat' and the second verb *chiu*- 'clean', we expect for (35) to have the interpretation 'It is only the meal that John ate and cleaned up' where both verbs are interpreted as affirmative. This is not the gloss Yoon provides. His gloss shows the Neg as taking scope only over the first conjunct. The second verb is still negative in (35), which shows that it is not associated with Neg. Recall that a negative predicate cancels out the negative interpretation with the exceptive NPI, and becomes affirmative. In

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8If we assume that NPI -licensing is a checking relation between NPI and Neg, that is, NPI moves to Spec of NegP, where it checks off its feature with its head, Neg, the classical symmetrical coordination analysis correctly predicts that all the cases of NPI licensing in (23b), and (25a,b), are ungrammatical due to a CSC violation at LF, since (23b) and (25a,b) involve non-ATB extraction of an NPI at LF.
addition, if Yoon is right in claiming that pap-pakkey is licensed by Neg in (35), then we expect that in other cases of tenseless coordination (such as tenseless shared subject-coordination or tenseless separate subject-coordination), NP-\textit{pakkey} in the first conjunct should be licensed by Neg in the second conjunct. However, this is not the case. (36a) shows the ungrammaticality of tenseless shared subject-coordination and (36b) shows that tenseless separate subject-coordination with NP-\textit{pakkay} is likewise ungrammatical.

(36) a. Tenseless Shared Subject Coordination

\begin{tabular}{llll}
  *John-i & pap-pakkey & mek-ko & kulus-ul & chiu-ci & anh-ass-ta \\
  John-Nom & rice-only & eat-and & dish-Acc & clean-CI & Neg-Past-Dec \\
  '(intended) John ate only rice, and did not clean up the dishes.'
\end{tabular}

b. Tenseless Separate Subject Coordination

\begin{tabular}{llll}
  John-Nom & rice-only & eat-and & Yongho-Nom & dish-Acc & clean-CI & Neg-Past-Dec \\
  '(intended) John ate only rice, and Yongho did not clean up the dishes.'
\end{tabular}

This shows that Yoon's apparent example of the licensing of object NPIs in the first conjunct by the final Neg in (35) is not due to a tenseless coordination. I suggest that the reason (35) is grammatical for some speakers (excluding me) is due to a non-NPI interpretation of -\textit{pakkey}: Presumably, in certain dialects, the exceptional NPI -\textit{pakkey} 'only' can be interpreted as its non-NPI equivalent -\textit{man} 'only'. This can explain the gloss that Yoon puts for (35): Neg takes scope only over the second conjunct, and NPI \textit{pap-pakkey} 'rice only' is interpreted as a non-NPI equivalent \textit{pap-man} meaning 'rice only'.

3. -\textit{ko} Coordination as Adjunction: An Adjunction Analysis

The classical symmetrical coordination analysis has immense difficulty in explaining many possible non-ATB extractions at syntax and LF, NPI licensing, and scope of negation. I propose an adjunction analysis for the -\textit{ko} coordination in Korean. In the
adjunction analysis, the -ko clause is an adjunct, and the second clause is the main clause. Since only the main verb moves to T, this immediately solves the problem of why only the second verb moves to tense. I claim that tenseless coordinations in which there are no separate subjects, that is, tenseless shared subject and object coordinations, are VP- or IP-adjunctions, whereas both tenseless separate subject coordinations and all tensed coordinations are best analyzed as IP-adjunctions. This implies that the existence of separate subjects as well as tense plays a role in determining clause boundaries. These claims will be clarified in the following sections with a various arguments.

(36)  a. VP-adjunction <-- Tenseless Shared Object/Subject Coordination

```
...IP
  NP i'
    VP i
      CP VP ess
        PROi...ko ti...
```

b. IP-adjunction <-- All Types of Coordinations

```
...IP
  CP IP
    ...ko
      VP i
```

Although it is an empirical fact, as will be showed in the following sections, that tensed shared object and subject coordination only have an IP-adjunction structure, lacking a VP-adjunction structure, it needs to be explained why it should be the case, since

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9 I will use “coordination” in section 3 only in the semantic sense. Again, it does not carry over any syntactic structure of coordination construction in other languages.
in the case of other adjunction structures such as -taynwuney 'because', the adjunct clauses can be adjoined to VP even when they have independent tenses, as will be showed in section 3.1.1.2. I have no explanation at this point.

Examples (1) and (2), then, are analyzed in the adjunction analysis, as shown in (37) and (38).

(37) a. Tenseless Shared Object Coordination --> VP- or IP-adjunction

Chelswu-ka pap-ul mek-ko chiwu-ess-ta
Chelswu-Nom rice-Acc eat-and clean-Past-Dec

'After Chelswu ate the rice, he cleaned it up.'

VP-adjunction ...IP IP-adjunction ...IP

Chelswu_i-ka I' CP IP

CP VP -ess

PRO_ti papj-ul t_i proj chiwu mek-ko

b. Tenseless Shared Subject Coordination --> VP- or IP-adjunction

Chelswu-ka pap-ul cis-ko kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-and soup-Acc cook-Past-Decl

'After Chelswu cooked the rice, he cooked some soup.
c. Tenseless Separate Subject Coordination --> IP-adjunction
Chelswu-ka pap-ul cis-ko Yongho-ka kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-and Yongho-Nom soup-Acc cook-Past-Dec
'After Chelswu cooked the rice, Yongho cooked some soup.'

(38)  a. Tensed Shared Object Coordination --> IP-adjunction
Chelswu-ka pap-ul mek-ess-ko chiwu-ess-ta
Chelswu-Nom rice-Acc eat-Past-and clean-Past-Dec
'After Chelswu ate the rice, he cleaned it up.'
b. Tensed Shared Subject Coordination --> IP-adjunction
Chelswu-ka pap-ul ci-ess-ko kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-Past-and soup-Acc cook-Past-Dec
'After Chelswu cooked the rice, he cooked some soup.'

c. Tensed Separate Subject Coordination --> IP-adjunction
Chelswu-ka pap-ul cis-ess-ko Yongho-ka kwuk-ul kkuli-ess-ta
Chelswu-Nom rice-Acc cook-Past-and Yongho-Nom soup-Acc cook-Past-Dec
'After Chelswu cooked the rice, Yongho cooked some soup.'
In the following sections, I will show how the adjunction analysis can explain problems the classical symmetrical coordination analysis fails to account for, which will in turn provide evidence for the adjunction analysis.

3.1. Scrambling

3.1.1 Extraction of an Argument Out of a Main Clause

3.1.1.1 Extraction of an Argument Out of a Main Clause of -ko Construction

Under the adjunction analysis, it is predicted that extraction of an argument out of a main clause is good unless it is scrambled into a constituent. First, let us observe the cases where an NP object is extracted out of the main clause to a position right after the initial subject. We predict that if the sentence has a VP-adjunction representation, the extraction is possible since the moved NP can be adjoined to the left of the adjoined VP, whereas if it has only IP-adjunction, the result is bad since the NP object is moved into the adjunct clause. Consider the examples in (39) and (40).
(39) Tenseless Coordination

a. Shared Subject Coordination \( \rightarrow \) VP or IP-adjunction

\[
\text{Chelswu-ka} \ [\text{VP kwukj-ul} \ [\text{VP} \text{CP PRO}_{i} \text{ pap-ul cis-ko} \ [\text{VP} t_{i} \text{ tkul}] \text{-ess-}ta]
\]

Chelswu-Nom soup-Acc rice-Acc make-and cook-Past-Dec

'After making rice, Chelswu cooked SOUP.'

b. Separate Subject Coordination \( \rightarrow \) IP-adjunction

\[
*[\text{IP} \text{CP Chelswu-ka kwuki-ul pap-ul cis-ko} \ [\text{IP} \text{Yongho-ka} t_{i} \text{ tkul}] \text{-ess-}ta]
\]

Chelswu-Nom soup-Acc rice-Acc make-and Yongho-Nom cook-Past-Dec

'After Chelswu made rice, Yongho cooked SOUP.'
(40) Tensed Coordination

a. Shared Subject Coordination --> IP-adjunction

* [IP [CP Chelswu-ka kwukj-ul pap-ul cis-ess-ko] [IP proj tj kkuli]]-ess-ta

Chelswu-Nom soup-Acc rice-Acc make-Past-and cook-Past-Dec

'After Chelswu made rice, he cooked SOUP.'

b. Separate Subject Coordination --> IP-adjunction

* [IP [CP Chelswu-ka kwukj-ul pap-ul cis-ess-ko] [IP Yongho-ka tj kkuli]]-

Chelswu-Nom soup-Acc rice-Acc make-Past-and Yongho-Nom cook-

ess-ta

Past-Dec

'After Chelswu made rice, Yongho cooked SOUP.'

(39a) shows that if there is no subject between the tenseless -ko clause and the main verb (that is, tenseless shared subject coordination), it has a VP-adjunction representation,

---

10 Some speakers of Korean find (36a) acceptable with pause before and after the moved object. This seems to be because they allow VP-adjunction for separate subject-Coordination. (i) shows its representation.

(i) Chelswu-ka [VP kwukj-ul [VP[CP PROi pap-ul cis-ess-ko] [VP ti tj kkuli]]-ess-ta

Chelswu-Nom soup-Acc rice-Acc make-Past-and cook-Past-Dec

'After Chelswu made rice, he cooked SOUP.'
therefore the extraction of the NP object out of the main clause to the left of the adjoined VP is possible. (39b) shows if the -ko clause and the main clause have separate subjects, it cannot have a VP-adjunction structure even in the case that the -ko clause is tenseless, and thus the same kind of extraction as (39a) is impossible. (40) shows that if the -ko clause is tensed, it cannot also be VP-adjoined. In short, (39) and (40) confirm the claim that tenseless shared subject coordinations (and presumably tenseless shared object coordinations) have a VP-adjunction structure, whereas tenseless separate subject coordinations, and all types of tensed coordinations, do not have a VP-adjunction structure.

Next, consider extraction of an argument out of a main clause over the -ko clause to the front of the entire sentence. Under the adjunction analysis, this is predicted to be good, and indeed that is the case, as shown in (41).

(41) a. Tenseless Shared Subject Coordination --> VP or IP-adjunction

\[
\text{kukj-ul} \quad [\text{IP Chelswu-ka VP[CP PROi pap-ul cis-ko]} \quad [\text{VP ti tj kkuli]}-\text{ess}]-\text{ta} \\
\text{kukj-ul} \quad [\text{IP CP Chelswu-ka pap-ul cis-ko}] \quad [\text{IP proi tj kkuli-ess}]-\text{ta} \\
\text{soup-Acc Chelswu-Nom rice-Acc make-and cook-Past-Dec} \\
'\text{After Chelswu made rice, he cooked SOUP.}'
\]

b. Tenseless/Tensed Separate Subject Coordination --> IP-adjunction

\[
\text{kwuki-ul} \quad [\text{IP [CP Chelswu-ka pap-ul cis-(ess)-ko]} \quad [\text{IP Yongho-ka ti tj kkuli}]-\text{ess}]-\text{ta} \\
\text{soup-Acc C-Nom rice-Acc make-(Past)-and Yongho-Nom cook-ess]-ta} \\
\text{Past-Dec} \\
'\text{After Chelswu made rice, he/(Yongho) cooked SOUP.}'
\]

We noticed in section 2.1.1 that (41b) is degraded compared to (41a). This is because scrambling over an IP-adjoined adjunct shows a (mild) subjacency effect. Compare (41a) and (41b) with argument extraction out of the main clause over IP-adjoined adjunct
clauses in other adjunction constructions, as shown in the following sections. The same degradation is also found in those cases.

3.1.1.2 Extraction of an Argument Out of a Main Clause over an Adunct Clause in Other Adjunction Constructions.

-Myen 'if' is an affix which is attached to the verb in the adjunct clause. A -myen adjunct clause is always tenseless, and is therefore interpreted under the scope of the matrix tense. Since the shared subject -myen construction can have a VP-adjunction structure (as well as an IP-adjunction structure), whereas the separate subject -myen construction has only an IP-adjunction structure, scrambling of the object of the main clause to a position right after the sentence-initial subject is grammatical in the case of the shared subject -myen construction, whereas it is not in the case of the separate subject -myen construction.

(42) a. Tenseless Shared Subject Adjunction

Chelswu-ka [VP kwuki-ul [VP [CP pap-ul ci-umyen] [VP ti kkuli]]]n-ta
Chelswu-Nom soup-Acc rice-Acc make-if cook-Pres-Dec
‘If Chelswu makes rice, he cooks SOUP.’

b. Tenseless Separate Subject Adjunction

*[IP [CP Chelswu-ka kwuki-ul pap-ul ci-umyen] [IP Yongho-ka ti kkuli-n]]-ta
Chelswu-Nom soup-Acc rice-Acc make-if Nom cook-Pres-Dec
‘If Chelswu makes rice, Yongho cooks SOUP.’

Next consider the extraction of an argument out of the main clause over the -myen adjunct clause. In the case of the separate subject -myen construction, which has only IP-adjunction structure, such extraction is slightly degraded for some speakers. This is exactly parallel to all tensed coordinations and to the tenseless separate subject -ko coordination, which I claim have only IP-adjunction structures.
(43)  

a. Tenseless Shared Subject Adjunction

\[ \text{kwukj}^{-}\text{ul} \hspace{1em} \text{Chelswu-ka} \hspace{1em} \text{pap-}\text{ul} \hspace{1em} \text{ci-umyen} \hspace{1em} \text{t}\_i \hspace{1em} \text{kkuli-nta} \]

soup-Acc \hspace{1em} Nom \hspace{1em} rice-Acc \hspace{1em} make-if \hspace{1em} cook-Pres-Dec

‘If Chelswu makes rice, he cooks SOUP.’

b. Tenseless Separate Subject Adjunction

\[ \text{kwukj}^{-}\text{ul} \hspace{1em} \text{Chelswu-ka} \hspace{1em} \text{pap-}\text{ul} \hspace{1em} \text{ci-umyen} \hspace{1em} \text{Yongho-ka} \hspace{1em} \text{t}\_i \hspace{1em} \text{kkuli-nta} \]

soup-Acc \hspace{1em} Nom \hspace{1em} rice-Acc \hspace{1em} make-if \hspace{1em} Nom \hspace{1em} cook-Pres-Dec

‘If Chelswu makes rice, Yongho cooks SOUP.’

Like the \text{-myen} ‘if’ adjunct clause, the adjunct clause in the \text{-ese} ‘because’ adjunction construction cannot have an independent tense. With regard to various extractions, the \text{-ese} construction also behaves exactly in the same way as \text{-myen} construction, as shown in (44) and (45).

(44)  

a. Tenseless Shared Subject Adjunction

\[ \text{Mary-ka} \hspace{1em} [\text{VP Yokohama-j}^{-}\text{ey} \hspace{1em} [\text{VP} \hspace{1em} [\text{CP} \hspace{1em} \text{meli-lul} \hspace{1em} \text{cala-se}] \hspace{1em} [\text{VP} \hspace{1em} \text{t}\_i \hspace{1em} \text{ka}]]]^{-}\text{ss-}\text{ta} \]

Nom to hair-Acc cut-because go-Past-Dec

‘Because Mary got her hair cut, she went to Yokohama.’

b. Tenseless Separate Subject Adjunction

\*[\text{IP} \hspace{1em} [\text{CP} \hspace{1em} \text{Mary-ka} \hspace{1em} \text{pangi-}\text{ul} \hspace{1em} \text{pap-}\text{ul} \hspace{1em} \text{mek-ese}] \hspace{1em} [\text{IP} \hspace{1em} \text{Joan-i} \hspace{1em} \text{t}\_i \hspace{1em} \text{chiwe-ss}]]^{-}\text{ta} \]

Nom room-Acc rice-Acc eat-because Nom clean-Past-Dec

‘Because Mary ate the meal, Joan cleaned the room.’
(45) a. Tenseless Shared Subject Adjunction

**Yokohama**-ey Mary-ka meli-lul cala-se ti ka-ss-ta
to Nom hair-Acc cut-because go-Past-Dec
‘Because Mary got her hair cut, she went to Yokohama.’

b. Tenseless Separate Subject Adjunction

?? **pangi-ul** Mary-ka pap-ul mek-ese Joan-i ti chiwu-ess-ta
room-Acc Nom rice-Acc eat-because Nom clean-Past-Dec
‘Because Mary ate the meal, Joan cleaned the room.’

In summary, tenseless -ko constructions are similar with -myen ‘if’ and -ese ‘because’ adjunction constructions, in the sense that i) the -ko clause is not allowed to have an independent tense, but is under the scope of the matrix tense; and ii) as shown by the extraction tests, the tenseless shared subject -ko coordination can have a VP-adjunction structure, whereas the tenseless separate subject -ko coordination has only an IP-adjunction structure.

In contrast to the -myen and -ese adjunction constructions, in the case of the -ttaymwuney ‘because’ adjunction construction, the adunct clause must have independent tense overtly or covertly. Even when tense is not overtly marked in the adjunct clause, the adjunct clause is not under the scope of the main clause, but has its own tense value, which is present tense.

(46) *John-i ecey pap-ul cis-ki-ttaymwuney Mary-ka kwuk-ul kkuli-ess-ta
Nom yesterday meal-Acc cook-Noml-because Nom soup-Acc boil-Past-Dec
'(intended meaning) Because John made the meal yesterday, Mary cooked soup.'

In this respect, the -ttaymwuney adjunction appears to be similar to the tensed -ko construction. However, its structural representation turns out to be different from the tensed -ko construction. Consider (47a), where the object of the main verb is extracted to right after the sentence-initial subject. The fact that (47a) is grammatical shows that the
tensed shared subject -taymwnuey construction has a VP-adjunction representation (presumably as well as IP-adjunction). In the case of the separate subject, it does not have a VP-adjunction structure, as (47b) shows.

(47)  a. Tensed Shared Subject Adjunction

Chelswu-ka [VP kwuki-ul [VP [ pap-ul cis-ess-ki-taymwnuey] [VP t_i kkuli]]]-Nom soup-Acc rice-Acc cook-Past-Noml-because boil-ess-ta
Past-Dec
‘Because Chelswu cooked rice, he made soup.’

b. Tensed Separate Subject Adjunction

*[IP [ Chelswu-ka kwuki-ul pap-ul cis-ess-ki-taymwnuey] [IP John-i t_i Nom soup-Acc rice-Acc make-Past-Noml-because Nom kkuli-ess]]-ta
boil-Past-Dec
‘Because Chelswu cooked rice, John made soup.’

(48b) shows that argument extraction out of the main clause over the adjunct adjoined to IP is also slightly degraded also in the -taymwnuey adjunction construction. Since the shared subject -taymwnuey construction can have a VP-adjunction structure, extraction of an argument over the adjunct clause in this case is perfect, as shown in (48a).
(48) a. Tensed Shared Subject Adjunction


Past-Dec

'After Chelswu made rice, he cooked SOUP.'

b. Tensed Separate Subject Adjunction

\textit{??kwukj-ul} [\textit{IP} Chelswu-ka pap-ul cis-ess-ki-ttaymwuney]

soup-Acc C-Nom rice-Acc make-Past-Noml-because

[\textit{IP} Yongho-ka \textit{ti} kkuli-ess]]-ta

Yongho-Nom cook-Past-Dec

'Because Chelswu made rice, Yongho cooked SOUP.'

3.1.1.3 Conclusion

In sub-section 3.1.1, we observed extractions of an argument out of the second clause in \textit{-ko} constructions. The fact that extraction of an argument out of the second clause to a position right after the initial subject is possible in a tenseless shared subject coordination, and that the extraction of an argument over the \textit{-ko} clause in any type of \textit{-ko} constructions is grammatical, strongly supports the adjunction analysis over the classical symmetrical coordination analysis. In addition, whether extraction of an argument out of the main clause to right after the sentence initial subject is possible or not provides a way to decide whether the \textit{-ko} clause can be adjoined to \textit{VP}. With this extraction test, we concluded that tenseless shared subject coordinations can have a VP-adjunction structure, whereas tenseless separate subject and all types of tensed coordinations cannot. Finally, it was also shown that these extractions in \textit{-ko} constructions are exactly same as those in other adjunction constructions of the same type.
3.1.2 Scrambling of an Adjunct Out of a Main Clause

Next, consider scrambling of an adjunct out of the main clause over the -ko clause. (49) shows scrambling of a locative PP.

(49) Adjunct Scrambling in Tenseless/Tensed Shared/Separate Subject

*Discoj-eyle [John-i cip-eyle swukcey-lul ha-(yss)-ko]

at Nom house-at homework-Acc do-Past-and

(Mary-ka) tj chwum-ul chwu-ess-ta

Nom dance-Acc dance-Past-Dec

'(lit.) [In the discoj], after John did his homework at home, (Mary) danced tj.'

In contrast to the scrambling of an argument out of the main clause over a -ko clause, which is grammatical, as shown in the previous section, scrambling of an adjunct out of the main clause over the -ko adjunct clause induces ungrammaticality in all types of -ko constructions. The adjunct analysis correctly predicts that an adjunct scrambling over the -ko clause would pattern with an adjunct scrambling over an adjunct clause in other adjunction constructions. Extraction of an adjunct over other adjunction clauses induces ungrammaticality like extraction over the -ko clause. (50) shows extraction of an adjunct over the -myen 'if' clause. The same ungrammaticality holds for adjunct extraction over all other types of adjunct clauses.

(50) Adjunct Scrambling over -(u)myen clause

*8 sij-eyle Mary-ka 5 si-eyle pap-ul mek-umyen (Joan-i) tj

o’clock-at Nom o’clock-at rice-Acc eat-if (Nom)
pang ul chiwun-ta

room-Acc clean-Pres-Dec

'(lit.) [At 8 o'clock], if Mary eats the meal at 5 o'clock, she/(Joan) cleans the room tj.'
Even though any explanation which accounts for the ungrammaticality of an adjunct extraction over the adjunct clause in (50) would also explain impossible adjunct extraction over the -ko clause in (49), I suggest the following.\footnote{This has been suggested by Whitman and Toyoshima (p.c.)} The reason that (49) and (50) are ungrammatical is because the moved adjunct fails to antecedent-govern the trace, which is an ECP violation.

(51) Antecedent Government (Rizzi 1990)

\[
\begin{align*}
X \text{ antecedent-governs } Y \iff \\
(i) & \ X \text{ and } Y \text{ are coindexed} \\
(ii) & \ X \text{ c-commands } Y \\
(iii) & \text{no barrier intervenes} \\
(iv) & \text{Relativized Minimality is respected.}
\end{align*}
\]

What causes failure of antecedent-government seems to be that the adjunct clause is an intervening potential antecedent-governor of the adjunct trace. This appears to be a case of a violation of revised relativized minimality, as proposed by Bowers (1994).

(52) Relativized Minimality: \(X\) a-governs \(Y\) only if there is no \(Z\) such that

(i) \(Z\) is a typical potential a-governor for \(Y\),

(ii) \(Z\) c-commands \(Y\) and does not c-command \(X\).

(53) Revised Subcases (Bowers 1994)

a. \(Z\) is a typical potential antecedent governor for \(Y\), \(Y\) in an X-chain = \(Z\) is a head c-commanding \(Y\).

b. \(Z\) is a typical potential antecedent governor for \(Y\), \(Y\) in an A-chain = \(Z\) is an A-specifier c-commanding \(Y\).

c. \(Z\) is a typical potential antecedent governor for \(Y\), \(Y\) in an A’-specifier chain = \(Z\) is an A’-specifier c-commanding \(Y\).
d. Z is a typical potential antecedent governor for Y, Y in an A’-adjunct chain = Z is an A’-adjunct c-commanding Y.

Bowers splits relativized minimality for A’-chains into A’-specifier chains and A’-adjunct chains. Under his proposal, relativized minimality applies only to landing sites of the same type, and Spec positions and adjacency sites are of different types. That is, an intervening adjoined position does not block A’-movement to Spec of CP, nor does an intervening A’-specifier block A’-movement to an adjoined position.

Bowers’ suggestion can explain the ungrammaticality of extraction of a non-argument over an adjunct clause, if we assume that scrambling (at least non-argument scrambling) in Korean is an adjunction movement, but not substitution movement to an A’-specifier, such as the Spec of CP.

In fact, there is a piece of evidence which supports Bowers’ distinction between types of A’-chains with regard to relativized minimality. Consider the following examples:

Comp ask try-Past-Q
‘(lit.) Seriously, did John ask Joan what Mary carried out tì?’

ask try-Past-Q
‘(lit.) Howì, did John ask Joan what Mary did tì?’

As shown in (54a) and (54b) respectively, scrambling an adjunct out of a wh-island is grammatical, whereas scrambling a wh-adjunct out of a wh-island is out. Rizzi’s
relativized minimality predicts that *mwoess ‘what’ in (54a), which is moved to the embedded Spec of CP at LF, should block the antecedent government of the trace in the A’-chain in the same way as it does in (54b). Since this is not the case, we can conclude that the difference in grammaticality between (54a) and (54b) comes from the different types of A’-chain entering into antecedent-government, which is Bowers' proposal. Under Bowers' proposal, (54a) involves an A’-adjunct chain. That is, *simkakhakey ‘seriously’ is scrambled to the matrix IP-joined position; therefore *mwoess ‘what’ in A’-specifier position does not block antecedent-government of the adjunct trace. In contrast, in (54b), ettehekey ‘how’ first scrambles to adjoin to the matrix IP, and then moves to the matrix Spec of CP at LF, where it fails to antecedent-govern its trace, since there is a potential antecedent-governor, *mwoess ‘what’ in the embedded Spec of CP c-commanding the wh-trace.\(^{12}\)

To summarize, scrambling of an adjunct out of the main clause over the -ko clause in all types of -ko constructions follows the same pattern as scrambling over an adjunct clause in other adjunct constructions, as predicted under the analysis that I propose. It is suggested that the pattern of ungrammaticality can be explained by a revised relativized minimality which includes a base-generated adjunct as a potential governor for a c-commanding adjunct.

\(^{12}\)It is not possible to construct an example to see whether an intervening adjunct blocks antecedent-government of a trace in an A’-specifier chain. This is because there is no overt wh-movement in Korean, and wh-movement in the overt syntax is another instance of scrambling. For example, in the following example, way ‘why’ is scrambled over the adjunct, 8 si-e 8 o’clock’, but it does not involve wh-movement to Spec of CP in the overt syntax. We cannot conclude from (i) that the intervening adjunct blocks antecedent government of a trace in A’-specifier chain, since (i) involves an A’-adjunct chain in the overt syntax as well as an A’-specifier chain at LF, and we do not know which is responsible for the ungrammaticality of (i).

(i)

   why Nom Dat Nom o’clock-at rice-Acc eat-Past-Comp
   mwula po-ass-ni?
   ask try-Past-Q
   ‘Why did John ask if Mary ate meal at 8 o’clock tî́?’
3.2 Extraction Out of the -ko Clause

3.2.1 Extraction of an Argument Out of the -ko Clause

Next, let us consider extraction out of the -ko clause. The extraction of an argument NP out of the first clause is grammatical, as shown in (55):

(55) Tenseless Shared/Separate Subject

\[
\text{ku chayki-o [John-i [Mary-ka t_i ilk-ko (Joan-i) swukcey-lul}
\]
That book-Acc Nom Nom read-and ( Nom) homework-Acc
ha-yss-ta-ko] sayngkakha-n-da.
do-Past-Dec-Comp think-Pres-Dec
'(lit.) That book\textsubscript{j}, John thought that after Mary read t\textsubscript{i}, she/(Joan) did homework'

Under the adjunction analysis, the relative grammaticality of the extraction out of a non-complex NP adjunct clause depends on the strength of CED effects in Korean. CED effects in Korean are weak or almost indiscernible for some speakers with extraction of an argument. (56a) is an example which shows the extraction of an argument NP out of a -myen 'if' adjunct clause, (56b) shows extraction out of an -ese 'because' adjunct clause, (56c) extraction out of a -ttaymwuney 'because' adjunct clause.

(56) a. Tenseless Shared/Separate Subject

\[
\text{ku chayki-o [John-i [Mary-ka t_i ilk-umyen (Joan-i) swukcey-lul}
\]
That book-Acc Nom Nom read-if Nom homework-Acc
ha-yss-ta-ko] sayngkakha-yss-ta.
do-Past-Dec-Comp think-Past-Dec
'(lit.) The book\textsubscript{j}, John thought that if Mary read t\textsubscript{i}, she/(Joan) did homework'
b. Tenseless Shared/Separate Subject

\[ \text{ku chayki-o [John-i [Mary-ka t'i ilk-ese] (Joan-i) swukcey-lul} \]

That book-Acc Nom Nom read-because Nom homework-Acc
ha-yss-ta-ko] sayngkakha-yss-ta.
do-Past-Dec-Comp think-Past-Dec

'(lit.) The book, John thought that because Mary read t'i, she/(Joan) did homework'

c. Tensed Shared/Separate Subject

\[ \text{ku chayki-o [John-i [Mary-ka t'i ilk-ess-ki-ttaymwuney (Joan-i)]]} \]

that book-Acc Nom Nom read-Past-Noml-because Nom
swukcey-lul ha-yss-ta-ko] sayngkakha-yss-ta.
homework-Acc do-Past-Dec-Comp think-Past-Dec

'(lit.) The book, John thought that because Mary read t'i, (Joan) did homework.'

3.2.2 Extraction of an Adjunct Out of -ko Clause

The adjunction analysis predicts that extraction of an adjunct out of the -ko clause will induce ungrammaticality, since CED effects in Korean are observed with extraction of an adjunct. (57) shows examples of adjunct extraction out of adjunct clauses: (57a) out of a -myen ‘if’ adjunct clause, (57b) out of an -ese ‘because’ adjunct clause, and (57c) out of a -ttaymwuney ‘because’ adjunct clause. All of them are ungrammatical. As predicted, extraction of an adjunct out of the -ko clause is ruled out by CED, as shown in (58).
(57) a. Tenseless Shared/Separate Subject

*8 siq-ey [John-i [Mary-ka ti swukcey-lul ha-myen (Joan-i)
o’clock-at Nom Nom homework-Acc do-if Nom
home- to come-Past-Dec-Comp think-Past-Dec
’(lit.) [At 8 o’clock]i, John thought that if Mary did her homework ti, she/(Joan)
came home.’

b. Tenseless Shared/Separate Subject

*8 siq-ey [John-i [Mary-ka ti swukcey-lul ha-yse (Joan-i)
o’clock-at Nom Nom homework-Acc do-because Nom
home- to come-Past-Dec-Comp think-Past-Dec
’(lit.) [At 8 o’clock]i, John thought that because Mary did her homework ti, she/
(Joan) came home.’

c. Tensed Shared/Separate Subject

*8 siq-ey [John-i [Mary-ka ti swukcey-lul ha-yss-ki-\text{t}taymwuney (Joan-i)
o’clock-at Nom Nom homework-Acc do-Past-Noml-because Nom
home- to come-Past-Dec-Comp think-Past-Dec
’(lit.) [At 8 o’clock]i, John thought that because Mary did her homework ti,
she/(Joan) came home.’
(58) Tenseless/Tensed Shared/Separate Subject

*8 sij-ey [John-i [Mary-ka tj swukcey-lul ha-(yss)-ko (Joan-i) cip-ey
o’clock-at Nom Nom homework-Acc do-(Past)-and Nom home-to
o-ass-ta-ko] sayngkakha-yss-ta.13
come-Past-Dec-Comp think-Past-Dec
'(lit.) [At 8 o’clock], John thought that Mary did her homework tj, and she/
(Joan) came home.'

3.3 Right-dislocation Out of the Main Clause

As shown in section 2.2., right-dislocation out of the second clause also shows an
argument/adjunct asymmetry. That is, while right-dislocation of an argument out of the
final clause is grammatical, as shown in (59), dislocation of an adjunct is not, as illustrated
in (60).

(59) Argument Right-dislocation in Tenseless/Tensed Shared Subject

na-nun [John-i ku chayk-ul po-(ass)-ko ej hulli-ess-ta-ko]
I-Top Nom that book-Acc see-Past-and drop-Past-Dec-Comp
sangkakha-n-ta, nwunmwuli-lul
think-Pres-Dec tears.Acc
'(lit.) I think that John read the book, and he dropped ej, tearsj.'

---

13(54) is good with the following interpretation: i) the interpretation that 8 o’clock is construed with the
matrix clause, that is, with the interpretation that ‘it was at 8 o’clock that John thought that...’; ii) the
interpretation that 8 o’clock has scope over the entire embedded clause, that is, with the interpretation that
‘John thought that it was at 8 o’clock that...’
(60) Adjunct Right-dislocation in Tenseless/Tensed Shared Subject

*John-i [Mary-ka cip-eyse swukcey-lul ha-(yss)-ko ti]

Nom Nom home-at homework-Acc do-Past-and

nol-ass-ta-ko] sayngkakha-yss-ta, [ku cafe-eyse]i

play-Past-Dec-Comp think-Past-Dec the at

'(lit.) John thought that Mary got her hair cut in a beauty salon, and played around ti, [at the cafe]i.'

The adjunct analysis explains the data in (59) and (60) in exactly the same way as it does the scrambling data; namely, right-dislocation of an argument out of the main clause is fine, since it does not violate any conditions, whereas dislocation of an adjunct is ungrammatical due to revised relativized minimality.

The following examples show that right-dislocation of other adjunct constructions out of the main clauses of other adjunct constructions behaves in exactly the same way as dislocation out of the final clause of a -ko construction. That is, right-dislocation of an argument out of the main clause is grammatical in (61), whereas right-dislocation of an adjunct is ruled out in (62).

(61) Argument Right-dislocation

a. na-nun [John-i ku chayk-ul po-myen ti hulli-n-ta-ko] sangkakha-n-ta,

I-Top Nom that book-Acc see-if drop-Pres-Dec-Comp think-Pres-Dec

nwunmwul]-lul

tears-Acc

'(lit.) I think that if John reads the book, he drops ti, tearsi.'
   I-Top Nom that book-Acc see-Past-Noml-because drop-Past-Dec-Comp
   sangkakha-n-ta, nwunmwulj-lul
   think-Pres-Dec tears-Acc
   '(lit.) I think that because John read the book, he dropped ti, tearsj.'

(62) Adjunct Right-dislocation
   a. *John-i [Mary-ka cip-eyse swukcey-lul ha-myen ti
      Nom Nom home-at homework-Acc do-if
      nol-ass-ta-ko] sayngkakha-yss-ta, ku cafej-eyse
      play-Past-Dec-Comp think-Past-Dec the at
      '(lit.) John thought that if Mary got her hair cut in a beauty salon, she played
      around ti, [at the cafe]j.'

   b. *nay-ka [John-i 5 si-ey swukcey-lul ha-yss-ki-ttaymwuney ti
      I-Nom Nom o'clock-at homework-Acc do-Past-Noml-because
      nol-ass-ta-ko] sayngkakha-yss-ta, 8 sij-ey
      play-Past-Dec-Comp think-Past-Dec o'clock-at
      '(lit.) I thought that because John did his homework at five, he played ti,
      [at eight o'clock]j.'

3.4 Right-dislocation Out of the -ko Clause

Right-dislocation out of the -ko clause follows the same pattern and receives the same
explanation as the scrambling out of the -ko clause discussed in section 3.2. While
argument right-dislocation out of the -ko clause is slightly degraded at worst in (63),
adjunct right-dislocation is completely ungrammatical, since it also violates the ECP, as
shown in (64).
(53) Argument Right-dislocation

a. Tenseless Shared Subject

Mary-ka ti kkuthnay-ko cenyek-ul mek-ess-ta, swuhak swukceyi-lul
Nom finish-and dinner.Acc eat-Past-Dec math homework.Acc
'Mary finished ti, and she ate dinner, [math homework]i.'

b. Tenseless/Tensed Separate Subject

??Mary-ka ti kkuthnay-(ess)-ko John-i cenyek-ul mek-ess-ta,
Nom finish-Past-and Nom dinner.Acc eat-Past-Dec
swuhak swukceyi-lul
math homework.Acc
'Mary finished ti, and John ate dinner, [math homework]i.'

(64) Adjunct Right-dislocation

*Mary-ka ti swukceyi-lul ha-(yss)-ko (John-i) cip-eysye
Nom homework.Acc did-(Past)-and Nom home-at
ceyek-ul mek-ess-ta, [hakkyo-eysye]i.
dinner.Acc eat-Past-Dec, school-at
'Mary did her homework ti, and (John) went home, [at school]i.'

Right-dislocation of an argument, or right-dislocation of an adjunct out of an adjunct clause follows the same pattern as right-dislocation out of a -ko clause. (65) shows right-dislocation of an argument out of a -myen 'if' clause. (66) shows right-dislocation of an adjunct out of the same adjunct clause.
(65) Argument Right-dislocation

a. Tenseless Shared Subject

Mary-ka t投降-myen cenyek-ul mek-ess-ta, swuhak swukcey-y-lul
Nom finish-if dinner-Acc eat-Past-Dec math homework-Acc
‘If Mary finished t投降, she ate dinner, [math homework]i.’

b. Tenseless Separate Subject

??Mary-ka t投降 kkuthnay-myen John-i cenyek-ul mek-ess-ta,
Nom finish-if Nom dinner-Acc eat-Past-Dec
swuhak swukcey-y-lul
math homework-Acc
‘If Mary finished t投降, John ate dinner, [math homework]i.’

(66) Adjunct Right-dislocation

* Mary-ka t投降 swukcey-y-lul ha-myen (John-i) cip-eyse cenyek-ul
Nom homework-Acc do-if (Nom) home-at dinner-Acc
mek-ess-ta, hakkyoj-eysey
eat-Past-Dec school at
‘If Mary does her homework t投降, she/(John) ate dinner at home, [at school]i.’

3.5 LF Extraction

Extraction out of both -ko clause and the final clause at LF also shows argument/adjunct asymmetry. That is, extraction of an argument out of the either -ko clause or the final clause at LF is grammatical, as already shown in section 2.4., and also illustrated in the (a) examples in (67) and (68), whereas extraction of an adjunct out of either clause at LF is ungrammatical, as shown in the (b) examples in (67) and (68):
(67) LF Extraction out of -ko clause
a. Argument Extraction
   
   John-i  mwuess-ul mek-(ess)-ko Mary-ka  kwuk-ul  kkuli-ess-ni?  
   Nom  what-Acc  eat-(Past)-ko  Nom  soup-Acc  boil-Past-Q  
   '(lit.) John ate what, and Mary boiled the soup?'

b. Adjunct Extraction
   
   *John-i  way  nolay-lul  pwulu-(ess)-ko Mary-ka  bang-ul  
   you-Top  Nom  why  song-Acc  sing-(Past)-and  Nom  room-Acc  
   chengsoha-yss-ni?  
   clean-Past-Q  
   '(lit.) John sang a song why, and Mary cleaned the room?'

(68) LF Extraction out of the main clause over -ko caluse
a. Argument Extraction
   
   John-i  nolay-lul  pwulu-(ess)-ko Mary-ka  mwuess-ul  mek-ess-ni?  
   Nom  song-Acc  sing-(Past)-and  Nom  what-Acc  eat-Past-Q  
   '(lit.) John sang a song, and Mary ate what?'

b. Adjunct Extraction
   
   *John-i  nolay-lul  pwulu-(ess)-ko Mary-ka  way  bang-ul  
   you-Top  Nom  song-Acc  sing-(Past)-and  Nom  why  room-Acc  
   chengsoha-yss-ni?  
   clean-Past-Q  
   '(lit.) John sang a song, and Mary cleaned the room why?'

Under the adjunct analysis, since there is no CED for arguments at LF under the classical account of Huang (1982), the well-formed example of an extraction of an argument out of an -ko adjunct clause in (67a) can be explained. In contrast, since ECP applies at LF, and the moved wh-phrase way 'why' does not antecedent-govern the trace at LF, the adjunct
movement out of the -ko adjunct clause at LF in (67b) is ungrammatical. (68a) shows that argument extraction over IP-adjoined -ko clause is grammatical in comparison with the same type of extraction in the overt syntax, which is degraded due to subjacency effect. This is exactly what is predicted, since subjacency is known not to be applied at LF. (68b) follows the same explanation to extraction out of the main clause in the overt syntax. That is, extraction of an adjunct is ruled out due to revised RM applied at LF. Note that if the symmetrical coordination analysis assumes that CSC does not apply at LF to explain the possible argument extraction, it cannot explain the ungrammaticality of the adjunct extraction, and vice versa.

(69) shows LF extraction out of other adjunct clauses, and (70) LF extraction over other adjunct clauses. They follow the same (un)grammaticality as LF extractions in -ko construction.

(69) LF Extraction out of -ttaymwnuey 'because' clause

a. Argument Extraction

boil-Past-Comp know-Q
'(lit.) Do you know [because John ate what, Mary boiled the soup]?'

b. Adjunct Extraction

*ne-nun [John-i way wul-esski-ttaymwnuey Mary-ka bang-ul I-Top Nom why cry-Past-because Nom room-Acc chengsoha-yss-nunci] a-ni?
clean-Past-Comp know-Q
'(lit.) Do you know [because why John cried, Mary cleaned the room].'
(70) LF Extraction out of the main clause over -ttaymwuney 'because' clause

a. Argument Extraction

ne-nun [John-i nolay-lul pwulu-ess-ki-ttaymwuney Mary-ka mwuess-ul
you-Top Nom song-Acc sing-Past-Noml-because Nom what-Acc
mek-ess-nunci] a-ni?
eat-Past-Comp know-Q
'Do you know what Mary ate because John sang a song?'

b. Adjunct Extraction

*ne-nun [John-i wul-ess-ki-ttaymwuney Mary-ka ettehkhey pang-ul
I-Top Nom cry-Past-Noml-because Nom how room-Acc
chengsohayss-nunci] a-ni
cleaned-Comp know-Q
'Do you know [how Mary cleaned the room because John cried].'

3.6 Clausal Scrambling and Right-Dislocation

Recall that Coordination analysis could not explain clausal scrambling or right-
dislocation of one of a conjoined VP, or a conjoined IP. The adjunction analysis
straightforwardly explains them. This is so because an adjunct (clause) can be scrambled
or right-dislocated freely in Korean.

(71) Long-distance Clausal Scrambling

a. Tenseless/Tensed Shared Subject

[CP Nolay-lul pwulu-(*ess)-ko]j nay-ka Chelswu-ka [VP tį [VP chwum-ul chwu-
song-Acc sing-(*Past)-and I-Nom Chelswu-Nom dance-Acc dance-
ess-ta-ko sayngkakha-n-ta.
Past-Dec-Comp think-Pres-Dec
'
[AFTER Chelswu sang a song]l, I think tį he danced.']
b. Tenseless/Tensed Shared/Separate Subject

[CP Chelswu-ka nolay-lul pwulu-(ess)-ko]i nay-ka [IP ti [IP (Yongho-ka)]
Chelswu-Nom song-Acc sing-(Past)-and I-Nom (Yongho-Nom)
chwum-ul chwu-ess-ta-ko sayngkakha-n-ta.
dance-Acc dance-Past-Dec-Comp think-Pres-Dec

' [After Chelswu sang a song]i, I think ti Yongho danced. '

(72) Right-Dislocation

a. Tenseless/Tensed Shared Subject

Chelswu-ka ti chwum-ul chwu-ess-ta. [CP Nolay-ul pwulu-(*ess)-ko]i
Chelswu-nom dance-Acc dance-Past-Dec song-Acc sing-(*Past)-and

'Chelswu danced. After singing a song.'

b. Tenseless/Tensed Shared/Separate Subject

ti (Yongho-ka) chwum-ul chwu-ess-ta. [Chelswu-ka nolay-lul pwulu-(ess)-ko]i
(Nom) dance-Acc dance-Past-Dec C-Nom song-Acc sing-(Past)-and

'Hej/(Yongho) danced. After Chelswu sang a song. '

(71) shows examples of scrambling of the -ko adunct clause. The examples in (72) show right-dislocation of the -ko adjunct clause. Each (a) example in (71) and (72) shows that tenseless shared subject coordinations can have a VP-adjoined -ko clause, whereas tensed shared subject coordinations cannot. The (b) examples in (71) and (72) show that in tenseless shared subject coordinations, the -ko clause also can be adjoined to IP, like tenseless separate subject coordinations and tensed coordinations.

3.7 NPI Licensing

With regard to NPI licensing, the adjunction analysis predicts that when an NPI is inside an adjunct and the Neg is in main clause, the sentence is bad. This is because, as
mentioned in section 2.5, an NPI in Korean must be licensed by Neg in the same IP. Consider (73), where an NPI is in the subject position:

(73) a. Tenseless/Tensed Shared Subject

\[
\begin{align*}
&\text{Amwu-to [VP [CP pap-ul mek-(*ess)-ko][VP swul-ul masi-ci]] anh-ass-ta} \\
&\text{Anyone-Del rice-Acc eat-(Past)-and alcohol-Acc drink-CI Neg-Past-Dec} \\
&\text{'No one ate rice and had drinks.'}
\end{align*}
\]

\[
\begin{tikzpicture}
    \node {...IP}
    \child {node {amwuto}\node {I'}\node {NegP}\node {I}}
    \child {node {Neg'}\node {ass}\node {VP}\node {Neg}}
    \child {node {CP} \node {VP} \node {anh} \node {pap-ul mek-k0} \node {V'} \node {swul-ul masi-ci}}
\end{tikzpicture}
\]

b. Tenseless/Tensed Separate Subject

\[
\begin{align*}
&*\text{[IP [CP Amwu-to pap-ul mek-(ess)-ko] [IP Chelswu-ka swul-ul} \\
&\text{Anyone-Del rice-Acc eat-(Past)-and Chelswu-Nom alcohol-Acc} \\
&\text{masi-ci anh-ass]-ta} \\
&\text{drink-CI Neg-Past-Dec} \\
&\text{'Anyone ate rice and Chelswu did not have drinks.'}
\end{align*}
\]
(73a) is an example of tenseless shared subject coordination, which can have a VP-adjunction structure; therefore the NPI subject can be in the matrix subject position, licensed by the Neg in the matrix clause. It also shows that the tensed -ko clause cannot be adjoined to VP. (73b) is an example where the NPI is in the subject position of the tensed -ko adjunct clause and Neg is in the main clause. This is ruled out, since the NPI cannot be licensed by a Neg which is not in the same clause as the NPI.

(74) shows examples in which the NPI is in object position of the adjunct clause, and Neg is in the main clause.
(74) a. Tenseless/Tensed Shared Subject

*Chelswu-ka [VP [CP amuwkek-to mek-(ess)-ko] [VP swul-ul masi-ci]]

anh-ass-ta

*[[IP [CP Chelswu-ka amuwkek-to mek-(ess)-ko] [IP swul-ul masi-ci anh-ass]]]-ta

Chelswu-Nom anything-Del eat-(Past)-and alcohol-Acc drink-CI Neg-Past-Dec

'Chelswu eats anything and did not drink alcohol.'

b. Tenseless/Tensed Separate Subject

*[[IP [CP Chelswu-ka amuwkek-to mek-(ess)-ko] [IP Yongho-ka swul-ul

Chelswu-Nom anything-Del eat-(Past)-and Yongho-Nom alcohol-Acc

masi-ci anh-ass]-ta

drink-CI Neg-Past-Dec

'Chelswu eats anything and Yongho did not drink alcohol.'

(75) a. 

*...IP

Chelswu-ka

I'

NegP

I Chelswu-ka

Neg ass

mek-(ess)-ko

NegP

I

VP

Neg

I

CP

VP

anh

Chelswu-ka

I'

pro/Yongho-ka

anh

mek-(ess)-ko

swul-ul masi-ci

swul-ul masi-ci

anh-
Regardless of the type of coordination, both of the examples in (74) are ungrammatical, since the object NPI in the adjunct clause is not licensed by Neg in the main clause. (75a) shows the tree structure of (74a) with VP-adjunction, (75b) that of (74a) with IP adjunction and that of (74b).

3.8 Scope of Negation

The scope of negation provides further evidence for the adjunction analysis. When Neg appears with the main verb, in the case of tenseless separate subject coordinations and all tensed coordinations, negation has scope over only the main clause (narrow scope), whereas tenseless shared subject coordination has both narrow scope and the sentential negation (wide scope). These are shown in (76) and (77), respectively. This is exactly what the adjunction analysis predicts, since, under the analysis, tenseless separate subject coordination and tensed coordinations have IP-adjunction structures, whereas tenseless shared subject coordination has both IP- and VP-adjunction structures.

(76) Tenseless/Tensed Separate Subject --> IP-adjunction --> narrow scope

Chelswu-ka pap-ul mek-(ess)-ko Yongho-ka TV-lul po-ci anh-ass-ta
Chelswu-Nom rice-Acc eat-(Past)-ko Yongho-Nom TV-Acc watch-ci Neg-Past-Dec
'Chelswu ate rice and Yongho did not watch TV.'

--> Past(Chelswu eat rice & Neg(Yongho watch TV))
(77) Tenseless Shared Subject

Chelswu-ka pap-ul mek-ko TV-lul po-ci anh-ass-ta
Chelswu-Nom rice-Acc eat-ko TV-Acc watch-ci Neg-Past-Dec

I. VP-adjunction --> wide scope
'It is not the case that after Chelswu ate the meal, he watched TV.'

(i). After Chelswu ate rice, he did not watch TV.'

=Past((Chelswu eat rice) 'ko' Neg(he watch TV))

(ii). Chelswu watched TV, but not after he ate rice.

=Past(Neg(Chelswu eat rice) 'ko' (he watch TV))\textsuperscript{14}

II. IP-adjunction --> narrow scope --> the same as I (ii).

3.9 Anaphor Binding

The -te construction in Japanese is known to have several different structures: an adjunction structure, a structure roughly equivalent to the English gerundive (Jorden & Noda 1987), and a symmetrical coordination structure (Tomioka 1992). Based on anaphor binding facts, Tomioka has claimed that the -te construction in Japanese cannot be an adjunction structure, but must be a coordination structure, as illustrated in (78).

(78) Tomioka's example


   self-Gen children-Nom graduation-did-because Top glad-is

   'Since hisî son graduated, Terryî is happy.'


   self-Gen children-Nom returned-time Top airport-to welcome-for went

   'When hisî children returned, Terryî went to the airport to greet them.'

\textsuperscript{14}The interpretation in I (i), where only the adjunct clause is associated with Neg, is one where Neg undergoes association with focus (Jackendoff, 1972).
   self-Gen children-nom pet-ACC kill-and Nom money-ACC stole
   Terry's son killed the pet, and Terry stole money.'

Tomioka claims that as (78b) shows, the Japanese anaphor zibun in a subordinate clause can take the subject of the main clause as its antecedent, whereas (78c) suggests that it is not possible in the tenseless coordination.

However, it should be pointed out that while the topic marker -wa is used for the subject of the main clause, the nominative marker -ga is used in (78c). Once the nominative marker -ga in a sentence like (78c) is replaced with the topic marker -wa, or with the topic reading of -ga, the sentence becomes acceptable. This is shown in (79).

(79) Zibun-no kodomo-ga pat-o korosi-te, Terry-(topic reading)ga/wa kane-o
   self-Gen child-nom pet-ACC kill-and, Terry-Top money-ACC
       ubatta.(with the reason reading)
       stole
   'Terry's son killed the pet, and he stole money.'

Therefore, Tomioka's test fails to show that the -te construction in (79c) is not an adjunction structure.

As in Japanese, in Korean subject anaphor in a subordinate clause is bound by the topic NP in the main clause, as shown in (80a, b). And this is also the case in the -ko construction, which is shown in (80c).

    self daughter-nom Yokohama-to go-because Top home-at sleep-Past-Dec
    Because her daughter went to Yokohama, Mary slept at home.'
b. [cakij ttal-i Yokohama-ey ka-ss-ki-ttamwuney] Maryi-nun cip-eysey ca-
self daughter-Nom to go-Past-Noml-because Top home-at sleep-
ss-ta.
Past-Dec
'Because her daughter went to Yokohama, Mary slept at home.'

self daughter-Nom to go-(Past)-ko Top home-at sleep-Past-Dec
'(lit.) Self's daughter went to Yokohama, and Mary slept at home.'

Anaphor binding in (80) can be explained in the following way: The -ko adjunct clause is reconstructed into an IP-joined position at LF, where caki ‘self’ is c-commanded by the main subject Mary. This implies that (80c) cannot be a coordinate structure since if that were the case we would predict that (80c) would be bad, due to the CSC at LF.\textsuperscript{15}

4. Conclusion

I have argued in this paper that the so-called -ko coordination is not coordination at all but adjunction. Under the adjunction analysis, since the first clause is an adjunct, and the second clause is the main clause, we account not only for various extractions of arguments and adjuncts, wh-questions, NPI licensing, anaphor binding data which the coordination analysis could not explain, but we also explain why only the second verb moves to the position of tense. This makes it possible to retain a 'standard' theory of Verb Movement to I.

5. References


\textsuperscript{15}I am assuming here that the CSC also applies at LF. See section 2.4.


Yoon, J. H. S. (1993) Tense, Coordination, and the Clausal Structures of English and

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