

ABSTRACT

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This study investigates properties of adjunct control with a particular focus on Turkish providing an analysis for different types of adjunct control structures such as temporal adjunct clauses and purpose clauses, which have been understudied in Turkish linguistics.

In analyzing adjunct control structures, I use Agree-based Theory of Control (ATC) (Landau 2000 and 2004) as a theoretical basis. I introduce a new interarboreal operation that I call “Interarboreal Agree” which draws upon the intuitions of Nunes (1995) that syntactic relations can be established between two unconnected trees. This analysis refines ATC in that ATC in its current form fails to account for Obligatory Control reading in adjunct control structures.

An important overarching theme of this dissertation is the role of Aspect in determining control properties of adjunct clauses. As an example, I account for the structures that I call SOC (Subject or Object Control) structures in Turkish temporal adjunct clauses by assuming that these clauses do not have an Aspect Phrase

projection. I also argue that Case variation in languages that have “morphologically-dependent” secondary predicates, that is to say, secondary predicates that agree with the NP they predicate in Case, gender or number, can be explained by the presence or absence of an Aspect Phrase projection. Aspect properties of adjunct clauses come into play in purpose clauses as well. For instance, in English, control in purpose clauses exhibits optionality in terms of the choice of the controller, which is not the case in the Turkish counterpart of the same type of purpose clauses. I argue that this is due to the fact that English purpose clauses do not have an Aspect Phrase projection.

RECALCULATING ADJUNCT CONTROL

by

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Dedication

Benden hiçbir zaman desteklerini esirgemeyen sevgili anne ve babama

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List of Abbreviations

Acc	Accusative Case
ATC	Agree-based Theory of Control
Dat	Dative Case
Fem	Feminine
Fut	Future
Gen	Genitive Case
Masc	Masculine
MTC	Movement Theory of Control
OC	Obligatory Control
NOC	Non-Obligatory Control
Nom	Nominative Case
Pst	Past Tense
PIC	Phase Impenetrability Condition
Pl	Plural
Poss	Possessive
Prog	Progressive
Sg	Singular
SOC	Subject/Object Control
Spec	Specifier

1st 2nd 3rd etc. First Person, Second Person, Third Person etc.

Chapter 1: Introduction

This study investigates the nature of adjunct control. Adjunct control refers to the relation between an NP in the matrix clause and the empty category in an adjunct clause. Adjuncts are considered to be islands for syntactic relationships (Huang 1982).¹ However, control in adjunct clauses exhibits the properties of Obligatory Control as observed by Williams (1992), Hornstein (2001) among others. This poses a problem for the Agree-based Theory of Control (ATC). Within ATC, adjunct control is expected to exhibit Non-Obligatory Control (NOC) as Agree cannot penetrate into adjuncts. In this dissertation we present a new interarboreal operation to analyze adjunct control structures, namely Interarboreal Agree, which draws upon the intuitions of Uriagereka (1998), Hornstein (2001), Nunes (2001, 2004) that syntactic relations can be established between two unconnected syntactic objects. We also investigate the role of Aspect in adjunct control structures and point out a possible correlation between the availability of Aspectual Phrase in the adjunct clause and the choice of controller.

This introductory chapter presents the theoretical framework assumed in this dissertation and gives a brief outline of the theories of control that are relevant to the dissertation. Chapter 2 presents data from temporal adjunct clauses with a special emphasis on Subject/Object Control (SOC) cases in Turkish, and proposes an analysis by utilizing Interarboreal Agree. Chapter 3 analyzes secondary predicates as an instance of adjunct control and extends the analysis of Interarboreal Agree to these

¹ Note that Szabolcsi and den Dikken (1999) classify adjuncts as strong islands.

structures. Chapter 4 discusses control into purpose clause structures in Turkish and English, and presents an analysis of these structures via Interarboreal Agree. Chapter 5 summarizes the main points presented in the dissertation with a general summary of the foregoing analysis.

1. Theoretical Framework

This dissertation assumes the tenets and premises of the Minimalist Program (MP) as put forth in Chomsky (1993, 1995 and subsequent). MP aims to better understand and formulate a principled account of the Faculty of Language (FL).

The predecessor of MP, Government and Binding (GB) framework, assumes four levels of representation: Deep Structure (DS), Surface Structure (SS), Logical Form (LF) and Phonetic Form (PF). Within GB, the lexicon and the categorical component of the grammar constitute the base, which generate the D-structure representations. Then, these are mapped onto the S-structure through transformations. Finally, S-structure is sent off to the levels of PF and LF.

Unlike GB, which assumes four levels of representation, the MP assumes only two levels of representation, namely PF and LF.² Within MP, D-structure and S-structure are eliminated, and LF and PF are two interface levels that are seen as conceptually necessary. Human language is composed of sound and meaning, and therefore PF and LF, interface levels where sound and meaning are interpreted, and produced are the only levels that are conceptually necessary. PF is assumed to be the

² Probably none if we take into consideration Multiple Spell Out (Uriagereka 1999, Chomsky 2000, 2001, 2004, 2005)

interface with articulatory-perceptual system (A-P system) and LF is the interface with the conceptual-intensional system (C-I system). The Computational System (CS) takes a numeration that includes a set of lexical items. Lexical items in the derivation have phonological, semantic, and formal features. These can be interpretable features, which are specified in the lexicon, or uninterpretable features which must be valued in the course of the derivation. An expression converges if it consists of elements legible at interface levels. In order to avoid crash, the uninterpretable features must be eliminated before the computation reaches the interface levels LF and PF.

Within MP, Merge, Move and Agree are basic operations. Merge is a structure building operation that takes two elements from the numeration and combines them. Merge has two instances: External Merge (EM) and Internal Merge (IM), the latter also known as the operation “Move.” Chomsky (2005) states the differences between EM and IM in the following way: “EM yields generalized argument structure (theta roles, the “cartographic” hierarchies, and similar properties); and IM yields discourse-related properties such as old information and specificity, along with scopal effect” (Chomsky, 2005:8).

A syntactic element is licensed via Feature checking. Feature checking is the process whereby the relevant features of a constituent are paired with that of a functional category such as C, T or v. If the features are checked, the structure converges; otherwise, in the presence of unchecked features, the structure crashes.

In earlier versions of MP, feature checking was assumed to be realized via overt or covert movement (Chomsky 1993, 1995). In overt movement, phrases that need to check a certain feature move overtly. Covert movement, on the other hand,

does not have a phonological effect (e.g. wh-movement in wh-in situ languages). According to Chomsky (1995), overt movement occurs when the triggering feature is strong while covert movement occurs when the triggering feature is weak.

Within MP, movement is considered to conform to Greed (Chomsky 1993), according to which an element cannot enter a syntactic operation unless it satisfies a need of itself. Lasnik (1995) proposes Enlightened Self-Interest, which states that an element can enter a syntactic operation to satisfy its own requirements or the requirements of the position it moves to.

In the later versions of MP, feature checking is realized in situ via a mechanism called Agree (Chomsky 2000 and subsequent). In Agree, feature checking takes place in situ via a relation established between a Probe, a head with [-interpretable] feature, and a Goal, an element with matching [+interpretable] feature. The operation Agree results in the erasure of uninterpretable features. Chomsky (2000:122) defines the Agree relation as follows:

Agree (α , β) if α c-commands β ; α , β have matching features;
there is no γ with matching features such that
 α c-commands γ and γ c-commands β

What this definition indicates is that an uninterpretable feature of a functional category α (probe) establishes Agree in a restricted search domain with the matching interpretable feature of β (goal) where matching implies identity of the features which are unvalued for the probe and valued for the goal. Note that Agree operation used in Agree-based Theory of Control (ATC) and Agree operation used in this dissertation

include some modifications. The definition for this modified version of Agree operation will be given in Chapter 2.

2. Some Background on Control

2.1 Earlier Treatments of Control

Bresnan (1982) defines control as “a relation of referential dependency between an unexpressed subject (the controlled element) and an expressed or unexpressed constituent (the controller). The referential properties of the controlled element ... are determined by those of the controller” (Bresnan, 1982:372).

In early treatments of control, for example, in the Standard Theory, control structures were analyzed through Equivalent Noun Phrase (Equi) Deletion or simply Equi (Rosenbaum, 1967). Sentence (1) illustrates Equi NP deletion:

(1) a. The doctor condescended [_S [_{NP} the doctor] to examine John] Deep Structure



b. The doctor condescended [_S for [_{NP} the doctor] Complementizer Insertion
to examine John]



c. The doctor condescended [_S for to examine John] Equi NP Deletion



d. The doctor condescended [_S to examine John] Complementizer Deletion

(Davies & Dubinsky, 2004:24)

In Standard Theory, Equi deletes the underlying subject of a complement clause if it is coreferential with the subject or the object of the main clause. For instance, in (1) Equi deletes the underlying subject of the verb *condescend*, which is shown in (1c).

As noted by Lasnik (2008), the sentence below provides an argument against Equi:

(2) Everyone tries to be careful

Lasnik (2008) notes that this sentence can be paraphrased as (3a) but not as (3b):

(3) a. Everyone tries for himself/herself to be careful³

b. Everyone tries for everyone to be careful

(4) Everyone tries SELF to be careful

Lasnik (2008:23)

As Lasnik (2008) notes, the fact that (3b) is not an accurate paraphrase of (3a) shows that Equi NP deletion under absolute identity does not work. That is why, Chomsky and Lasnik (1977) suggest that what gets deleted is not a full identical NP but some sort of reflexive element as illustrated in (4). Lasnik (2008) notes that although there

³ As Lasnik (2008) points out, this sentence is not grammatical but its ungrammaticality is disregarded for the purposes of argument.

has never been an argument against the representation in (4), the view that was adopted in the literature was that the element did not have to be deleted because it did not have phonetic features to start with. In the GB literature this empty element was represented as PRO as illustrated below:

(5) John wants [PRO to call Mary]

Within GB, PRO is motivated by the theta criterion according to which each argument is assigned one and only one theta role, and each theta role is assigned to one and only one argument (Chomsky, 1981). For example, in sentence (5), the infinitival clause “to call Mary” has the non-overt subject represented as PRO. “Call” is a two-place predicate that requires an external argument (caller) and internal argument (calleé). “Call” has two theta roles to assign: one to the internal argument, in this case “Mary,” and one to the external argument, which is, in this case, assigned to the non-overt NP represented as PRO. Hence, PRO is motivated to host the theta role of “call,” which must be assigned to the external argument under the theta criterion.⁴

In (5), PRO is “controlled” by the main clause subject “John” and is like an anaphor in the sense that it is dependent on another NP within a specific domain, namely “John” for its interpretation. In this sense, it is different from the Equi NP

⁴ Note that as Tonia Bleam (p.c.) points out, the presence of PRO is also motivated by the binding theory. For instance, in “John wanted [PRO to kick himself]” the reflexive “himself” needs an antecedent within its clause and if there was not an empty category like PRO in the complement clause, then the reflexive would not have a local antecedent.

deletion which requires absolute identity. However, the interpretation of PRO in (5) differs from that of (6):

(6) [PRO To study syntax] is fun

In sentence (6), PRO might be interpreted as equivalent to the arbitrary pronoun “one” and therefore is called arbitrary PRO.

Within GB, the feature composition of PRO is [+ Anaphor, +Pronominal]. According to its feature composition, PRO should be subject both to Principle A and to Principle B. What this means is that PRO is subject to nearly contradictory requirements because as an anaphor, it is subject to Principle A of the Binding Theory, requiring it to be bound in its governing category, and as a pronominal, it is subject to Principle B obliging it to be free in its governing category.

GB’s solution to this contradiction was to propose that PRO is [+Anaphor, +Pronominal]. From the characterization of PRO as [+Anaphor, +Pronominal], it follows that PRO is ungoverned. The condition of PRO’s being “ungoverned” is referred to as the “PRO theorem” in the literature.

As for the Case of PRO, since Case is checked under government and PRO is ungoverned, PRO never bears Case. It could evade the Case Filter by having no phonological content because the Case Filter applies only to NPs with phonological content.

In the literature, a distinction is made between two main types of control: Obligatory Control (OC) and Non-Obligatory Control (NOC). The following sentences illustrate OC and NOC respectively:

(7) John_i wanted [PRO_i to see Mary]

(8) John_i thought that it was important [PRO_i to leave early]

Obligatory Control is reminiscent of the Equi structures in Standard Theory, since the empty element is co-referential with the subject (or object) of the main clause. On the other hand, Non-Obligatory Control is similar in essence to the Super Equi configurations in Standard Theory (Grinder 1970) as the understood subject of the bracketed non-finite clause is arbitrary and is not co-referential with an NP that is close to it.

Williams (1980) argued that each type of control, namely Obligatory Control (OC) and Non-Obligatory Control (NOC), is characterized by a different set of properties. Hornstein (1997) outlines a list of these properties based on Fodor (1975), Lebeaux (1985) and Williams (1980). The following sentences illustrate the properties of OC PRO⁵:

⁵ Note that these properties of OC PRO are commonly agreed upon in the literature, however, what forces PRO in these examples is not clear.

- (9) (a) *It was expected PRO to shave⁶
- (b) *John thinks that it was expected PRO to shave.
- (c) *John's campaign expects PRO to shave.
- (d) John expects PRO to win and Bill does too. (=Bill wins)
- (e) *John_i told Mary_j PRO_{i+j} to leave together.
- (f) The unfortunate expects PRO to get a medal.

(Hornstein, 1997:4)

Sentence (9a) illustrates that OC PRO must have an antecedent within the clause that PRO appears in. The ungrammaticality of (9b) follows from the fact that “John” is not local to PRO. This shows that OC PRO’s antecedent must be local. (9c) is ungrammatical because OC PRO’s antecedent “John” does not c-command PRO. (9d) shows that OC PRO only permits a sloppy interpretation under ellipsis. The ungrammaticality of (9e) indicates that OC PRO cannot have split antecedents.⁷ PRO in (9f) only has the *de se* interpretation because the unfortunate believes of *himself* that he will be a medal recipient and not someone else.

⁶ Note that in the original source, (9a), (9b) and (9c) have “himself” at the end of the sentence. For example, (9a) is “It was expected PRO to shave himself.” As Howard Lasnik (p.c.) points out, *himself* in this sentence acts as interfering factor as the ungrammaticality of the sentence stems from the fact that *himself* cannot be bound. Therefore “himself” has been removed in (9a), (9b) and (9c).

⁷ However, there are cases where OC PRO allows split antecedents as discussed by Oded (2006) and Fujii (2006).

The properties Non-obligatory Control (NOC) differ from those of OC PRO as the following list of sentences illustrates:

- (10) (a) It was believed that PRO shaving was important
- (b) John thinks that it is believed that PRO shaving himself is important.
- (c) Clinton's campaign believes that PRO keeping his sex life under control is necessary for electoral success.
- (d) John thinks that PRO getting his resume in order is crucial and Bill does too.
- (e) John_i told Mary_j PRO_{i+j} washing themselves/each other would be fun.
- (f) The unfortunate believes that PRO getting a medal would be boring.

(Hornstein, 1997:4)

Sentence (10a) shows that NOC PRO does not require an antecedent unlike what we have seen in (9a). Sentence (10b) illustrates that if NOC PRO has an antecedent, it does not need to be local in contrast to (9b). Sentence (10c) indicates that the antecedent does not need to c-command PRO. In (10d) a strict reading of the elided VP is possible. Thus, it contrasts with (9d) in permitting a strict reading of the elided VP. Sentence (10e) shows that NOC PRO allows split antecedents, which is not possible in (9e). Sentence (10f) illustrates that non-*de se* interpretation is available for NOC PRO. In a situation where the unfortunate suffers from amnesia, for instance, he may not realize that the person getting the medal is actually him.

2.2 Null Case Theory

In this section, we will briefly look at Null Case Theory within Minimalist Program. Chomsky and Lasnik (1993) tie the distribution of PRO to Case Theory which means that the GB assumption that PRO is a pronominal anaphor is no longer needed. As we saw earlier, within GB it is assumed that PRO is Caseless. However, taking into consideration that all nouns and pronouns are normally Case-marked, it is strange to treat PRO as the only pronoun that does not have Case. Also considering the Visibility Condition (Chomsky 1981) according to which an argument that is assigned a theta-role must also be case-marked, PRO appears to violate this condition because it is assigned a theta-role by an embedded predicate yet is not case-marked. In order to resolve this contradiction, Chomsky and Lasnik (1993) propose that PRO has Case, but this Case is a special null Case. Chomsky and Lasnik (1993) propose that Null Case is only assigned by nonfinite T, which correctly restricts the distribution of PRO to the subject position of non-finite clauses. As Davies and Dubinsky (2004) point out, the Null Case theory is motivated in part by the fact that PRO can move out of non-case marked position to a cased position like case marked-NPs. Consider the following examples:

(11) a. We never expected that [John would be found t_i]

b. We never expected [PRO_i to be found t_i]

In sentence (11b) above, PRO moves from a caseless position (as passive verbs do not check case) to a cased-position similar to case-marked overt NP “John” as in (11a). In (11b) the base position (marked here as *t*) is governed, and hence PRO escapes from government by moving to the Spec TP position for EPP where it is not governed due to the intervening S’ projection. Also note that in (11b), if PRO could just stay in the object position, we would expect to be able to insert expletive “it” in the subject position of the embedded passive, which is not the case. In these examples, since PRO behaves like a case-marked category, Chomsky and Lasnik (1993) propose that PRO receives Null Case from non-finite T.⁸

⁸ Null Case theory has been criticized by Hornstein (2001) on the basis of examples in which PRO might appear in positions other than Spec-IP (e.g. John_i washed PRO_i/himself_i) and by Landau (2008) on the basis of languages with Case-concord such as Russian and Icelandic in which the morphological Case that a syntactic element has reflects the Case that local PRO has. However, note that Chomsky and Lasnik (1993) do not rule out the possibility of PRO having Cases other than Null Case as they say that “PRO may have other Cases as well in non-standard conditions that we will not review here” (p.119).

2.3 Movement Theory of Control (MTC)

Movement Theory of Control (MTC) was proposed in Hornstein (1999) and developed further in subsequent publications (Hornstein 2001, Hornstein 2003, Boeckx and Hornstein 2003, 2004, Boeckx et. al 2010). In MTC, control is treated as an instance of A-movement akin to subject/object raising structures. In this approach, the difference between control and raising structures is minimized. This is illustrated below in the control structure in (12) and in the raising structure in (13); the respective derivations are given in (b) sentences by utilizing MTC:

(12) a. John hopes [PRO to be happy] (GB representation)

b. [_{IP} John [_{VP} ~~John~~-hopes [_{IP} ~~John~~ to [_{VP} ~~John~~ be happy]]] (MTC representation)

(13) a. John seems [_{t_i} to be happy] (GB representation)

b. [_{IP} John [_{VP} seems [_{IP} ~~John~~-to [_{VP} ~~John~~-be happy]]] (MTC representation)

In the derivation of the control structure in (12b), John merges with “be happy” and checks the non-verbal predicate’s theta role, and then moves to [Spec, IP] of the lower IP. After the lower IP, it moves to the Spec of the higher VP to check the theta role of the verb “hope.” Then it moves to the Spec of the higher IP to check its own case. As can be seen in the derivation of the control structure in (12b), MTC allows “John” to

have multiple theta roles. The derivation of the raising structure in (13b) is similar to that of (12b). The only difference between the two derivations is that in (13b) “John” does not have a copy in the Spec of the higher VP since the raising verb “seem” has no external subject theta role. The following list summarizes the basic assumptions of MTC:

(14)

- a. Theta roles are features on verbs
- b. Greed is Enlightened Self Interest
- c. A DP receives a theta role by checking a theta feature of a verbal/predicative phrase that it merges with
- d. There is no upper bound on the number of theta roles a chain can have

(Hornstein 2001: 37)

In (14a), Hornstein (2001) suggests that theta-roles are morphological features. This assumption is needed in MTC in order to be able to treat OC as movement into theta-positions. Hornstein (2001) interprets greed as requiring at least one syntactic element to check a theta role in line with enlightened self-interest (Lasnik 1995). According to (14b), if a syntactic element X merges with a syntactic element Y, at least one feature of either X or Y is checked. According to (14c), by taking theta-roles to be features on the verb, MTC can allow an NP to move into a theta-position and respect greed by checking the relevant theta feature. Hornstein (2001) proposes that one might think of (14c) as transferring the verbal theta feature of the verb to the

nominal expression. According to Hornstein (2001), (14d) is required since MTC analyzes OC in terms of movement and OC involves the relation of at least two theta positions.

However, there are some potential problems in treating theta-roles as syntactic features. For instance, unlike other morphological features (e.g. Case), theta-roles do not seem to have a morphological manifestation. Bowers (2008) points out another problem with treating theta-roles as features. According to Bowers (2008), if NPs check theta-features in the course of the derivation, this would mean that NPs are added new elements that they did not have in the lexicon violating the Inclusiveness Condition (Chomsky, 2000), which prohibits introducing new elements in the course of the derivation. Bowers (2008) also argues that treating theta-roles as syntactic features is problematic as they are fundamentally semantic in nature and therefore belong to C-I system.

Another problem with theta-roles being features was pointed out by Landau (2003). As Landau (2003) notes, unlike other morphological features, theta features are relational. For example, an NP is plural regardless of its environment but under MTC whether an NP is an agent or experiencer becomes completely context-dependent.

Within the framework of MTC, OC PRO is subject to the Minimal Distance Principle (MDP) or the Minimal Link Condition (MLC).⁹ MLC stipulates that the DP

⁹ Minimal Distance Principle was originally formulated by Rosenbaum (1970). In a control structure, MDP picks the closest c-commanding NP as the controller. Minimal Link Condition (MLC), which was proposed within the Minimalist Program (Chomsky 1995), is similar to MDP. It states that

closest to PRO must be the controller. The MLC correctly predicts subject control in (15a) and object control in (15b). However, as noted by Landau (2003), it fails to predict subject control in (15c) with *promise*-type verbs:

(15)

- a. John wanted to leave.
- b. John persuaded Mary to leave.
- c. John promised Mary to leave¹⁰

(Landau, 2003:480)

As a reply to Landau (2003), Boeckx and Hornstein (2004) treat *promise*-type verbs as exceptions. Boeckx et al. (2010) note that *promise*-type verbs usually pattern with subject control verbs like *vow* whose nominal complement is preceded by the preposition *to*:

(16) John vowed/committed [PP to Mary] [t wash himself]



OK

(Boeckx et al. 2010: 172)

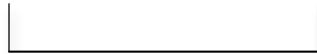
derivations with shorter links are preferred over derivations with longer links. MLC is also known as Shortest Link or Shortest Move

¹⁰ Tonia Bleam (p.c.) notes that judgments are not robust with *promise-type* verbs and states that she prefers to change (15c) to “John promised Mary that he would leave.”

Given that *promise* is semantically close to *vow-type* verbs, Boeckx et al. (2010) suggest that the object of *promise* is tucked inside a null PP phrase¹¹ and therefore the movement of the embedded subject DP “John” over the matrix object is licit since DP “Mary” is buried under a prepositional phrase and thus not accessible (since it is not in a c-commanding position) as illustrated below:

(17) a. John promised Mary to donate money to the library fund

b. [promised [P Mary] [John to donate money to the library fund]]



(Boeckx et al. 2010: 174)

As for NOC structures, Boeckx et al. (2010) acknowledge that within the MTC, NOC has been pushed to the side. According to Boeckx et al. (2010), the reason for this is that “MTC effectively has something to say about control relations that exhibit movement diagnostics but not much about construal relations that are not derived by movement.” (Boeckx et al. 2010: 195)

According to MTC, instances of NOC constitute the “elsewhere” case, meaning that NOC is only licit where OC is not. NOC is mediated by an empty pronominal category *pro* as illustrated in (18) below:

¹¹ A potential problem with this argument is that a sentence such as “John said to Mary to leave” seems to have a similar structure and has an overt preposition but exhibits object control. I owe this point to Howard Lasnik (p.c.)

(18) a. It is believed that Bill's/*pro* shaving is important.

b. *Bill's is believed that shaving is important.

(Hornstein, 1999:92)

Boeckx et al. (2010) propose that NOC is always licensed in islands. Consider the following example:

(19) John said that [*pro* washing himself delighted Mary]

(Boeckx et al. 2010: 252)

According to Boeckx et al. (2010), the relation between *John* and the empty category in the embedded clause cannot be formed by movement since extraction from a subject gerund to the matrix subject position is illicit. Therefore, under MTC, *pro* is allowed in this position to mediate this relation.

Boeckx et al. (2010) also discuss some potential problems with the NOC account of MTC. Consider the following examples from Boeckx et al. (2010):

(20) a. John_i persuaded Mary_j [PRO*_{i/j} to leave]

b. *John_i persuaded Mary_j [*pro*_i to leave]

The problem with (20) is that if it is the case that a null pronoun is possible when movement cannot take place, it is not clear why (20b) is ruled out. Boeckx and

Hornstein (2007) and Boeckx et al. (2010) propose a parsing-based approach account to account for why (20b) is blocked by making the following assumptions:

(21)

- a. Parsers move from left to right and project structure rapidly and deterministically on the basis of local information
- b. Parsers are transparent with respect to grammars. So, if grammars encode a condition, parsers respect it

(Boeckx et al. 2010: 205)

On the basis of (21), they argue that parsers prefer traces to pronouns and as a parser builds structure from left to right, it will prefer to treat a potential gap as a trace rather than *pro*. Along these lines, for instance, in (21a), as the sentence is parsed, it arrives at “to” and the parser realizes that it must assign a subject to the embedded clause. The parser needs to assign either a trace or *pro* at this point. Boeckx et al. (2010) suggest that as the parser prefers movement to pronominalization, it drops a trace here giving (22) below in which trace has the antecedent as “Mary” due to minimality:

(22) John persuaded Mary [t to leave]

As for (20b), this ungrammatical example requires the parser to assign a *pro* to the empty category. According to Boeckx et al. (2010), this is not possible because assigning *pro* requires ignoring the parser’s built-in preference for a trace to a null

pronoun and this makes (20b) computationally unavailable. However, note that as far as we can tell, there is no empirical evidence supporting the assumption that parsers prefer movement to pronominalization.

2.4 Agree-based Theory of Control (ATC)

2.4.1 Why Agree?

Before we review Agree-based Theory of Control (ATC), let us present some evidence for the Agree operation in language. Miyagawa (2010) raises the question of “Why Agree?” and answers as follows:

Lexical relations are thematic relations. They are established by external Merge, in which a lexical head (or v) combines with its complement in a binary fashion (Chomsky 2001, 2005, 2008, Kayne 1984). Lexical relations are therefore defined by the binary branching structure of sisterhood, itself created by external Merge. What about functional relations? There is no simple structural way to establish a relationship between, say, the external argument and T. T does not directly select the external argument, for example... In the literature on this topic, a typical suggestion is that the relation that holds between a functional head such as T and the nominal with which it agrees (or assigns Case to) must be established by moving the nominal into Spec, TP (Koopman 2003, 2005,

Koopman and Sportiche 1991). In the main, I believe that this intuition that agreement emerges as a specifier-head (Spec-head) relation is correct although there are exceptions, one being pro-drop. Nevertheless, I will assume that agreement relations are established independently of movement, by a process Chomsky calls Agree (Chomsky 2000, 2001, 2005, 2008). We can thus state the purpose of agreement as follows:

Purpose of Agreement:

Agreement occurs to establish a functional relation.

(Miyagawa, 2010:9)

One instance of such a functional relation is long-distance Agree. As noted by Boeckx (2006), existential constructions in English (as originally observed by Chomsky) and instances of long-distance agreement in Icelandic with nominative objects provide evidence for Agree. Consider the following sentences:

(23) There *seems/seem to be two men in the boat

(24)

Mer virdhist/vidhast their vera skemmtilegir

Me.Dat seem.3sg/3pl they.Nom be interesting

“It seems to me that they are interesting”

(Boeckx, 2006: 6)

Boeckx (2006) notes that for the sentences above, there is evidence that the agreeing NP has not raised to a point where it can undergo traditional spec-head agreement.

Consider the binding and scope facts for the existential structure in English:

(25)

- a. a man seems to be outside (seem>> a man; a man>> seem)
- b. there seems to be a man outside (seem >> a man; * a man >> seems)

(26)

- a. a man_i seems to himself_i to be doing something wrong
- b. * there seems to himself_i to be a man_i doing something wrong

(Boeckx, 2006: 6)

As Boeckx (2006) reports, sentences above show that the NP “a man” cannot take scope over or bind an element which it would c-command if it had moved covertly.¹²

Thus, it must be that two elements can undergo Agree across a distance and agreement is not limited to local spec-head relations.

¹² This has been originally noted by den Dikken (1995).

2.4.2 Calculus of Control

The Agree-based Theory of Control (ATC) as proposed by Landau (2000 and subsequent) employs the Agree operation (Chomsky, 2000)¹³ to account for different types of control structures. ATC holds that control structures are different from raising structures and maintains the theta-criterion and PRO in the derivation of control structures and contrasts with MTC in this sense.

ATC introduces a new typology of control, which makes a distinction between Partial Control (PC) and Exhaustive Control (EC) within OC category. According to Landau (2004), EC refers to constructions where PRO must be identical to the controller and must be exhausted by the reference of the controller. In PC, on the other hand, PRO must include the controller but it is not identical to the controller and can denote a larger set of individuals.¹⁴ That is why Landau uses the notation PRO₁₊ to represent the empty category in PC constructions. The following examples illustrate EC and PC respectively:

¹³ Note that the Agree operation used in ATC is slightly different from Agree in Chomsky (2000) in that in addition to feature valuation, Landau (2000 and subsequent) assumes that Agree involves feature transmission and co-indexing as well.

¹⁴ Bowers (2008) criticizes EC vs. PC distinction. He argues that there is no robust contrast between EC and PC verbs and that rather than being a grammatical phenomenon, PC is a special instance of metonymy (i.e. a figure of speech where the part is used to represent the whole). Bowers (2008) suggests that lexical items such as “the chair” or “the White House” are examples of metonymy where a singular expression referring to the individual is used to represent the group as a whole (p.140).

- (27) a. John₁ managed [PRO₁ to work on the project] (EC)
*b. The chair managed [PRO₁₊ to gather at 6]
c. The chair₁ hoped [PRO₁₊ to gather at 6] (PC)

In the above examples, in (27a) PRO is identical to the controller, which is “John” in this case. In (27b) on the other hand, PRO includes the controller “the chair” but is not identical to the controller since the predicate “gather” requires a plural argument. So in PC structures, PRO has semantic plurality but not syntactic plurality.

According to Landau (2000), the PC class of verbs¹⁵ is comprised of desideratives, interrogatives, factives and propositional verbs while the EC class is comprised of implicative verbs and a few modal and aspectual verbs. Landau (2000) gives the following examples to illustrate each verb class:

¹⁵ Properties of the embedded predicate also play a role in the licensing of partial control. We will come back to this point.

(28) EC class of verbs: implicative, aspectual and modal. Samples sentences

for each class are given below:

- a) Implicative: John managed to solve the problem
- b) Aspectual: John began to solve the problem.
- c) Modal: John had to solve the problem.

(30) PC class of verbs: factive, propositional, desiderative and interrogative. A

sample sentence is given for each class:

- a) Factive: John hated to solve the problem.
- b) Propositional: John claimed to have solved the problem.
- c) Desiderative: John hoped to solve the problem.
- d) Interrogative: John wondered how to solve the problem.

(Landau, 2000:37)

Following Stowell (1982), Landau (2000) assumes that infinitives have their own tense. However, Landau (2000) departs from Stowell (1982) in assuming that only PC class of constructions consists of tensed infinitives while EC class consists of tenseless infinitives. As an evidence for PC complements being tensed, Landau (2000) notes that EC complements cannot have conflicting time adverbs while PC complements can as the following sentences illustrate:

- (30) a. *Yesterday John managed to travel tomorrow (implicative)
 b. * Yesterday John began to solve the problem tomorrow (aspectual)
 c. * Yesterday John was able to solve the problem tomorrow (modal)
 d. Yesterday John hoped to travel tomorrow (desiderative)
 e. Yesterday John wondered how to solve the problem (interrogative)
 f. Today John regretted having solved the problem last week (factual)

(Landau, 2004: 836)

Landau (2004) proposes that the tense properties of complements are fixed by the matrix predicate that selects them. The intuition is that since selection is local, the tense dependence of the embedded Infl on the matrix predicate must be mediated by the head of the Complement clause.

According to Landau (2004), control verbs select a CP complement, the head of which can carry both [Agr] and [T] features. The C^0 head in turn selects an IP with distinct T features as illustrated below:

(31)

The syntax of selected tense

V... [CP C _[+/-T] [IP I _[+/-T] VP]]



Selection Checking

(Landau, 2004:839)

Landau (2004) assumes that when the matrix verb is a verb that licenses exhaustive control (e.g. an implicative verb), it selects a complement with anaphoric tense, which is identical to the matrix clause so in this case the embedded C is [-T]. If the matrix verb is a verb that licenses partial control (e.g. a desiderative verb), then the verb selects a complement with C⁰ and therefore C⁰ is marked with [+T]. If a verb selects a complement with independent tense, then C⁰ has no T feature. [+T/-T] features on the embedded I⁰ is mediated by the features on C and through the feature matching between I⁰ and C⁰, the embedded I⁰ is also selected by the matrix verb.

Landau (2000) accounts for exhaustive and partial control structures with his “calculus of control” using Agree (Chomsky 2000), which has been further modified in Landau (2004).¹⁶

The distinction between PC and EC contrast is determined in terms of features that I⁰ and C⁰ can bear. Landau (2004) assumes that the local environment of the embedded subject determines the distribution of PRO. For Landau (2004), the relevant features of this environment are [T] and [Agr].

When I(nf) head is positively specified for both features, [+T, +Agr] licenses a lexical subject. On the other hand, I⁰ with a negative specification, [+T, -Agr], [-T, +Agr], [-T, -Agr] licenses PRO. Landau (2004) also assumes that features of C⁰ are relevant for the distribution of PRO as well.

Landau (2004) assumes that lexical DP’s are endowed with the feature [+R] while PRO is [-R]. Following Reinhart and Reuland (1993), and Reuland and

¹⁶ Note that we will utilize a further modified version of ATC. We outline assumptions that we adopt at the end of this chapter.

Reinhart (1995), he assumes that PRO is like a null SE-anaphor (like Dutch *sich*) which is unspecified for a certain phi-feature, and that anaphoric feature of PRO is being captured by [-R] feature. He proposes the following R-assignment rule:

(32)

R-assignment Rule

For $X_{[\alpha T, \beta Agr]}^0 \in \{I^0, C^0 \dots\}$:

$\emptyset \rightarrow [+R]/X_{[\alpha T, \beta Agr]}^0$, if $\alpha = \beta = '+'$

$\emptyset \rightarrow [-R]/\text{elsewhere}$

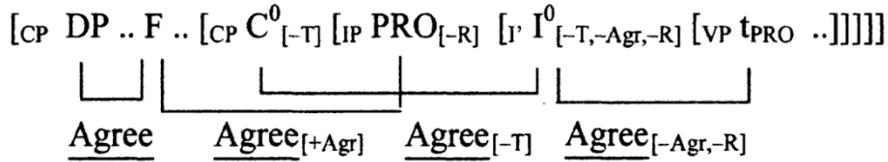
(Landau, 2004: 842)

In plain English, R-assignment rule says that whenever I^0 or C^0 are specified for [+T, +Agr], they bear [+R]. Any other feature combination (ie. [+T, -Agr], [-T, +Agr] or [-T, -Agr]) is associated with [-R]. In the absence of [T] or [Agr], no [R] value is assigned.

Landau (2004) suggests that R-assignment rule serves as a “communication device” between the features of [T] and [Agr], and the referential features of PRO.

Taking these assumptions as a basis, Landau (2004) accounts for different types of OC structures by making use of the operation Agree. As an example, Landau (2004) gives the following as the derivation for an exhaustive control structure:

(33)



17

(Landau, 2004:847)

Four Agree relations are established in the derivation above. First, an Agree relation is established in which the embedded I^0 agrees with PRO in phi-features and the [-R] feature, which are uninterpretable on I^0 and interpretable on PRO.¹⁸ Next C^0 and I^0 establish an Agree relation, where the uninterpretable feature [-T] on C^0 is valued. Within the main clause, F (T in subject control structures and v in object control structures) enters into an Agree relation with the controller DP to value the uninterpretable phi-features and [-R] feature on F. Landau (2004) assumes that F is still active and can probe further and forms an Agree relation with PRO in phi-

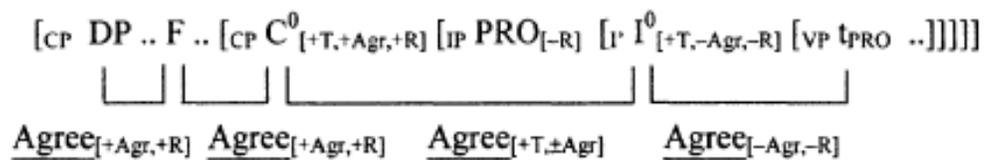
¹⁷ Landau (2000) makes use of T-to-C movement in the analysis of control structures but this is abandoned in Landau (2004).

¹⁸ Note that here Agree relation is allowed between two negative elements and in this sense it is different from the feature valuation in Chomsky's (2000) version of Agree. Also note that the Agree relation between F and PRO is initiated by the needs of PRO, which is the goal in this configuration. Also in this respect, Agree used in Landau (2000) is different from Chomsky's formulation of Agree in which Agree relation is established to check the features of the probe (i.e. F in this case). To circumvent this problem, we assume that Agree takes the form of enlightened self-interest as we discuss at the end of this chapter.

features and [-R] feature.¹⁹ What gives the exhaustive control in ATC is that in the configuration above, because of the mediation of F, PRO and the controller share the same phi-features and [Mer] feature which will be defined in the discussion of partial control structure below.

Now let us look at the derivation of partial control structures given in (34) below:

(34)



(Landau, 2004: 848)

In (34), unlike (33), the embedded I⁰ head has [+T] feature as under ATC, partial control structures have tensed infinitives. In the derivation above, Agree established between I⁰ and PRO deletes I⁰'s [-Agr] and [-R] features. Agree established between C and I⁰ deletes C's [+T] and [+Agr] features but not its [+R] feature because it mismatches the [-R] feature of I⁰. C⁰ checks its [+R] feature with the functional head F after F agrees with the matrix DP as a result of which F inherits [+R] from the controller.

¹⁹ Landau (2007) suggests that the co-indexation between PRO and NP is established through Agree and that phi-feature matching is a consequence of co-indexing.

What triggers Partial Control reading in this analysis is [+Mer]. Landau (2004) adopts a Mereology feature following Sauerland and Elbourne (2002) according to which some DPs are [+Mer] while others are [-Mer]. For instance, *the committee* is [+Mer] while *the chair* is [-Mer]. Landau (2004) proposes that that low functional heads bear a [Mer] slot and agree with inherently [Mer] containing DPs. However, C optionally lacks a [Mer] feature assuming that [Mer] is obligatory only on heads that enter primary agreement relations with elements that bear [Mer] feature (i.e. DPs). He argues that in cases where C lacks a [Mer] feature, it neutralizes the [Mer] feature values between the controller and PRO because PRO does not directly agree with the matrix functional head F. Consequently, it is possible for PRO to have a [+Mer] feature while the controller has a [-Mer] feature in the presence of a [Mer] feature-less intervener C.

ATC account outlined above is not without problems. Now we discuss some problems with ATC and then propose some modifications to circumvent these problems.

As noted by Boeckx et al. (2010) and Hornstein (2003), partial control seems to be determined in part by the properties of the embedded predicate. Consider the following examples:

(35) a. They sang alike/were mutually supporting

b. * John hoped/wants [PRO to sing alike/to be mutually supporting]

(36) a. The chair met/gathered/applied together for the grant (*with Bill)

b. The chair left/went out (with Bill)

c. The committee left/went out

d. The chair preferred [PRO to leave/go out at 6]

(exhaustive control: OK, partial control:*)

(Boeckx et al. 2010:22)

Sentence (35b) illustrates that not any predicate that selects plural subject might license partial control, which indicates that the properties of partial control are determined by the embedded predicate. Sentence (36b) shows that as opposed to what happens with “meet/gather/apply together” in (36a), the commitative PP (such as “with Bill”) associated with “leave/go out” is not selected. Sentence (36c) shows that a [+Mer] noun like the “committee” can be the subject of “leave/go out.” As Boeckx et al. (2010) point out, given that within ATC, PRO can be intrinsically specified as [+Mer], we would expect a sentence like (36d), the matrix predicate of which is the type that licenses partial control to allow a partial control reading with a [+Mer] PRO, however, (36d) has exhaustive control reading. Hence, Boeckx et al. (2010) suggest that the availability of partial control depends on availability of an embedded predicate that selects a commitative. This means that partial control can be subsumed under exhaustive control by including *pro* as illustrated below:

(37) a. The chair preferred to meet at 6

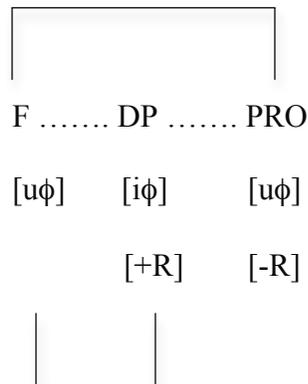
b. [The chair]_i preferred [PRO_i to meet pro_k at 6]

Subsuming partial control under exhaustive control in this way simplifies Landau's calculus without recourse to [+Mer] feature.

Another problematic point in ATC is that it allows an F head to establish Agree with PRO after matching its phi-features with the matrix DP as we saw in (33) and (34). This is schematized below:

(38)

Agree 2



Agree 1

A question that might arise about Agree₂ relation established between F and PRO is that there is no need for this Agree relation since F has already valued its phi-

features in Agree 1. In order to address this question, we will assume that Agree takes the form of Enlightened Self-Interest in that Agree relation can be established either by the needs of Probe or the needs of Goal. Agree 1 is triggered by the needs of Probe, i.e. F head, whereby the phi-features of F are valued. Agree 2, on the other hand, is triggered by Goal, i.e. PRO, whereby phi-features and [+R] feature of PRO are valued.

We keep the assumption from Landau (2004) that PRO is [-R] and lexical DPs are [+R] meaning that PRO is not referentially specified. In other words, following Landau (2004) we assume that PRO is [-R] by virtue of lacking any inherent phi-feature specifications. Actually, Landau (2006) provides some empirical evidence for PRO being [-R] by pointing out that in Korean the anaphor *caki*, which lacks a person specification (Yang 1985, Madigan 2005, cited in Landau 2006), does not alternate with PRO in OC complements. Hence, following Landau (2004) we assume that PRO is [-R].

However, note that, we adopt a simplified version of Agree-based theory of control as schematized in (38) with the additional modification that Agree 2 is established because of the needs of PRO.

Now let us briefly discuss another potential problem. As pointed out by Boeckx et al. (2010), Agree relation utilized in ATC differs from Agree proposed in Chomsky (2000) because in addition to valuation between [-interpretable] and [+interpretable] features, Agree used in Landau (2000 and subsequent) admits Agree relation between two [+interpretable] features and two [-interpretable] features. A possible way of addressing this concern would be to assume that valuation and

interpretability are two independent concepts following Pesetsky and Torrego (2007). Consider the following example from Latin:

(39) a. Haec puella Romana ambulat
 this-Nom.Fem.Sg girl-Nom.Fem.Sg Roman-Nom.Fem.Sg walks-3.Sg

b. Hae puellae Romanae ambulat
 these-Nom.Fem.Pl girls-Nom.Fem.Pl Roman-Nom.Fem.Pl walk-3.Pl

(Pesetsky & Torrego, 2007)

Regarding the example above, Pesetsky and Torrego (2007) note that certain features on lexical items seem to come from the lexicon unvalued and receive their value from a valued instance of the same feature on another lexical item. For example, in (39), the determiner, adjective and noun all bear the value feminine because the noun *puella* is listed in the lexicon as feminine as neither the determiner *hic* (this) nor the adjective *Romanus* (Roman) come from the lexicon with a value for gender. Hence, Pesetsky and Torrego (2007) suggest that the gender feature of the determiner *hic* and the adjective *Romanus* are lexically unvalued and gets valued as a consequence of a syntactic process of agreement with the gender feature on N. Similarly, the number feature of D and A are not valued in the lexicon and gets valued as a consequence of agreement with the number feature on N. According to Pesetsky and Torrego (2007), one argument in favor of this point of view is the existence of nouns like *moenia*

(town walls) in Latin or *scissors* in English, which are always plural in the form indicating the lexical valuation of N for number.

Along this line of reasoning, there is a distinction between feature valuation and interpretability and there can be, for example, features that are [+interpretable] and [-valued] as well as features that are [+interpretable] and [+valued]. So when there is an Agree relation between two [+interpretable] features, one could argue that it is due to the fact that Probe is [+interpretable] [-valued] while Goal is [+interpretable] and [+valued].

As a final note regarding ATC, although Landau (2004) mainly concentrates on EC and PC distinction in complement clauses, Landau (2000) has some mention of NOC which does not instantiate EC and PC distinction. However, according to Landau (2000), NOC also consists of two subtypes, which are Long Distance (LD) Control and Arbitrary Control. In LD Control, the controller and the infinitival complement are not clause-mates while in Arbitrary Control, PRO has no argumental controller. The following sentences exemplify LD and Arbitrary Control respectively:

(40)

[PRO₁ storming out of the room that way after losing the game] convinced everyone that John₁ is very immature. (Long-Distance Control)²⁰

(Landau, 1999: 47)

²⁰ According to Landau (2000), this sentence is an instance of long-distance control because the controller and infinitive are not clause mates. Landau (2000) does not make EC vs. PC distinction for cases like this presumably because there might be cases of LD in which the controller is determined depending on pragmatics.

(41)

It is dangerous for babies [PRO_{arb} to smoke around them] (Arbitrary Control)

(Landau, 1999: 46)

Thus, the typology of control that Landau (2000) presents can be summarized in the following table:

(42)

Table 1: Landau's Typology of Control

Control			
Obligatory Control (OC)		Non-Obligatory Control (NOC)	
Exhaustive Control (EC)	Partial Control (PC)	Long-distance (LD) Control	Arbitrary Control

As can be seen in Table 1, there is no mention of adjunct control. Landau (2000) acknowledges that some control constructions are left out of the table above: “For the sake of completeness, it should be noted that some control constructions are left out in the table. These include control into adjuncts, rationale/purpose clauses, temporal adverbials... As far as I know, the present analysis is not inconsistent with the facts we have left outside, and may have natural extensions to account for them as well” (Landau, 2000: 25).

However, as we will see in the next chapter, ATC in its current form cannot be extended to the obligatory control into adjuncts because adjuncts are opaque to syntactic relations (Huang 1982). In order to account for OC reading in adjunct control structures, we propose using Interarboreal Agree, drawing upon the intuitions of Nunes (1995) that syntactic operations are possible between two unconnected trees.

3. Summary

In this chapter, we gave an outline of the basic tenets of the theoretical framework adopted in this dissertation and then reviewed some of the main theories of control with a special focus on ATC. We pointed out the basic properties of ATC such as the distinction between EC and PC, the features of [T] and [Agr], R-feature assignment rule and [Mer] feature. However, in order to simplify ATC, following Boeckx et al. (2010) we suggested that [Mer] feature can be dispensed with and partial control can be subsumed under exhaustive control if we assume that these structures involve a null commitative PP. We also underlined the fact that ATC cannot account for OC in adjunct control structures.

The following list summarizes the assumptions for the modified Agree-based-Theory of Control that we adopt in this study:

(43)

- a. Agree relation can be triggered either by the needs of the Probe or the needs of the Goal
- b. Partial Control can be subsumed under Exhaustive Control
- c. PRO is [-R] and DPs are [+R]
- d. Agree relation can be established between two disconnected trees (we call this Interarboreal Agree and provide the details for it in the next chapter)

Chapter 2: Control into Temporal Adjunct Clauses

1. *Obligatory Control in Temporal Adjunct Clauses*

As observed by Williams (1992) and Hornstein (2001), control into adjuncts exhibit the properties of obligatory control. Consider the following sentence from Boeckx et al. (2010):

(1) John_i saw Mary after PRO_i eating lunch.

(Boeckx et al. 2010:89)

As Boeckx et al. (2010) note, adjunct control structures such as (1) exhibit Obligatory Control (OC). Consider the following sentence:

(2) John_i said that [Mary_k's brother]_m left after PRO_{m/*i/*k/*w} eating a bagel

Sentence (2) illustrates that PRO in the adjunct clause requires a c-commanding antecedent since only the c-commanding “Mary’s brother” can be the antecedent for the PRO and not the non-c-commanding possessor “Mary.” Now let us consider sentence (3):

(3)

John left before PRO singing and Bill did too. ‘... and Bill_i left before he_i/*John sang.’

Sentence (3) shows that adjunct clauses allow only sloppy reading under ellipsis. In other words, (3) has the reading paraphrased as “... Bill left before Bill sang” but not the reading “... and Bill left before John sang.”

Since adjunct clauses exhibit the properties of obligatory control, Boeckx et al. (2010) analyze this type of sentence as an instance of movement and suggest the following derivational steps:

(4)

John₁ saw Mary after PRO₁ eating lunch.

a. *Applications of Select, Merge, and Copy:*

Num = {John₀, T^{φ+}₁, saw₀, Mary₀, after₀, T^{φ-}₀, eating₀, lunch₀}

PP = [after John T^{φ-} eating lunch]

VP = [saw Mary]

b. *Copying of John:*

PP = [after John T^{φ-} eating lunch]

VP = [saw Mary]

N = John

c. *Merger of John and VP:*

PP = [after John T^{ϕ^-} eating lunch]

VP = [John saw Mary]

d. *Merger of PP and VP:*

[$_{VP}$ [$_{VP}$ John saw Mary] [$_{PP}$ after John T^{ϕ^-} eating lunch]]

e. *Selection of T^{ϕ^+} :*

Num = {John₀, T^{ϕ^+} ₀, saw₀, Mary₀, after₀, T^{ϕ^-} ₀, eating₀, lunch₀}

[$_{VP}$ [$_{VP}$ John saw Mary] [$_{PP}$ after John T^{ϕ^-} eating lunch]]

T^{ϕ^+}

e. *Merger of T^{ϕ^+} and VP:*

TP = [T^{ϕ^+} [$_{VP}$ [$_{VP}$ John saw Mary] [$_{PP}$ after John T^{ϕ^-} eating lunch]]]

f. *Copying of John:* TP = [T^{ϕ^+} [$_{VP}$ [$_{VP}$ John saw Mary]

[$_{PP}$ after John T^{ϕ^-} eating lunch]]]

N = John

g. *Merger of John and TP:*

TP = [John [T^{φ+} [VP [VP John saw Mary] [PP after John T^{φ-} eating lunch]]]]

h. *Deletion in the phonological component:*

TP = [John [T^{φ+} [VP [VP ~~John~~ saw Mary] [PP after ~~John~~ T^{φ-} eating lunch]]]]

(Boeckx, et al. 2010: 88)

Boeckx et al. (2010) assume that after the matrix clause and adjunct clause have been assembled separately, the matrix verb *saw* still has its external theta role to assign. There is no remaining element in the numeration to receive this external theta role. However, Boeckx et al. (2010) assume that the NP *John* is still active for the purposes of A-movement because it did not check its case in the adjunct clause. Therefore, they argue that the computation can create a copy of the NP *John* as in (4b) and merges it with the VP in (4c) which is an instance of sideward movement along the lines of Nunes (1995) and Hornstein (2001). This allows the external theta role of the verb *saw* to be discharged. Then the PP adjoins to VP in (4d) and the matrix TP is built as illustrated in (4e). Next the matrix subject moves to [Spec TP] as illustrated in (4f) and (4g), and finally the deletion of all the copies of the NP *John* other than the top most copy gives (4h).

According to Hornstein (2001), (4) is an instance of subject control structure and not object control due to local economy:

Economy requires ‘Mary’ to merge with the matrix ‘saw’ before ‘John’ moves to Spec,VP. That ‘John’ must be moved is required by

convergence as it needs to check its case features. However, that it move after ‘Mary’ merges follows from considerations of derivational economy. It follows because Merge is cheaper than Move since Move, being a complex of two operations Copy and Merge, contains Merge as a subpart. Hence, simply merging an element from the array is cheaper than first copying an element and then merging this copy (i.e. Move) as it involves fewer operations at the relevant point in the derivation. Economy, therefore, prohibits first moving ‘John’ to the embedded VP position²¹ and then merging ‘Mary’ to Spec vP (see Chomsky 1995, 1998) ...

(Hornstein, 2001:73)

Therefore, within MTC, “it is not possible to have object control for it would require unnecessary violations of economy” (Hornstein, 2001: 49). However, as we will see later on in this chapter, Turkish temporal adjunct clauses and some purpose clauses in English exhibit object control as well as subject control.²²

²¹ "I have to confess that Hornstein (2001)'s discussion of this point is not clear to me. As quoted above, he says “Economy ... prohibits first moving 'John' to the embedded VP position ...” But the account given purports to rule out object control in “John saw Mary after PRO eating lunch.” No prohibition involving ‘John’ in the embedded clause could be relevant, then, because the excluded object control reading never has ‘John’ interpreted anywhere in the embedded clause. Perhaps he has some other example in mind.”

²² According to Norbert Hornstein (p.c), object control cases in Turkish would not pose a problem for MTC if we assume that adjuncts can be adjoined to VP. However, it is not clear how the object DP can

2. Adjunct Control in Turkish Temporal Clauses

In this section we will give a brief overview of finiteness in Turkish, which will be relevant for the discussion of adjunct control structures as we argue that they are non-finite clauses. Then we give an outline of complementation in Turkish to compare it to control in adjunct clauses.

2.1 Finiteness in Turkish

George and Kornfilt (1981) use the presence of agreement as a diagnostic for finiteness on the basis of Turkish data. They note that phrases that appear with agreement are opaque to passive movement while the ones without agreement are not. Consider the following sentences modified from George and Kornfilt (1981):

(5)

- a. John [biz viskiyi ic-ti-k] san-iyor
John [we whisky-Acc drink-Past-1pl] believe-Prog.3sg
“John believes that we have drunk the whisky”

c-command its trace if the adjunct is adjoined to VP. Also note that according to Cinque (1999), temporal adverbial clauses are TP level adjuncts. If Cinque (1999) is right and temporal adjuncts are adjoined at TP level, then sentences like (4) might pose a problem for MTC because the subject DP would not be able to c-command its trace.

- b. *Biz [t viski-yi ic-ti-k] san-il-iyor-uz
 (We) [whisky-Acc drink-Past.1pl] believe-Pass-Prog.1pl
 Lit. “ We are believed that have drunk the whisky”
- c. [Biz viski-yi ic-ti-k] san-il-iyor
 [We whisky-Acc drink-Past-1pl believe-Pass-Prog.3sg
 “It is believed that we have drunk the whisky”
- d. (Biz) [t viski-yi ic-ti] san-il-iyor-uz
 We [whisky-Acc drink-Past believe-Pass-Prog.3sg]
 “We are believed to have drunk the whisky”

In (5a), we have a complex sentence with a finite complement clause and an active verb. When the matrix verb is passivized as in (5b), “biz” (we) cannot be moved out of the finite complement clause to the subject position of the matrix clause. In these cases, the embedded subject must remain in situ and the passive matrix verb bears third person singular agreement as can be seen in (5c). In order for “biz” (we) to be able to move to the subject position of the matrix clause, the complement clause has to lack agreement as in (5d). The assumption here is that this kind of movement is only possible out of clauses that lack agreement, and that the ability to move out of a clause correlates with the presence of agreement. Hence, George and Kornfilt (1981) show that agreement is the main factor in determining finiteness in Turkish.

2.2 Overview of Complementation in Turkish

In this section we will outline the properties of complementation in Turkish in order to compare and contrast them with Turkish adjunct clauses. Taylan (1996), Kural (1994) and Goksel & Kerslake (2005) among others group Turkish complement clauses into four main categories: a) Clauses formed with *-mAK*²³ ending b) Clauses formed with *-mA* ending, c) Clauses formed with *-DIK* ending, and d) Clauses formed with *-yACAk* ending.

As observed by Kornfilt (1984), the *-mAK* ending typically forms control structures as illustrated below:

(6) a. Emel [PRO git-mek] ist-iyor

Emel go-Inf want-Prog-3S

“Emel wants to go”

b. Emel Kaya-yı [PRO sinema-ya gitme-ğē] ikna et-ti.

Emel Kaya-Acc cinema-Dat go-Inf-Dat convince-Pst-3S

“Emel convinced Kaya to go to cinema.”

²³ The suffixes in Turkish generally undergo vowel and/or consonant harmony. For this reason, following the conventions in the literature on Turkish linguistics, in this study the vowels and consonants that undergo vowel harmony are shown in capital letters. For instance, *-mAK* means that in this suffix the vowel and the last consonant might undergo vowel and/or consonant harmony.

c. [PRO Koş-mak] sağlıklıdır

run-inf healthy

“To run is healthy”

As can be seen in these examples, non-finite clauses formed with *-mAK* ending do not bear agreement markers. In the sentences above, (6a) is an example of obligatory subject control and (6b) is an example of obligatory object control. (6c), on the other hand, illustrates arbitrary control. Kornfilt (1984) notes that in Turkish PRO typically appears in structures formed with *-mAK* ending and hence she takes the presence of *-mAK* ending and the absence of agreement as a demarcation for complement control structures.

Unlike *-mAK* structures, clauses formed with *-mA*, *-yACAk* and *-DIK*, which are generally called nominalizing suffixes, are marked with agreement markers. The following sentences illustrate clauses formed with *-mA*, *-yACAk* and *-DIK* endings respectively:

(7)

a. John [öğrenci-nin alıştırma-lar-ı çabuk bitir-me-si-ni]

John-Nom student-Gen3S exercises-Acc quickly finish-VN-Poss3S-Acc

iste-di

want-Past.3sg

“John wanted the student to finish the exercises quickly”

b. John [öğrenci-nin alıştırmalar-ı çabuk bitir-dig-i-n-i]
 John-Nom students-Poss3P exercises-Acc quickly finish-VN-Poss3S-Acc
 söyle-di
 say-Pst-3S
 “John said that the student finished the exercises quickly”

c. John [öğrenci –nin alıştırmalar-ı çabuk bitir-eceg-i-ni]
 John-Nom students-Poss3S exercises-Acc quickly finish-VN-Poss3S-Acc
 söyle-di
 say-Pst-3S
 “John said that the student would finish the exercises quickly”

In sentences (7a) through (7c), the subject of the complement clause is marked with the appropriate form of the genitive suffix *-nin*. The verb of the embedded clause is marked with the appropriate form of the possessive suffix *-(s)I* agreeing with the genitive suffix on the embedded subject.

2.3 Properties of Temporal Adjuncts in Turkish

Kornfilt (2001) calls clauses formed with *-mAdAn once* (before/after doing something), *-DIktAn sonra* (after having done something) and *-(y)InCA* (when/upon) as adverbial clauses. The following examples illustrate this type of clauses:

(8) John_i [PRO_i mektub-u oku-madan önce] gözlükler-i-ni tak-tı
John letter-Acc read-before glasses-Poss-Acc put on-Past.3sg

“John put on his glasses before reading the book”

(9) John_i [PRO_i mektub-u oku-duktan sonra] gözlükler-i-ni çıkar-dı
John letter-Acc read-after glasses-Poss-Acc take off-Past.3sg

“John took off his glasses after having read the book”

(10) John_i [PRO_i mektub-u oku-yunca] üzül-dü
John letter-Acc read-when get upset-Past.3sg

“John got upset when/upon reading the letter”

Note that temporal adjunct clauses above pattern with the non-finite complement clauses formed with *-mAK* infinitival ending in that the embedded predicate in adjunct clauses does not bear any tense, person or agreement marker. Crucially they do not pattern with clauses formed with *-mA*, *-yACAk* and *-DIK* endings that were discussed in the previous section. Consider the following sentences:

(11) * John_i [PRO_i mektub-u oku-su-madan önce] gözlükler-i-ni
John-Nom letter-Acc read-Poss-before glasses-Poss-Acc
tak-tı
put on-Past.3sg

“Intended meaning: John put on his glasses before his reading the book”

(12) *John_i [PRO_i mektub-u oku-su-duktan sonra] gözlükler-i-ni çıkar-dı
 John letter-Acc read-after glasses-Poss-Acc take off-Past.3sg
 “Intended meaning: John took off his glasses after his reading the book”

(13) *John_i [PRO_i mektub-u oku-su-yunca] üzül-dü
 John letter-Acc read-Poss-when get upset-Past.3sg
 “Intended meaning: John got upset when/upon his reading the letter”

As the sentences above illustrate, the embedded predicate in temporal adjunct clauses cannot bear possessive ending like the clauses in (7) which were formed with *-mA*, *-yACA*K and *-DIK* suffixes. This indicates that they are not nominalized clauses.²⁴

Since in temporal adjunct clauses the embedded predicate does not bear any agreement, following George and Kornfilt (1981), in this study we assume that the clauses formed with *-mAdAn once* (before/ doing something) *-DIktAn sonra* (after having done something) and *-(y)InCA* (when/upon) are adverbial non-finite clauses similar to infinitival clauses formed with *-mAK* ending.

²⁴ Also note that these clauses are not subjunctive clauses as they cannot co-occur with *-sIn* ending which is taken to indicate subjunctive structure in Turkish (Goksel & Kerslake 2005, Kornfilt 1997 among others)

2.4 OC or NOC in Control into Turkish Temporal Adjunct Clauses

Control relation in Turkish temporal adjunct clauses exhibits the hallmarks of OC as the following sentences illustrate:²⁵

(14)

- a. * John_i zannet-ti ki Mary PRO kendine_i ayna-da
John think-Past.3sg that Mary self mirror-Loc
bak-inca dus aldi
very get tired-Fut.3sg.

“John_i thought that Mary took a shower when looking at himself_i²⁶ in the mirror”

- b. * John_i zannet-ti ki Mary PRO_i kendi-ne_i ayna-da
John think-Past.3sg that Mary self -Dat mirror-Loc
bak-madan önce duş al-di
look-before take a shower-Past.3sg

“John_i thought that Mary took a shower before looking at himself_i in the mirror”

²⁵ Note that the adjunct clauses formed with *-mAdAn önce* (before), *-DIktAn sonra* (after having done something) and *-(y)InCA* (when/upon) are treated as instances of adjunct control by Aydin (2004) as well.

²⁶ Note that the reflexive “kendi kendine” is gender neutral in Turkish and the sentence is grammatical when “kendi kendine” (self) is interpreted as co-indexed with “Mary.” The same generalization holds for (14b) and (14c).

- c. * John_i zannet-ti ki Mary PRO_i kendine_i aynada bak-tıktan sonra
 John think-Past.3sg that Mary self mirror-loc look-after
 duş al-dı
 take a shower-Past.3sg
 “John_i thought that Mary took a shower after looking at himself_i in the mirror”

(15)

- a. * John_i'ın resmi PRO_i kendi-ne_i ayna-da bak-ınca düş-tü
 “John-Gen picture-Poss self-Dat mirror-Loc look-when fall-Past.3sg
 “John_i's picture fell when looking at himself_i in the mirror”
- b. *John_i'ın resm-i PRO_i kendi-ne ayna-da bak-madan önce düş-tü
 John-Gen picture-Poss self-Dat mirror-Loc look-before fall-Past.3sg
 “John_i's picture fell before looking at himself_i”
- c. *John_i'ın resm-i PRO_i kendi-ne ayna-da bak-tıktan sonra düş-tü
 John-Gen picture-Poss self-Dat mirror-Loc look-after fall-Past.3sg
 “John_i's picture fell after having looked at himself_i”

(16)

a. John kitab-ı oku-madan önce uyuyakal-dı ve Mary de öyle yaptı
John book-Acc read-before fall asleep-Past.3sg and Mary also so do-Past.3sg
“John fell asleep before-reading the book and Mary did so too”

b. John kitab-ı oku-duktan sonra uyuyakal-dı ve Mary de öyle yaptı
John book-Acc read-after fall asleep-Past.3sg and Mary also so do-Past.3sg
“John fell asleep after having read the book and Mary did so too”

c. John kitab-ı oku-yunca uyuyakal-dı ve Mary de öyle yaptı
John book-Acc read-when fall asleep-Past.3sg and Mary also so do-Past.3sg
“John fell asleep when/upon reading the book and Mary did so too”

Sentences in (14) show that PRO in temporal adjunct clauses requires a local antecedent. Sentences (15a) through (15c) illustrate that the antecedent needs to be c-commanding. In sentences in (16) PRO headed adjunct clauses have only sloppy reading under ellipsis. For instance, (16a) has the reading paraphrased as “... and Mary read the book before Mary fell asleep” but not the reading “... and Mary read the book before John fell asleep”

Interestingly, in Turkish temporal adjunct clauses either the subject or object can serve as the controller. Consider the following sentences:

- (17) a. John_i bebeğ_j-i PRO_{i/j} uyu-madan önce öp-tü
 John baby-Acc sleep-before kiss-Past.3sg
 “John kissed the baby before sleeping”
- b. John_i Mary_j’i PRO_{i/j} gel-ince ara-dı
 John Mary-Acc come-when call-Past.3sg
 “John called Mary when/upon arriving”
- c. John_i Mary_j’i PRO_{i/j} gel-dikten sonra ara-dı
 John Mary-Acc come-after call-Past.3sg
 “John called Mary after arriving”

We will call structures such as the ones in (17) “Subject/Object Control (SOC)” structures as in these structures either the subject or the object could be the antecedent. In these sentences there are two potential antecedents: “John” and “Mary,” and either of these NPs can be interpreted as the antecedent of PRO unlike the interpretation of PRO in the English temporal adjunct clauses.

It is worth noting that in (17a) although pragmatically we might expect the object NP “baby” to be doing the sleeping, English native speakers interpret the subject NP “John” as the controller. In the next section, we analyze first OC and then SOC in temporal adjunct clauses.

3. Recalculating Adjunct Control with Interarboreal Agree

Landau (2000) treats adjunct control structures as instances of NOC. As noted in Chapter 1, under the general assumption that adjuncts are islands²⁷ (Huang 1982), it is not clear how an Agree relation can be established between a functional head and PRO in the adjunct clause because as noted by Boeckx (2003), Agree cannot reach into opaque domains. In this section, we propose “Interarboreal Agree” to extend ATC to adjunct control structures that have been discussed so far.

In order to account for adjunct control structures, we propose “Interarboreal Agree”²⁸ in the spirit of Bobaljik and Brown (1997), Nunes (1995 and 2004) and Hornstein (2001), and we assume that interarboreal relations between the two unconnected trees are possible. Where we depart from other interarboreal analyses is in the nature of the interarboreal relation. For instance, in Hornstein (2001) and Nunes (2004), the interarboreal relation between the adjunct clause and the matrix clause is a movement relation. We propose a non-movement relation. We suggest that an Agree relation can be established between PRO in the adjunct clause and the DP in

²⁷ Note that adjuncts are categorized as strong islands by Szabolsci and den Dikken (1999).

²⁸ We are using the term “Interarboreal Agree” instead of “Sideward Agree” as the former better implies that there are two trees being constructed in parallel. Also note that the nature of interarboreal relation in Interarboreal Agree is a little bit different from Sideward Movement (Nunes 2004) or Sideward Movement analysis of control (Hornstein 2001) because in Sideward Movement, the derivation always starts with building the adjunct clause and then moving a syntactic object from the adjunct clause to the host clause. This is not necessarily the case in Interarboreal Agree as the locus of Interarboreal Agree relation resides in the host clause.

the matrix clause before the matrix clause and the adjunct are merged, and before the adjunct clause can become an island.

Before we go into the details of how different adjunct control structures can be derived through Intearboreal Agree, let us underline an important difference between English adjunct control structures and Turkish adjunct control structures which will be relevant in the analysis of these structures. Consider the following sentences:

(18) a. John left before/after eating lunch

b. John left before/after having eaten lunch

(19) John ogle yemeg-i ye-meden once/ye-dikten sonra git-ti
John lunch-Acc eat-before /after go-Past.3sg
“John left before/after eating lunch”

(20) * John ogle yemeg-i ye-di-meden once/yedi-dik-ten sonra git-ti
John lunch-Acc eat-Past-before/after go-Past.3sg

“Intended meaning: John called Mary before having eaten lunch”

Sentences above illustrate a crucial distinction between English and Turkish adjunct control structures. As noted earlier, English temporal adjunct clauses can bear perfective marker as the grammaticality of (18b) illustrates. Turkish temporal adjunct clauses, on the other hand, do not bear any tense, aspect or agreement markers. The existence of an aspect marker, as in (20), results in ungrammaticality. On the basis of

these sentences, we assume that sentences above indicate the presence of AspP in English temporal adjunct clauses and its absence in Turkish temporal adjunct clauses. Therefore, we will explore an analysis in which the presence of AspP plays a role in determining the availability of SOC.

3.1. Formalizing Interarboreal Agree

Let us assume that Interarboreal Agree is a species of Agree that operates between two unconnected trees assembled in parallel. Let us consider the following definition for Interarboreal Agree:

(21)

Local Agree (with some modifications to Agree a la Chomsky 2000)

α c-commands β

α values a feature of β , or α, β have a feature F

(22)

Interarboreal Agree

α d-commands β

β has matching features

(23)

d-command²⁹

In a derivational space³⁰ D which consists of phrase markers [_{HC}..... α ] and [_{AC}....PRO....] where α is a functional head, AC is adjunct clause and HC is host clause, α may probe an element inside AC if the derivational space includes both HC and AC, and α has [-h] feature.

Basically what d-command does is that it scans within the derivational space syntactic objects that have [-h] feature. If a syntactic object has [-h] feature, then an Interarboreal Agree relation can be established. Regarding [-h] feature, we assume the following:

(24)

Optional h-feature assignment³¹

The head of an XP in a HC (host clause) may be assigned [-h] feature³² where XP is TP or vP

²⁹ I would like to thank Howard Lasnik (p.c) for the helpful discussion of this point and for suggesting the name d-command.

³⁰ Derivational space here refers to the space in which phrases are assembled in parallel.

³¹ Note that this is an analog of Chomsky (1998)'s Optional EPP-Feature Assignment

³² XP in the host clause has [-h] feature because it can serve as a host only if an adjunct is adjoined to it.

Derivational Steps:

- a. The host clause is built
[_{TP} John left]
- b. The adjunct clause is constructed
[_{PP} before PRO eating lunch]
- c. Local Agree established between “John” and T^0 matching the phi features of the two and transmitting [+R] feature of “John” to T^0
- d. Interarboreal Agree relation established between T^0 and AspP matching the [+T] feature of the two and transmitting [+Nom] to AspP
- e. Agree established between the AspP and PRO. PRO’s phi-features and [-R] feature are valued. PRO receives [+Nom] Case
- f. Host clause and adjunct clause are merged

In (26) above, the adjunct clause and the host clause are built separately. As pointed out earlier, English temporal adjunct clauses can co-occur with a perfective marker which indicates the presence of AspP within adjunct clause.³³

First, Agree is established between the matrix DP and the functional head T^0 matching the phi-features of DP with T^0 . Next Interarboreal Agree takes places between the adjunct and the host clause. We assume that host clause can see into the

³³ Presumably there is something determining whether an adjunct clause can have AspP or not but we are not aware of a way of predicting whether the adjunct will have an AspP or not. We leave the investigation of this topic for future research.

adjunct clause because it d-commands the adjunct clause by virtue of having a [-h] feature.³⁴ This Interarboreal Agree matches the [+T] feature of the T⁰ in the host clause and the AspP in the adjunct clause,³⁵ and transmits the [+R] feature of the matrix DP and [+Nom] Case to the head of AspP. We assume that the Interarboreal Agree relation between the T head in the matrix clause and the AspP in the adjunct clause is necessary because the tense specification of the Aspectual Phrase is dependent on the tense specification of the matrix clause.³⁶ Within the host clause, Agree is established between PRO and AspP whereby the phi-features and [+R]

³⁴ Hereon we will assume that the Interarboreal Agree relations in the derivations to be discussed can be established because the host clause can d-command the adjunct clause due to an unvalued [-h] feature.

³⁵ Boeckx et al. (2010) criticize the Agree-based theory of control indicating that Agree relation established between features both of which are [+] or features that are both [-] are at odds with Agree operation proposed in Chomsky (2000). As noted earlier in Chapter 1, to address this concern, following Pesetsky and Torrego (2007) we assume that there is a distinction between valuation and interpretability. For example, [+T] feature on the head of AspP is unvalued while the [+T] feature on the matrix T head is not because [+T] feature on AspP in the adjunct clause is dependent on the one in the matrix clause. Hence, the interarboreal Agree relation established between the T head and the head of AspP is triggered by the needs of the AspP to value its unvalued [+T] feature.

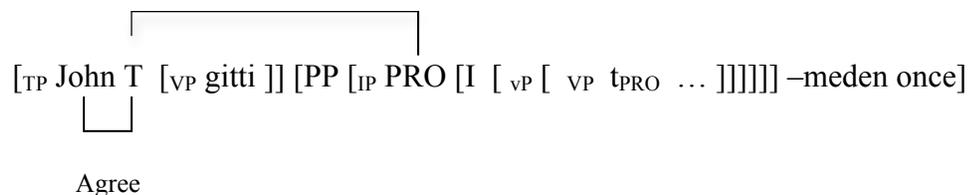
³⁶ The embedded clause with perfective marker in (18b) expresses an event time which is encoded with respect to the event time expressed in the main clause. Hence, as noted by Valentine Hacquard (p.c.), a tense dependence between the aspectual phrase and the tense of the matrix clause, as proposed here, is reasonable along the lines of Kratzer (1998) and Smith (1991) according to which the tense of the embedded clause agrees with the tense of the higher clause. However, note that there is not enough empirical evidence regarding the dependency assumed here between the matrix clause and temporal adjunct clause, which is a topic that we leave for further research.

feature of matrix DP is transmitted to PRO and PRO gets [+Nom] Case.³⁷ Next PRO moves to [Spec, IP] within the adjunct clause. Finally, the host clause and adjunct clause are merged³⁸ as a result of which T's [-h] feature is valued.³⁹

Next, let us first consider the Turkish counterpart of (26) and then we will look at the SOC cases in Turkish, which contain two possible antecedents for PRO. First let us look at the derivation for the Turkish counterpart of sentence (27) and its derivation in (28) which illustrates the Agree relations:

- (27) John ogle yemegi ye-meden once git-ti
 John lunch eat-before go-Past.3sg
 “John left before eating lunch”

(28)



³⁷ The assumption here is that PRO requires Case like lexical DPs and that Agree relation here is triggered by PRO's needs (i.e. this Agree relation is a form of enlightened self-interest).

³⁸ Note that following Ochi (1999) and Stepanov (2001) we assume that adjuncts are merged non-cyclically.

³⁹ Following Pesetsky and Torrego (forthcoming)'s Vehicle Requirement on Merge, when two syntactic units are combined by the operation “Merge,” a probe-goal relation is established and some feature F is valued.

Derivational Steps (given with English glosses):

- a. The host clause is built
[_{TP} John left]
- b. The adjunct clause is constructed
[_{PP} before PRO eating lunch]
- c. Local Agree established between “John” and T⁰ matching the phi features of the two and transmitting [+R] feature of “John” to T⁰
- d. Interarboreal Agree relation established between T⁰ and PRO. PRO’s phi-features and [-R] feature are valued and it receives [+Nom] Case.
- e. Host clause and adjunct clause are merged.

As can be seen in (28), there is no AspP in the derivation because as noted earlier, Turkish adjunct clauses cannot have aspect markers. Similar to (26), in (28), the adjunct clause and the host clause are built separately. However, in the derivation of the Turkish sentence, absence of AspP reduces the number of Agree relations established. This time there are only two Agree relations. First Agree relation is a local Agree relation established between the Matrix DP and the functional head T⁰ whereby the phi features of the T head and the matrix DP are matched, and [+R] feature of the DP transmitted to the T head. This is followed by a second Agree relation, which is an Interarboreal Agree established between the PRO in the adjunct clause and the matrix T⁰ through which PRO gets the phi-features of the matrix DP

and its [+R] feature as well as [+Nom] Case.⁴⁰ After local and interarboreal Agree relations have been established, the adjunct clause and the host clause are merged whereby [-h] feature in the host clause is valued.

Now let us consider SOC adjunct control structures in Turkish, in which either the subject or object can serve as the antecedent. Let us consider the derivation for an SOC instance, which is repeated below as (29):

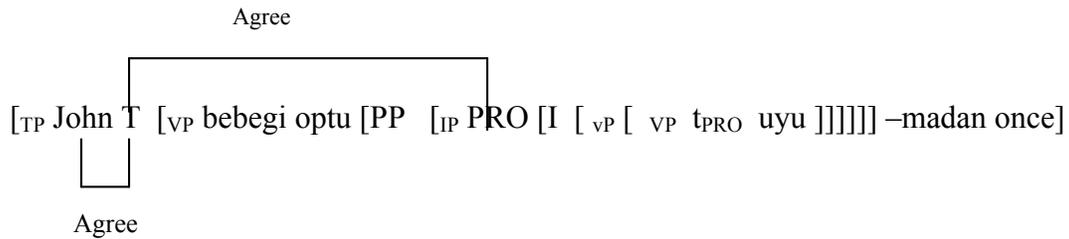
- (29) John_i bebeğ_j-i PRO_{i/j} uyu-madan önce öp-tü
John baby-Acc sleep-before kiss-Past.3sg
“John kissed the baby before sleeping”

As noted earlier, in (29) either the subject NP “John” or the object NP “the baby” can be interpreted as the antecedent of PRO. Let us assume that the availability of two different control readings indicates that there are two possible derivations, which are illustrated below:

⁴⁰ Here again we assume that this Agree relation is triggered by the needs of PRO and is an instance of enlightened self-interest. Also note that following Landau (2004) (who cites Chomsky 2001’s Maximize Matching Effects), we assume that Case feature is still available on T prior to establishing Agree with PRO.

(30)

a. Subject Control⁴¹

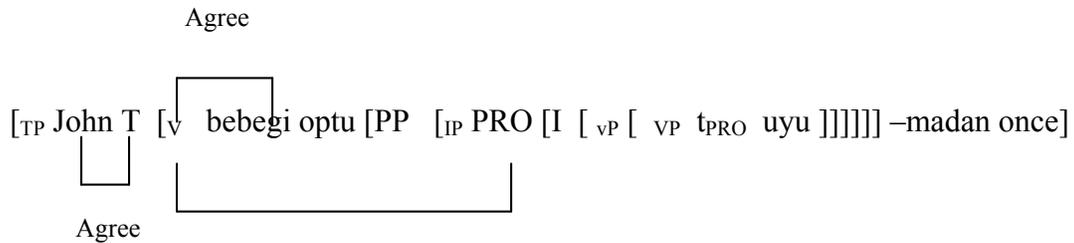


Derivational Steps (given in English glosses):

- a. The host clause is built
[TP John kissed the baby]
- b. The adjunct clause is constructed
[PP before PRO sleeping]
- c. Local Agree established between “John” and T⁰ matches the phi features of the two and transmits [+R] feature of “John” to T⁰
- d. Interarboreal Agree established between T⁰ and PRO. PRO’s phi-features and [-R] feature are valued and PRO gets [+Nom] Case
- e. Host clause and adjunct clause are merged whereby [-h] feature on T⁰ is valued

⁴¹ We assume that in the subject control cases, [-h] feature is on T head and in object control cases it is on little v.

b. Object Control



Derivational Steps (given in English glosses):

- a. The host clause is built
[_{TP} John kissed the baby]
- b. The adjunct clause is constructed
[_{PP} before PRO sleeping]
- c. Local Agree established between little v and “the baby” matches the phi features of the two and transmits [+R] feature of “the baby” to little v
- d. Interarboreal Agree established between little v and PRO. PRO’s phi-features and [-R] feature are valued and PRO receives [+Acc] Case
- e. Host clause and adjunct clause are merged whereby [-h] feature on little v is valued

Let us again suppose that the unavailability of Aspect markers in temporal adjunct clauses indicates the absence of AspP. In (30a), T head enters into Agree relation with the DP and then with PRO matching the phi-features of PRO with the matrix DP inducing subject control interpretation. Alternatively, little v can enter Agree relation

with the object DP⁴² and then Agree relation with PRO matching the phi-features of the object DP, and PRO leading to an object-oriented control interpretation.

Now let us look at these derivations in detail. In (30a), first Agree relation is a local Agree relation established between the Matrix DP and the functional head T⁰ whereby the phi features of the T head and the matrix DP are matched, and [+R] feature of the DP transmitted to the T head. Second Agree relation, which is an Interarboreal Agree, is established between the PRO in the adjunct clause and the matrix T⁰ through which PRO gets the [+R] feature and the phi-features of the matrix DP. After local and interarboreal Agree relations have been established, the adjunct clause and the host clause are merged whereby [-h] feature in the host clause is valued.

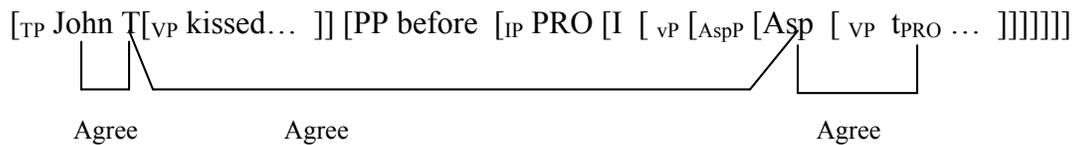
Let us consider the derivation in (30b). First an Agree relation is established between T head and the matrix DP, which matches the phi-features of the two. Next, an Agree relation is established between little v and the object whereby phi-features and [+R] feature of the matrix DP is transmitted to little v. Then, Agree is established between little v and PRO as a result of which PRO gets the phi-features of object DP and its [+R] feature. Lastly, the adjunct clause and the host clause are merged whereby [-h] feature on the host clause valued.

Let us also consider the derivation for the English counterpart of the sentence, that is to say, the sentence “John kissed the baby before sleeping.” As noted earlier, although pragmatically this sentence biases English speakers toward the interpretation

⁴² We assume that T⁰ or little v that are located in the host clause are equidistant to PRO in the adjunct clause.

where “the baby” is the antecedent for the adjunct clause “before sleeping,” English speakers only accept the reading where the subject DP “John” is the antecedent. We will assume that this is due to the fact that there is an AspP in the adjunct clause the head of which enters Agree relation with the matrix clause T and therefore receives [+Nom]. Consider the derivation below:

(31)



Derivational Steps:

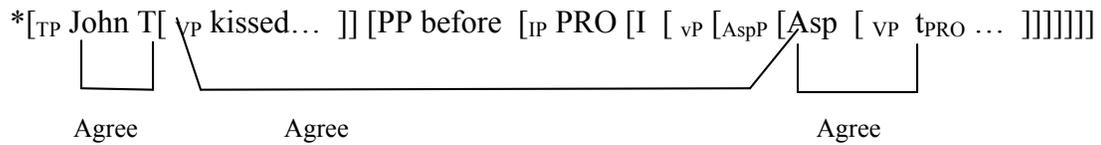
- a. The host clause is built
[_{TP} John kissed the baby]
- b. The adjunct clause is constructed
[_{PP} before PRO sleeping]
- c. Local Agree established between “John” and T⁰ matching the phi features of the two and transmitting [+R] feature of “John” to T⁰
- d. Interarboreal Agree relation established between T⁰ and AspP matching the [+T] feature of the two and transmitting [+Nom] to AspP

- e. Agree established between the AspP and PRO. PRO's phi-features and [-R] feature are valued. PRO receives [+Nom] Case.
- f. Host clause and adjunct clause are merged

Let us elaborate on the derivation in (31). As usual, the adjunct clause and the host clause are built separately. As pointed out earlier, English temporal adjunct clauses can co-occur with perfective marker, which indicates the presence of AspP within adjunct clause. First, Agree is established between the matrix DP and the functional head T^0 matching the phi-features of DP with T^0 . Next Interarboreal Agree takes place between the adjunct and the host clause. We assume that host clause can see into the adjunct clause because it d-commands the adjunct clause by virtue of having a [-h] feature. This Interarboreal Agree matches the [T] feature between the T head in the host clause and the AspP in the adjunct clause, and transmits the phi-features and [+R] feature of the matrix DP and [+Nom] Case to the head of AspP. Next, Agree is established between PRO and AspP whereby PRO receives [+Nom] from AspP.⁴³ Next PRO moves to [Spec, IP] within the adjunct clause. Finally, the host clause and adjunct clause are merged as a result of which T's [-h] feature is valued.

Now let us consider the derivation for object control reading which is not attested in English temporal adjunct clauses so that we can see what goes wrong in this derivation.

⁴³ Note that we assume that in ECM cases the subject of the embedded infinitival gets its Case in the higher clause.



Derivational Steps:

- a. The host clause is built
[_{TP} John kissed the baby]
- b. The adjunct clause is constructed
[_{PP} before PRO sleeping]
- c. Local Agree established between “John” and T⁰ matching the phi features of the two and transmitting [+R] feature of “John” to T⁰
- d. Interarboreal Agree relation established between little v and AspP. However, little v cannot match [+T] feature on AspP and therefore the derivation crashes

In the derivation above, up to the derivational step (d) derivation proceeds similar to that of the subject control structure in (31). At this stage of the derivation, the element that has the matching [+T] feature is the matrix T head and therefore if AspP head enters an Agree relation blindly with the little v, the derivation crashes because the little v cannot value the [+T] feature of the AspP. In other words, the existence of AspP in the English sentences obliterates the object control reading in English temporal adjunct clauses.

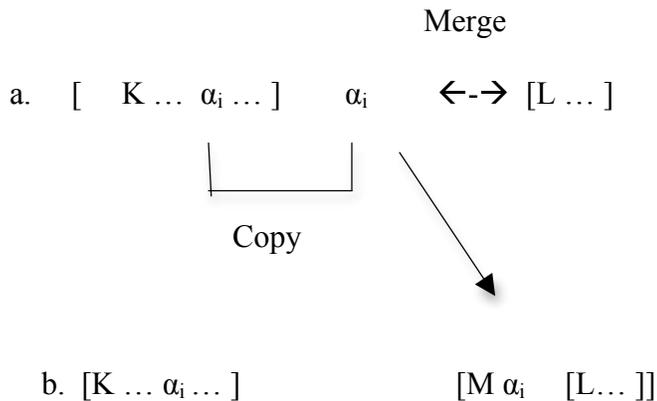
4. Parasitic Gaps in Adjunct Clauses

In this section, we will look at Parasitic Gaps, which involve an empty category licensed by another empty category. First, in the following section we will briefly review the sideward movement analysis of parasitic gaps in adjuncts and then we will provide an Interarboreal Agree analysis of parasitic gaps in adjunct clauses.

4.1 Sideward Movement Analysis of Parasitic Gaps in Adjuncts

Nunes (1995, 2004) proposes that Move is not a primitive operation of the computational system but rather an interaction of independent operations Copy, Merge, Form Chain and Chain Reduction. He introduces Sideward Movement in which “a given constituent α of a syntactic object K is copied and then the copy of α merges with syntactic object L, which has been constructed independently and is unconnected to K” (Nunes 2004: 94) as illustrated in (32) below:

(32)



Nunes (2004:90)

As can be seen above, the moved element merges with another phrase marker instead of the one in which the moved element originates. Note that according to Nunes (2004), the two copies of α cannot form a chain because they do not stand in a c-command relation. He argues that there is nothing in the computational system to prevent movement relations between parallel, unconnected derivations from occurring. He calls this kind of movement “Sideward Movement” and uses it in the analysis of parasitic gaps in adjunct clauses such as (33):

(33) Which paper did you file *e* [without reading *e*]

As was pointed out by Ross (1967) and Engdahl (1983) among others, parasitic gap constructions such as (33) involve an empty category in the adjunct clause which is licensed by another empty category in the main clause. Nunes (2004) argues that (33) involves sideward movement and suggests that the derivation starts with the construction of the adjunct clause:

(34)

[without PRO reading [which paper]]⁴⁴

⁴⁴ Note that Nunes (2004) does not utilize MTC and hence maintains PRO to represent the unpronounced subject of the adjunct clause.

Then the main clause is being assembled. The sideward movement from the adjunct clause takes place when a copy of “which paper” is made and merged as the argument in the main clause giving two phrase markers as follows:

(35)

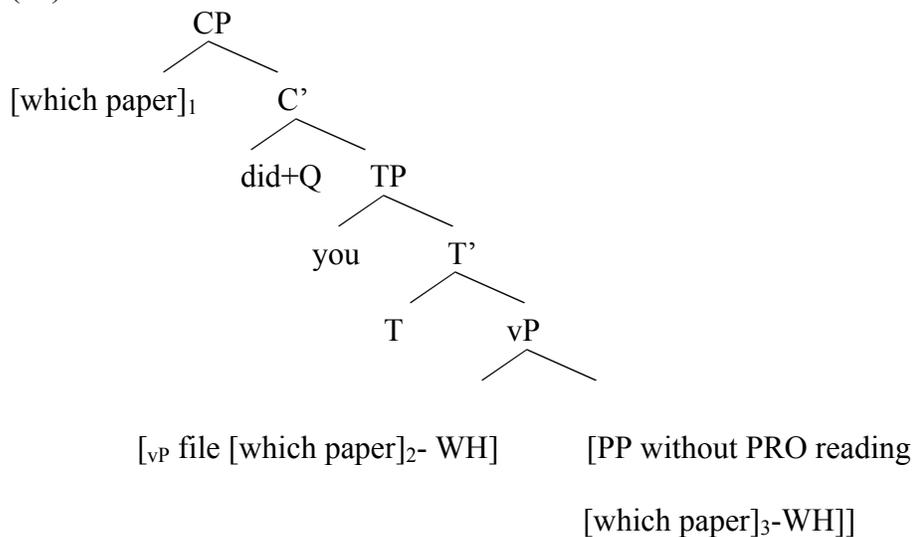
a. [vP you file [which paper]]

b. [PP without PRO reading [which paper]]

Next, wh-movement of “which paper” takes place to check the strong wh-feature. Note that Nunes (2004) argues that at this point of the derivation, the copies of “which paper” do not form a nontrivial chain as they are not in a c-command relation.

Then two phrase markers are merged giving the following structure:

(36)



(Nunes, 2004:100)

At this point in the derivation, Form Chain applies and constructs two independent chains. The copy of “which paper” in Spec CP can form the chain $CH_1 = (\text{copy}_1, \text{copy}_2)$ or the chain $CH_2 = (\text{copy}_1, \text{copy}_3)$. In each case, the upper copy and lower copy are non-distinct, and copy_1 c-commands copy_2 and copy_3 . Nunes (2004) proposes Formal Feature Elimination and Chain Reduction which interact with Linear Correspondence Axiom (LCA) in eliminating illicit chain formations:

(37)

Formal Feature Elimination (FF Elimination):

Given the sequence of pairs $\sigma = \langle (F, P)_1, (F, P)_2, \dots, (F, P)_n \rangle$ such that σ is the output of Linearize, F is a set of formal features, and P is a set of phonological features, delete the minimal number of each set of formal features in order for σ to satisfy Full Interpretation at PF.

(Nunes, 2004:31)

Chain Reduction:

Delete the minimal number of constituents of a non-trivial chain CH that suffices for CH to be mapped into a linear order in accordance with LCA⁴⁵

(Nunes, 2004: 101)

⁴⁵ LCA (Kayne, 1994) is defined as following:

Let X, Y be non-terminals and x,y terminals such that X dominates x and Y dominates y. Then if X asymmetrically c-commands Y, x precedes y

Nunes (2004) proposes that FF Elimination and Chain Reduction apply prior to the application of LCA. FF Elimination and Chain Reduction ensure that the tail of a chain rather than its head will be deleted under the assumption that lower copies in a chain will have some features that are unchecked while the highest copy will have highest number of features checked. Therefore, Chain Deletion applies to the two tails of the chain as illustrated in below:

(38)

[_{CP} [which paper]ⁱ did+Q [_{TP} you [_{vP} [_{vP} file [~~which paper~~]ⁱ] [_{PP} without PRO reading [~~which paper~~]ⁱ]]]]

Hence, a central point in Nunes' (2004) Sideward Movement is that the highest copy has the most features checked and that is why Chain Reduction deletes the lower copies which follows from greedy movement and the assumption that there are copies rather than occurrences.

A potentially problematic case for the assumption above would be an instance where the highest copy is not pronounced and instead a lower copy is pronounced.

Consider the following sentences from Romanian:

(39)

Cine ce ti-a spus? (Romanian)

who what aux.3sg said

‘Who told you what?’

(Albou 2001)

(40)

a. ***Ce ce** precede? (Romanian)

what what precedes

b. **Ce** precede **ce**?

What precedes what

‘‘What precedes what?’’

(41) **Ce** precede **ce** fara sa influenteze ?

What precedes what without SUBJ.PRT influence- 3P.SG

‘‘What precedes what without influencing?’’

(Boskovic 2002)

Romanian is a multiple-wh fronting language as can be seen in (39). Boskovic (2002) observes that there seems to be an exception to the movement of all wh-elements in Romanian because as (40a) illustrates adjacent occurrences of *ce* (what) causes

ungrammaticality. As Nunes (2004) also reports, according to Boskovic (2000, 2002) there is a morphological restriction blocking the adjacency of identical wh-words⁴⁶ which prevents phonetic realization of the upper copy of the object chain *ce* (what) and therefore the lower copy is realized instead as represented below:

(42)

[Ce $\epsilon\epsilon$ precede ce]

⁴⁶ Nunes (2004) reports that the same morphological restriction can be seen in other multiple-wh fronting languages such as Serbo-Croatian:

(i) a. Ko šta kupuje? (Serbo-Croatian – from Boskovic 2000, 2002)

who what buys?

b. *Ko kupuje šta

who buys what

“Who buys what”

(ii) a. *Sta šta uslovljava? (Serbo-Croatian – from Boskovic 1999, 2002)

what what conditions

b. Sta uslovljava šta

what conditions what

“What conditions what?”

However, note that according to Boskovic (2002), unlike Romanian, Serbo-Croatian does not allow parasitic gaps in non-finite adjunct clauses.

Nunes (2004) points out that there is a morpho-phonological restriction that prevents the pronunciation of the highest copy, however, he does not present an analysis of (41) under Sideward Movement analysis. So let us consider the analysis of (41) by using Sideward Movement.

According to Sideward Movement analysis, there would be two independent phrase markers [what₁ precedes what₂] and [without PRO influencing what₂]. Then they would be merged and the relevant wh-movement would take place resulting in the structure below (given in English words):

(43)

[what₁s⁴⁷ [what₂o [what₃s [precedes what₄o [PP without influencing what₅o]

Let us assume that subject wh- phrase forms CH₁= (what₁, what₃) and the object wh- phrase forms CH₂= (what₂, what₄, what₅).⁴⁸ Under Sideward Movement, in line with Formal Feature Elimination, in CH₁ the highest copy *what₁* should be phonetically

⁴⁷ In this representation the letter “s” stands for subject and the letter “o” stands for object.

⁴⁸ One might argue that Agree is implicitly assumed in Sideward Movement because although all copies of “what” have the same phonological form, subject wh-phrase “what₁” forms a chain only with the copy of “what” that matches its “subject” features rather than any other copies of “what.” In other words, a chain can be formed in this case if an Agree relation can be established between the two copies of “what₁” and “what₃.” Otherwise, “what₁” would be able to form a chain with other copies of “what” within its c-command domain. Note that as pointed out to me by Howard Lasnik (p.c.), if Agree is a prerequisite for Move, then Sideward Movement cannot be considered to be just Copy+Merge.

realized. As for CH₂, the highest copy wh- phrase, i.e. *what*₂, should be phonetically realized. However, this would give the following ungrammatical string as it would violate the morpho-phonological adjacency restriction for wh-phrases:

(44)

[what₁ [what₂ [~~what~~₃ [precedes ~~what~~₄ [PP without influencing ~~what~~₅]]]]]

One might argue that it is not clear how Sideward Movement can account for sentences like (44) in which the highest copy is not pronounced.⁴⁹

As noted earlier, in his Sideward Movement analysis, Nunes (2004) maintains PRO. Sideward Movement, however, has been integrated into MTC (Hornstein 2001, Boeckx et.al 2010). Now let us consider how Sideward Movement is utilized within MTC by deriving the same sentence without PRO.

Under MTC, the derivation starts with the construction of the adjunct. First object “what” merges with the verb “influence” whereby the internal theta role of “influence” is checked. Then, the subject “what” is merged and it checks the external theta role of “influence.” Next, subject “what” raises to Spec of IP and then Spec of the embedded CP. Then “without” is merged giving a structure like this:

(45) [without [what_s [what_s [what_s [influenceing what_o]]]]]

⁴⁹ Norbert Hornstein (p.c) notes that in this case the lower copy is pronounced because if the highest one were to be pronounced then the derivation would not converge. However, this requires some look-ahead.

Then we start building the main clause. The verb “precedes” is taken from the lexical array. Now the question is which occurrence of “what” moves from the adjunct clause. Let us suppose that we move the subject “what” because it is at the clause edge but then it would not satisfy the internal theta role of the verb “influence.” So we have to assume that a copy of the object “what” is made from the adjunct clause and then merged as the object of the main clause although it is the lowest copy of “what” in the adjunct clause in violation of shortest move, according to which derivations with shorter links are preferred over derivations with longer links.⁵⁰ Also note that this step would be an instance of improper movement as object “what” would move from an A’ position in the adjunct clause to an A position in the main clause.

4.2 Interarboreal Agree Analysis of Parasitic Gaps in Adjuncts

Now let us consider how we could analyze the parasitic gap structure that we discussed in the previous section by utilizing the operation Interarboreal Agree. Before we look at the specific derivations, let us note that we will assume that the parasitic gaps are a type of pronominal. The examples below from Chomsky (1986) seem to support parasitic gap being pronominal:

⁵⁰ Norbert Hornstein (p.c.) suggests that minimality is not relevant here because in Romanian all wh-elements move to some focus phrase.

(46)

- a. [Which books about himself]_i did John_i file t_j before Mary read t_j
- b. *[Which books about herself]_i did John file t_j before Mary_i read t_j

Note that if the parasitic gap is a pronominal of some type, an example like (46b) patterns just like (47) supporting parasitic gap being pronominal:

(47)

[Which books about himself]_i did John file t_j before Mary read them

Also note that Hornstein (1995) provides some evidence for parasitic gaps being empty pronominals. Consider the following examples:

(48)

- a. What did everyone review t?
- b. What did everyone review t before I read pg?

Hornstein (1995) points out that (48a) is ambiguous while (48b) is not. According to Hornstein (1995), (47a) has the individual or the pair-list reading while (48b) has only the individual reading. He further notes that the individual reading is necessary when a pronoun is substituted for the parasitic gap:

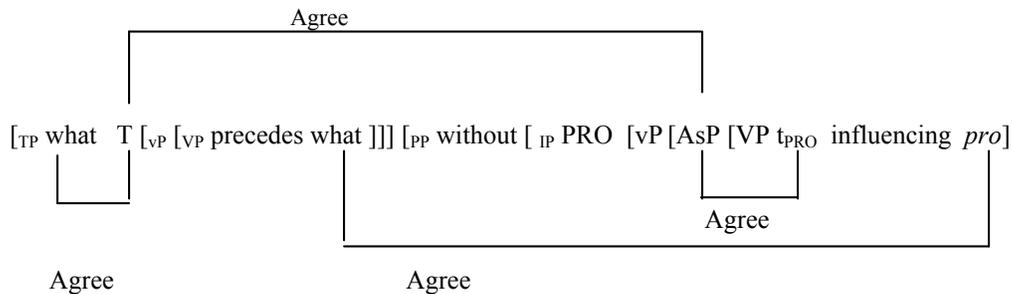
(49)

What did everyone review before I read it

The absence of ambiguity in (48b) follows if the parasitic gap is an empty pronominal.

Hence, following Chomsky (1986) and Hornstein (1995) among others, we will assume that parasitic gap is an empty pronominal. Now let us consider the derivation of the Romanian sentence with Interarboreal Agree:

(50)



We again assume that the adjunct clause and host clause are assembled separately. In the matrix clause, “what” establishes Agree with T⁰ whereby the phi-features of the two are matched. Then, an Interarboreal Agree relation is established between T head and AspP in which [+T] feature of the two are matched, and the phi-features of the

subject “what” and its [+R] feature are transmitted to AspP. In the adjunct clause, PRO establishes Agree with AspP through which it receives the phi-features and [+R] feature of the subject “what.” Then PRO moves up to Spec IP.

Next an Interarboreal Agree relation is established between the object “what” and the null pronominal. Then, the host clause and the adjunct clause are merged whereby [-h] feature of the host clause is valued. Lastly, CP is merged and wh-phrases move to CP.⁵¹

5. A remaining issue

Now let us look at a potentially problematic case for the analysis proposed here. Consider the following example:

(51) John_i's mother_j left before PRO_{i/*j} eating lunch⁵²

One way of accounting for why “John” cannot be the antecedent for PRO would be to assume that “mother” is merged early on in the derivation and “John” is merged later⁵³ as illustrated in the derivational steps below:

⁵¹ Note that similar to Sideward Movement analysis of control (Hornstein 2001), in the Interarboreal Agree analysis, possible CED effects can be accounted for by the timing of the adjunction. The assumption is that island effects emerge after the adjunct is adjoined and becomes an island.

⁵² Co-indexation possibilities are the same for the Turkish counterpart of this sentence.

⁵³ The assumption that “John’s” is merged later in the derivation is in line with the proposal made in Uriagereka (forthcoming) according to which, there can be maximum two things being built up at the

(52)

Derivational Steps:

- a. The host clause is built
[_{TP} mother left]
- b. The adjunct clause is constructed
[_{PP} before PRO eating lunch]
- c. Local Agree established between “mother” and T⁰ matching the phi features of the two and transmitting [+R] feature of “mother” to T⁰
- d. “John’s” merged with “mother
- e. Interarboreal Agree relation established between T⁰ and AspP matching the [+T] feature of the two and transmitting [+Nom] to AspP
- f. Agree established between the AspP and PRO. PRO’s phi-features and [-R] feature are valued. PRO receives [+Nom] Case
- g. Host clause and adjunct clause are merged

Another possibility of accounting for this sentence would be using the “path” conception of minimality among disconnected trees as proposed by Hornstein (2009). According to Hornstein (2009), a path consists of the union of the MaxPs dominating the target or the source of the “mover” which can be translated into the analysis proposed here as “a path consists of the union of the MaxP’s dominating the probe or the goal.” Then along the lines of Hornstein (2009), the path from “John” to PRO,

derivational space at a certain point which requires “John’s” to be merged with “mother” after the steps (52a) and (52b).

for instance, is {DP, VP, TP} while the path from “John’s mother” to PRO is shorter by at least one MaxP as the DP “John’s mother” dominates “John” but not the DP itself. If that is the case, even if we assume that the derivation starts with “John’s mother” and not just the lexical item “mother” as we suggested in (52), then an Agree relation could be established with “John’s mother” and not just “John.”

6. Acquisition of Temporal Adjunct Clauses

Interestingly, English-speaking children under 6 seem to be very permissive in selecting a controller for PRO in temporal adjunct clauses. As Guasti (2002) points out, a number of studies have shown that children who are mostly adult-like on control in complements have difficulty with control structures in temporal adjunct clauses. As an example, Hsu et. al. (1985) tested 64 children between the ages of 3;2 and 8;3 on act-out task with sentences like the following:

(53) The zebra touches the deer after PRO jumping over the fence

The results of the study conducted by Hsu et.al (1985) showed that 45% of the children had an object-oriented interpretation for PRO for sentences like (53).⁵⁴ According to what Wexler (1992) reports, this study and most of the other studies

⁵⁴ This study and other studies discussed in this section only report experiments on children’s interpretation of PRO in adjunct clauses. They do not report any experiments on how adults perform in the same tasks.

testing adjunct control have been from comprehension experiments using “act out” tasks.

Broihier and Wexler (1995) argue against what is called “variable attachment analysis” proposed in Hsu et al. (1985) among others. According to this analysis, English-speaking children go through four distinct developmental stages:

(54)

- (a) Free Interpretation Stage
- (b) Strict Object Coreference Stage
- (c) Mixed Subject/Object Coreference Stage
- (d) Strict Subject Coreference (the adult stage)

According to the variable attachment analysis, in the Free Interpretation stage, children allow the non-overt subject of the adjunct clause to corefer with the main clause subject, the main clause object or even some other discourse referent not mentioned. In the Strict Object Coreference Stage, children require the non-overt subject to co-refer with the main clause object rather than the main clause subject. In the mixed subject/object coreference stage, children allow the non-overt subject to corefer with either the main clause subject or the main clause object. In the last stage, children reach strict subject coreference stage (i.e. the adult stage).

Broihier and Wexler (1995), on the other hand, contend that there are only two stages: One stage where children allow the temporal adjuncts to refer freely and the other one where children have adult grammar.

According to Broihier and Wexler (1995), free interpretation stage is due to the fact that children have analyzed the adjunct clause as a nominal as illustrated below:

(55)

Adult representation:

Ernie scratched the witch before [_S PRO drinking a gulp of water]

Child representation:

Ernie scratched the witch before [_{NP} (the) drinking (of) a gulp of water]

They report the results of a Truth Value Judgment Task, which they say represents a methodological improvement over the Act-out Task used in the previous studies. They argue that Act-out Task encourages children to choose a single interpretation to enact masking underlying Free Interpretation grammars.

They report the results of a study eliciting Subject, Object or External Coreference reading on fourteen monolingual English-speaking children between the ages of 3;10-5;5. In this study they gave children short stories that contrast Subject and Object Coreference Reading, and Subject and External Coreference reading followed by test sentences such as “ Bert scratched Wonder Woman before drinking a gulp of water” and “Gonzo splashed the seaweed before riding the surfboard” Broihier and Wexler (1995) report that of the fourteen children, six yielded essentially adult pattern of responses while eight children diverged more widely from

the adult pattern. The following table illustrates the data from these eight children (Broihier and Wexler, 1995: 217):

(56)

<i>“Non-Adult” Children’s Acceptance of Control Readings</i>			
<i>Subject</i>	<i>Rate of Acceptance</i>		
	<i>Subject Coreference</i>	<i>Object Coreference</i>	<i>External Coreference</i>
<i>1</i>	88%	63%	38%
<i>2</i>	83%	13%	88%
<i>3</i>	100%	38%	38%
<i>4</i>	100%	75%	100%
<i>5</i>	75%	50%	75%
<i>6</i>	75%	38%	50%
<i>7</i>	63%	63%	13%
<i>8</i>	63%	63%	54%
<i>Average</i>	81%	50%	57%

Regarding the results above, Broihier and Wexler (1995) note that there were a fair number of object coreference readings, however, in six cases there was a trend toward subject coreference reading. They suggest that this finding supports non-existence of strict object coreference grammar, which plays a crucial role in motivating the variable attachment hypothesis. They conclude that the results of the study are in support of the existence of only the Free Interpretation pattern and the adult pattern.

Wexler (1992), and Broihier and Wexler (1995) propose the “maturation hypothesis” to explain the child’s transition from pre-adult representations (i.e. free interpretation of temporal adjuncts) to adult representations (i.e. subject control

interpretation). Unlike Hsu et al. (1985)'s analysis that was discussed at the beginning of this section, Wexler (1992), and Broihier and Wexler (1995) maturation hypothesis includes only two stages:

(57)

Stage 1:

Children do not have access to PRO and thus allow free coreference interpretation in non-finite complement and adjunct clauses.

Stage 2:

Children have access to PRO. They interpret PRO as adults do when it occurs in *non-finite complement clauses*. However, they still allow free interpretation of PRO in non-finite adjunct clauses.

According to Wexler (1992), in Stage 1, PRO is not accessible to children. It becomes available upon maturation around 3-4 years. He suggests that in Stage 2, maturation makes PRO available in children's grammar and they assign a clausal representation to the complement of verbs like "want." However, they still allow free interpretation of PRO in adjuncts. Wexler (1992) suggests that in Stage 2, children cannot properly represent temporal adjunct clauses although they have access to PRO because there is an empty temporal operator in temporal adjunct clauses as illustrated below:

(58) John hugged Mary [before [_{IP} Op PRO cutting the cake]]

Wexler (1992) argues that temporal operator *Op* is not available in children's grammar leading to a free interpretation of temporal adjunct structures. In the analysis presented here, we argued that English adjunct control structures have AspP. It is possible that AspP is in play in the delay of the acquisition of temporal adjunct clauses. In other words, it is possible that what blocks object control in English-speaking children's grammar is the fact that AspP is not available yet in their grammar.

7. Summary

In this chapter, we outlined the properties of adjunct control noting that both in English and in Turkish, adjunct control structures exhibit the diagnostics of OC. We pointed out that unlike English, Turkish temporal adjunct control structures allow SOC interpretation.

We also noted that in its current form ATC fails to account for OC nature of adjunct control structures. In order to accommodate adjunct control structures within ATC, we proposed Interarboreal Agree in which the matrix clause and adjunct clause are built separately and then after checking of features via local Agree relations or via an interarboreal Agree operation, these two clauses are merged. We accounted for the SOC structures in Turkish by assuming that Turkish adjunct control structures do not have an AspP like English temporal adjunct clauses, hence tying the lack of AspP to the availability of object control reading. Then we extended the Interarboreal Agree analysis to parasitic gaps in temporal adjunct clauses.

Finally, we pointed out that English children allow SOC interpretation in adjunct control structures probably because AspP that was proposed in this study is not available in their grammar along the lines of Wexler (1992)'s maturation hypothesis.

Chapter 3: Control into Secondary Predicates

In this chapter we will look at secondary predicates and propose that they can be analyzed by using Interarboreal Agree as they exhibit the properties of adjuncts syntactically and semantically.

Secondary Predicate refers to an expression which is not the main predicate of the sentence but conveys information about one of the arguments of the clause. Halliday (1967) distinguishes between two main types of secondary predicates: depictive secondary predicates and resultative secondary predicates. According to Halliday (1967), a depictive predicate describes the state of the NP that it predicates at the time when the action denoted by the primary predicate occurs whereas a resultative predicate describes a resultant state, which is caused by the action denoted by the primary predication. Sentence (1) illustrates a depictive predicate and (2) a resultative predicate:

(1) He drinks his coffee black

(2) He pushed the door open

As pointed out by Winkler (1997), resultative secondary predicates such as (2) are not thematically independent as they bear a close relation to the primary predicate indicating that resultatives are not pure adjuncts. Rothstein (1985) presents some evidence for the close relationship between resultative secondary predicates and the main predicate by providing the following example:

(3) Eg hivat-provooi fotin

I white-washed the clothes

“I washed the clothes until they were white”

(Rothstein, 1985:17)

In (3) from Icelandic, the resultative secondary predicate “white” and the verb “wash” form a compound. A similar case can be seen in Czech:

(4) Jana vybili saty

Jana whitewashes the clothes

“Jana washes the clothes white/until they are white”

(Winkler, 1997: 423)

In the Czech example (4), the resultative secondary predicate is completely incorporated into the verb. Winkler (1997) notes that examples of incorporation like (4) are not found with depictive secondary predicates in Czech indicating that the close relationship between the verb and the resultative secondary predicate is absent in the case of depictive secondary predicates.

The closer semantic relation between resultative secondary predicates and the main predicate can also be seen in German examples such as (5) in which the resultative is obligatory⁵⁵:

(5)

- a. Ich schreibe mir die Finger wund
1SG.NOM write 1SG.DAT DEF fingers sore
(lit) “I am writing my fingers sore”

- b. * Ich schreibe mir die Finger

(Kunze, 1997:327, cited in Berndt & Himmelman, 2004)

As the main focus of this study is on adjunct control structures, we will not focus on resultative secondary predicates, which seem to have a closer relationship with the verb and might be some type of complex predicate. In the following sections, we outline the properties of depictive secondary predicates and then propose a syntactic analysis of secondary predicates by using Interarboreal Agree.

⁵⁵ See Carrier and Randall (1992) for similar cases in English.

1. Properties of Secondary Predicates

As Berndt & Himmelmann (2004) point out, one of the essential characteristics of a depictive secondary predicate is the fact that a single clause contains two predicates, which do not form a complex predicate in the way resultative secondary predicates might. They list the following as the criteria for identifying a depictive secondary predicate:

(6)

- a) The sentence contains two separate predicative elements, the main predicate and the depictive, where the state of affairs expressed by the depictive holds within the time frame of the eventuality expressed by the main predicate
- b) The depictive is obligatorily controlled, i.e. there exists a formal relation to one participant of the main predicate, the controller, which is usually interpreted as a predicate relationship (i.e., the depictive predicates an eventuality of the controller). The controller is not expressed separately as an argument of the depictive.
- c) The depictive makes a predication about its controller which is at least in part independent of the predication conveyed by the main predicate, i.e. the depictive does not form a complex predicate with the main predicate
- d) The depictive is not an argument of the main predicate, i.e., it is not obligatory

- e) The depictive does not form a low level constituent with the controller, i.e. it does not function as a modifier of the controller
- f) The depictive is non-finite (to be understood as: not marked for tense or mood categories).

(Berndt & Himmelmann, 2004:77-78)

Another property of the depictive secondary predicates is that they do not have a co-occurrence restriction as observed by Rothstein (1985). Multiple depictive secondary predicates can co-occur with each other while only one resultative can appear in a sentence as illustrated in the following sentences:

(7) a. They eat the meat raw, tender⁵⁶

b. *John kicked the door open to pieces

(Rothstein, 1985:19)

Rothstein (1985) points out that in (7a) two depictives mean that “they eat the meat when the meat is raw, when the meat is tender” while sentence (7b) with two resultatives cannot mean that “John kicked the door open and to pieces.”

⁵⁶ Some English speakers do not find (7a) perfectly grammatical but they indicate that (7b) sounds worse than (7a). Also Brad Larson (p.c) notes that (7a) is OK if it is contrastive (i.e. “They eat the meat raw, tender” as opposed to “They eat the meat cooked, tender”)

Both Rothstein (1985) and Winkler (1997) note that depictive secondary predicates are temporally dependent on the primary predication. Consider the following sentence:

- (8) a. Sandy found Jake asleep
b. Sandy will find Jake asleep

(Winkler 1997: 8)

As Winkler (1997) points out sentence (8a) expresses the state of Jake being asleep is in the past relative to the moment of speech and contemporaneous with Sandy's finding Jake. Sentence (8b) expresses that the state of Jake being asleep is in the future relative to the moment of speech, and is again contemporaneous with Sandy's achievement. Rothstein (1985) also underlines that a depictive describes the state of its subject at the time defined by the tense of the primary predicate and therefore (9a) can be paraphrased as (9b) by using the formula "when X were"⁵⁷

⁵⁷ Resultative secondary predicates differ from depictive secondary predicates in this aspect because they can be paraphrased as "until X become Y" and not as "when X were Y" (see Rothstein 1985):

- (i) Jake watered the lilies flat
(ii) Jake watered the lilies until they became flat

(9)

a) Sandy ate the vegetables raw

b) Sandy ate the vegetables when they were raw

(Rothstein, 1985:83)

Also note that there are restrictions on Adjectival Predicates (AP) that can function as depictive secondary predicates as can be seen in the following example:

(10) * John ate the peanuts salty

(11) John ate the peanuts salted

(Rothstein, 1985:84)

According to Rothstein (1985), APs that function as depictive secondary predicates denote a transitory property or temporary property. Sentence (10) is ungrammatical because the secondary predicate does not denote a transitory property while in (11), the secondary predicate denotes a temporary property of peanuts at the moment John ate them. Another way of describing this observation would be to say that depictive secondary predicates need to be stage-level predicates.

2. Secondary Predicates vs. Adverbials

Berndt and Himmelmann (2004) treat both depictives and adverbials as adjuncts syntactically; however, they note that depictives are participant-oriented whereas adverbials are event-oriented as illustrated in the following table:

Table 2: Secondary Predicates vs. Adverbials

Syntactic level	General adjunct construction	
	Depictive Construction	Adverbial construction
Semantic level	Participant-oriented	Event-oriented

(Berndt & Himmelmann, 2004: 79)

Now let us consider an example to illustrate the difference between depictives and adverbials:

(12) John left the party angry

(13) John left the party angrily

Both “angry” and “angrily” are optional so syntactic optionality does not help us in teasing apart depictive secondary predicates and adverbials. However, in (12) the

adjectival predicate “angry” expresses a state pertaining to the subject NP “John” where the state of being “angry” holds within the time frame of the eventuality expressed by the main predicate (i.e. leaving). The adjectival predicate expresses the physical or psychological state of the controller, which is “John” in this case. Hence, the depictive is participant-oriented and exhibits properties of a “depictive secondary predicate” that are listed in (6).

In (13) on the other hand, the main focus is on the manner of John’s departure. That is to say, looking at the utterance in (13) we know that John left the party in an angry manner but we do not know if he was really angry or not (e.g. maybe he was pretending to be angry about something because he wanted to leave the party early). Therefore, Berndt & Himmelmann (2004) argue that in the case of sentence (13) “angrily” is event-oriented and hence is better categorized as an adverbial.⁵⁸

Berndt & Himmelmann (2004) make a distinction between depictives and adverbials semantically. However, they argue that depictives should be treated like adverbials syntactically. They support this argument with the following sentence from German:

(14)

a. Georg lief wutend weg

George ran angry away

“George ran away angry”

⁵⁸ In this case, morphology also tells that this is an adverb but note that *ly-* ending does not always indicate that a category is adverb (e.g. friendly, manly etc.)

b. George lief schnell weg

George ran quickly away

“George ran away quickly”

Berndt and Himmelman (2004) note that there is no morpho-syntactic difference between the depictives like “angry” and manner adverbials such as “quickly” in German as (14) illustrates. That is why they refer to “depictive secondary predicates” as “depictive adjuncts.”

However, note that in some languages there might be a morphological distinction between adverbs and depictive secondary predicates. For instance, in English, the suffix “-ly” signals an adverbial category and thus helps in distinguishing adverbs and depictive secondary predicates. However, the distinction between depictives and adverbials is much less clear-cut with examples such as “alone” which does not have the suffix “-ly” :

(15) John returned home alone

For the purposes of this study, we will assume that “alone” is a depictive secondary predicate, as semantically “alone” seems to be more participant-oriented than event-oriented. That is to say, upon hearing the sentence in (15), the hearer is more likely to interpret the sentence to be about John’s being not in the company of other people when he left the party, and not about the manner of John’s leaving the party.

Also note that as we will see in the following section, Russian depictive secondary predicates agree with the NP that they predicate in terms of gender, number and sometimes in Case. *Odin*, the Russian counterpart of “alone,” which is commonly called a semi-predicative, agrees with the NP it predicates in gender, number and sometimes in Case patterning like regular secondary predicates. Therefore, we assume that “alone” in English is not an adverb but a secondary predicate or semi-predicate like Russian *odin* (alone).

3. Typology of Secondary Predicates

In some languages depictives do not agree in gender, number or Case with their controller. As an example, consider the following sentences:

(16) German

Eri ißt das Fleisch nackt .

He eats the meat naked

(17)

a. Kaya ev-e uzgun don-du Turkish

Kaya home-Dat gloomy return-Past.3sg.

“Kaya returned home gloomy”

b. Asker-ler ev-e kahraman olarak don-du
 Soldier-Pl home-Dat hero as return-Past.3sg.
 “Soldiers returned home (as) heroes”

As can be seen in (16) in German and in (17a) in Turkish, adjectival depictives in these languages do not bear any morphological marking. Also note that in (17b), the NP depictive *kahraman* (hero) does not bear any morphological marking either although the NP that it predicates *askerler* (soldiers) bears plural marking.

Also note that as Berndt and Himmelmann (2004) point out, in some languages, depictives involve a dummy word that means “state” and the depictive is expressed in the form of a prepositional phrase. For instance, Turkish and Japanese have this type of dummy “state” word in depictives:

(18)
 Mary ev-e cok yorgun (bir hal-de) don-du Turkish
 Mary house-Dat very tired (a state-Loc) return-Past.3sg
 “Mary returned home very tired

(19)
 John-ga sakana-o karai azi-de tabe-ta
 John-Nom fish-Acc salted/salty⁵⁹ taste-Loc eat-Pst.3sg
 “John ate the fish salted (lit. John ate the fish in a salty state)

⁵⁹ Note that adjectival predicate “salty” does not have any number or gender marking.

(24)

Nous vivons caches

French

1pl live. PRS.1Pl hidden.M.PL

“We live hidden”

(Berndt & Himmelmann, 2004)

(25)

Italian

Franca ha traversato il corridoio scalza

Franca aux cross.Prtc.pf def hall barefoot.f.3sg

“France crossed the hall barefoot”

(Berndt & Himmelmann, 2004)

Interestingly, in languages like Russian and Greek, secondary predicates surface with Case-marking in addition to person and gender agreement as the following examples illustrate:

(26)

Ivan vernulsja ugrjumyj/ugrjumym

Russian

Ivan.Nom returned gloomy.Nom 3rdsgMasc/gloomy.Inst 3rdMasc

“Ivan returned gloomy”

with the NP they predicate in terms of gender, number and Case marking. English depictives appear to be, by and large, morphologically independent except for cases where an NP depictive can surface with a plural suffix. Languages like Hebrew and French are somewhere in the middle on the spectrum as in these languages, depictives agree in gender and number with the NP they predicate. For the purposes of this study, we will call the depictives in languages like Turkish morphologically independent depictives,⁶⁰ and the ones in languages such as English and Hebrew as morphologically semi-independent depictives, where morphological independence refers to the degree of morphological marking on depictives.

Russian is the most interesting one in this spectrum as in addition to agreeing in gender and number, depictives in this language can agree in Case, and exhibit a wide range of Case alternations in different structures in interaction with an AspP. Therefore, the following section will be dedicated to the Case variations in Russian depictives.

⁶⁰ Note that we are using “morphologically independent” vs. “morphologically dependent” as purely descriptive labels. We do not claim that this distinction is specific to secondary predicates because the variation as to whether agreement morphology is present or not seems to be applicable to primary predicates as well (e.g. “gloomy” does not surface with any agreement morphology both as primary predicate and secondary predicate in English while it does in Russian)

4. Depictive Secondary Predicates in Russian

Russian depictives agree with the NP they predicate in gender and number and they can also exhibit an agreeing Case, or can occur in non-agreeing Instrumental Case or Dative Case. In the following section, we present an outline of the possible Case patterns in Russian secondary predicates.

4.1 Simplex Sentences

As example (29) illustrates, the secondary predicates in Russian simplex sentences agree in phi-features with the NP in Nominative Case, and in gender and number, or they can bear non-agreeing Instrumental Case, and agree in gender and number with the NP they predicate as can be seen in the following sentences:⁶¹

- (29)
- a. Ivan vernulsja ugrjumyj/ugrjumym Russian
Ivan.Nom returned gloomy.Nom 3rdsgMasc/gloomy.Inst 3rdMasc
“Ivan returned gloomy”

⁶¹ The focus of this section will be on Russian secondary predicates. However, note that as Richardson (2007) reports, Nominative/Instrumental Case alternation is also seen in Ukrainian as the following example illustrates:

- (i) Borys pryjshov pjana/pjanoju
Boris-Nom returned drunk.NOM/healthy INST
“Boris returned drunk”

b. Svetlana vernulas ugrjmnaya/ugrjmnoj

Svetlana.Nom returned gloomy.Nom.3rdsgFem/gloomy.Inst.3rdFem

“Svetlana returned gloomy”

Russian data get more interesting in that as Comrie (1974) points out, for the so-called semi-predicatives⁶² *odin* (alone) and *sam* (self), Nom/Instrumental Case alternation disappears. As a matter of fact, with *odin* and *sam*, non-instrumental Case is absolutely required. In other words, instrumental Case is excluded from the secondary predicate position with *odin* and *sam*.⁶³

⁶² “Semi-predicative” is the term used for *odin* and *sam* in the literature and we will continue to use this term. Madariaga (2006) points out that *odin* and *sam* are probably called semi-predicative because they do not behave like secondary predicates in terms of occurring with adjectival modifiers like “very”.

⁶³ Note that as primary predicates, *odin/sam* have to appear in Nom Case as illustrated in the example below:

- | | | | |
|-----|-----------------------------------|--|---------|
| (i) | Taras | odin/*odnim/*odnomu/sam/*samim/*samomu | doma |
| | Taras-Nom | alone.Nom./*Inst/*Dat /sefl.Nom/*Inst/*Dat | at home |
| | Taras is alone/by himself at home | | |

(Madariaga, 2006: 52)

Also note that in general primary predicates have to appear in Nom Case as the following examples illustrate:

- (i) Ivan p’janyj/*p’janym
Ivan drunk.Nom/*Inst
“Ivan is drunk”

(30) Ivan vernulsja odin/*odnumu/*odnim⁶⁴
 Ivan-Nom returned alone.Nom/*Dat/*Instr
 “Ivan returned alone”

(Comrie, 1974)

4.2 Subject Control Structures

Secondary predicates in subject control structures pattern like the ones in simple clauses in that they exhibit Nominative/Instrumental Case as illustrated in (31). *Odin* and *sam* display a different Case distribution also in subject control structures as they can bear only Nominative Case as (32) and (33) show:

(31) Ivan xocet spat' golyj/golym
 Ivan-Nom wants to-sleep naked.Nom/Instr
 “Ivan wants to sleep naked”

(Franks&Hornstein, 1992)

(ii).Ivan prepodavatel'/*prepodavatelem
 Ivan-Nom teacher.Nom/*Instr
 “Ivan is a teacher” (Richardson, 2007)

⁶⁴ Unless specified otherwise, the secondary predicates in the data presented here are in the 3rd masc. sg. form. This information was not indicated in the sources from which the sentences in this study are taken. We assume that this omission was intended to make the glosses easy to read.

(32) Vanja xocet prijti odin/*odnomu/*odnim
 Vanja-Nom wants to come alone.Nom/*Dat/*Instr
 “Vanja wants to come alone”

(Neidle, 1988)

(33) Ljuda priexala pokupat’ maslo sama/*samoj/*samim
 Ljuda-Nom came to buy butter herself.Nom/*Dat/*Inst
 “Ljuda came to buy butter herself”

(Neidle, 1988)

4.3 Object Control Structures

In object control structures, secondary predicates can only bear Instrumental Case as (34) below illustrates. However, if *odin* or *sam* occurs in object control structures, it bears Dative Case regardless of the Case marking on the matrix object (i.e. the controller):

(34)
 Masha poprisila Vanju spat’ golyj/*golyj/*gologo/*golomu
 Masha-nom asked Vanju-Acc to-sleep naked.Inst/*Nom/*Acc/Dat
 “Masha asked Vanja to sleep naked”

(Franks and Hornstein, 1992)

(35)

Ja velel emu prijti odnomu/*odnogo/*odnim/*odin

I-Nom told him-Dat to come alone-Dat/*Acc/*Inst/*Nom

“I told him to come alone”

(Neidle, 1988)

(36)

My poprosili Ivana prijti odnomu/*odnogo/*odnim/*odin

We-Nom asked Ivan-acc to come alone-Dat/*Acc/*Inst/*Nom

“We asked Ivan to come alone”

(Neidle, 1988)

The following table summarizes the Case distribution in secondary predicates in Russian that we discussed so far:

Table 3: Case alternation configurations in Russian secondary predicates

A) Simplex Sentences
NP.Nom.....SP. Nom/Inst ⁶⁵ (SP stands for Secondary Predicates)
NP. Nom.....SemP Nom/*Dat/*Inst (SemP stands for semi-predicatives <i>odin</i> and <i>sam</i>)
B) Subject Control
NP. Nom.....SP Nom/Inst
NP. Nom.....SemP Nom/*Dat/*Inst
C) Object Control
NP. Nom.....NP.Acc.....SP. Inst
NP.Nom..... .NPAcc.....SemP. Dat

This table illustrates that secondary predicates in Russian exhibit a great degree of variation. Previous studies disregard this variation and restrict their account to only a subset of the data. For example, Comrie (1974) and Landau (2008) take into account only the Case variations with *odin/sam* while Richardson (2007), Bailyn (2001) and Grebenyova (2008) take into account only Inst vs. Nom/Acc Case variation.⁶⁶

In the following section, first we give a brief background on how depictive secondary predicates have been analyzed and then we present an analysis both for depictives in general, and for Case alternations in Russian secondary predicates in particular.

⁶⁵ The Case alternation could be also between Acc/Inst (e., in English glosses “We_{NOM} found him_{ACC} drunk_{ACC/INST}”). In this study, what we mean with Nom/Inst alternation refers to an alternation between Instrumental Case and a structural Case in general (including Acc Case).

⁶⁶ See Oded (2009) for a detailed discussion of these accounts and their shortcomings

5. Syntax of Depictive Secondary Predicates

Depictive secondary predicates are generally considered to be instances of adjunction in the literature (Chomsky 1981, Stowell 1981 & 1983, McNulty 1988). As an example, Chomsky (1981) represents the relation between the main predicate and the depictive in terms of adjunction:

(37) John [[_{VP} left the room] [_{SC} PRO angry]]

(Chomsky, 1981: 111)

Also note that the relationship between the depictive secondary predicate and its controller is analyzed as an instance of Obligatory Control (OC) (e.g. Chomsky 1981, Stowell 1981, Winkler 1997 among others).

In general there seems to be an agreement in the literature that depictives show the properties of an adjunct. For instance, McNulty (1998) points out that unlike primary predicates, secondary predicates are optional as the following example illustrates:

(38) a. John left angry

b. John left

c. * John angry

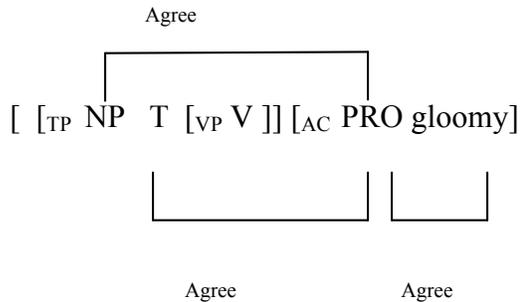
In this study, following Stowell (1981) and McNulty (1988), we take depictive secondary predicates to be adjunct clauses. However, we propose using Interarboreal Agree to analyze secondary predicates.

In the case of depictive secondary predicates, we will assume that the clause with the main predicate and the small clause with the depictive secondary predicate are constructed separately. After local and Interarboreal Agree relations are established, the main clause and adjunct clause are merged. Let us look at some derivations in detail in the following section.

5.1 Morphologically Independent or Semi-Independent Depictives

Sentence (39) below shows the derivation for structures where depictives are morphologically independent (e.g. depictives in Turkish) or semi-independent (i.e. depictives in Hebrew):

(39)



Derivational Steps:

- a. The host clause is built
[TP John left]
- b. The adjunct clause is constructed
[AC PRO gloomy]
- c. Interarboreal Agree established between the matrix NP and PRO valuing PRO's phi-features
- d. Interarboreal Agree established between T^0 and PRO. PRO receives [+Nom] Case
- e. Local Agree established between PRO and the secondary predicate "gloomy"
- f. Host clause and adjunct clause are merged

In (39), the clause with the main predicate and the one with the adjunct clause are built separately. An Interarboreal Agree relation is established between the matrix DP and PRO matching the phi-features of the two. Then, Interarboreal Agree is

established between T and PRO whereby PRO receives [+Nom] Case.⁶⁷ Finally, Agree is established between PRO and the secondary predicate in which PRO transmits the phi-features of the matrix NP and [+Nom] Case to the secondary predicate. Lastly, the matrix clause and the adjunct clause are merged as a result of which [-h] feature on the matrix clause is valued.

In languages like Turkish, in which depictives are morphologically independent, phi-features of the matrix NP that are transmitted to the secondary predicate are not pronounced.⁶⁸ In morphologically semi-independent depictives, e.g. in Hebrew, gender and number features are pronounced. Hence, we suggest that the interpretable phi-features of the NP in the main clause are transmitted to the secondary predicate via PRO; however, whether phi-features are pronounced seems to be language specific. As for [+Nom] feature, it seems to be null in languages, such as Turkish, which have morphologically independent and semi-independent depictives and so it does not get pronounced in this type of languages.

⁶⁷ As the Agree relations in (39) show, the source of phi-features for PRO is the NP while the source of the Case is the T head. So unlike the temporal adjunct clauses, the source of phi-features and Case are different in secondary predicate structures. This reflects the observation that especially in languages like Russian, the secondary predicate can agree with the matrix NP in terms of phi-features but not in Case indicating that PRO which serves as a mediator between the matrix NP and the secondary predicate, receives the phi-features and Case from two different sources.

⁶⁸ The assumption here is that the phi-features are transmitted even if they are not pronounced so that the secondary predicate can be associated with the DP it predicates.

5.2 Morphologically Dependent Depictives

In this section, we present the derivations for morphologically-dependent depictives and Case variations in Russian that we discussed earlier in this chapter.⁶⁹ Note that following Richardson (2007), we suggest that Instrumental Case indicates the presence of AspP projection and a change of state meaning.

Richardson (2001, 2007) proposes that Case-marking options in Russian are linked to Aspect.⁷⁰ She argues that Case agreement on Russian secondary predicates with the NP entails that the time of the secondary predicate is identical to the event time of the primary predicate.⁷¹ For Richardson, the Instrumental Case, on the other hand, entails that the property denoted by the secondary predicate is the result of some change of state, the eventuality of which does not overlap with the primary predicate. In other words, with Instrumental Case, the state denoted by the secondary

⁶⁹ Note that other examples of languages where depictives are morphologically dependent include Greek (see Andrews 1971) and Slavic languages such as Ukrainian (see Richardson 2007 for a detailed discussion of depictives in Slavic languages).

⁷⁰ The idea that there is a link between Instrumental Case and Aspect has also been advocated in Matushansky (2000).

⁷¹ This account is reminiscent of Filip (2001) according to which the Instrumental Case contributes a meaning of “change” with respect to the property described by the secondary predicate. Specifically, Filip (2001) suggests that Instrumental Case denotes a pair of situations such that the first of them (the main clause) precedes the second one (i.e. the secondary predicate). On the other hand, Case agreement denotes that the situation time of the main predicate and that of the secondary predicate are simultaneous.

predicate holds true at a particular point in time rather than describing a general state.

Consider the following sentence:

(40) Ivan vernulsja zdrovyj/zdorovym
Ivan-NOM returned healthy.NOM/cured.INST
“Ivan returned healthy”

According to Richardson (2007), in sentence (40) Instrumental Case marking on the secondary predicate indicates a change of state. That is to say, Instrumental Case might give the interpretation that Ivan’s “healthy” state is the result of change of state that occurred at some point prior to the event time of the primary predicate. Hence, Richardson (2007) gives the following as possible interpretations with Instrumental Case on “healthy”:

- ➔ The healthy state is a change of state: Ivan went to hospital unwell and returned healthy/cured (hence the gloss with the Instrumental Case as “cured” in (40)).

- ➔ Ivan’s healthy state is perceived as complete. He came from the hospital healthy. That is to say, the healthy state holds true at a particular point in time.

On the other hand, Nominative Case on the secondary predicate or Case agreement with the NP does not imply that any change of state occurred but rather simply

describes Ivan's state. Hence, for Richardson (2007), the Nominative Case (i.e. Case Agreement with the NP "Ivan") can have the following interpretations:

- ➔ No change of state implied. "Healthy" simply describes Ivan's state at the time of returning.
- ➔ No implication that Ivan's "healthy" state is complete. For instance, he might be feeling a little bit dizzy.

Richardson (2007) provides some evidence for the presence of AspP Projection. Consider the following sentences:

(41) a. Ivan p'janyj/*p'janym

Ivan drunk.Nom/*Inst

"Ivan is drunk"

b. Ivan prepodavatel'/*prepodavatelem

Ivan-Nom teacher.Nom/*Instr

"Ivan is a teacher"

(Richardson, 2007)

As Richardson (2007) reports, in (41a) and (41b) above, in the absence of any overt aspectual marker, Nominative Case is obligatory. Matushansky (2000) (cited in Richardson 2007) reports that if there is an aspectual marker such as the prefix *po-* in the following example, then Nominative Case is not possible:

(42) Ja pobylye zavedujuscey/zavedujuscaja

I-Nom was-PF manager-INST/*NOM

“I was a/the manager for a while”

The fact that Instrumental Case is not possible in these sentences provides evidence for the correlation between Instrumental Case and AspP. Keeping this in mind, let us first consider the structure of simplex sentences and subject control structures:

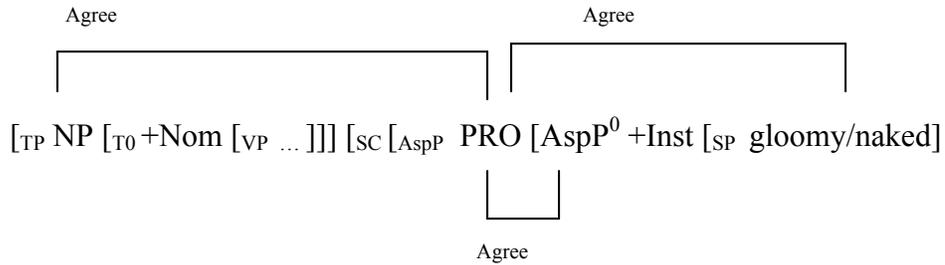
5.2.1 Simplex Sentences and Subject Control Structures

The following derivations⁷² illustrate structures in which depictives bear [+Inst] or [+Nom] Case. First we will give below a schematization of the Agree relations along with derivational steps and then we will discuss them in detail. Note that glosses in the derivational steps are given in Russian:

⁷² Glosses in the derivation in this section are given in English for ease of exposition.

(43)

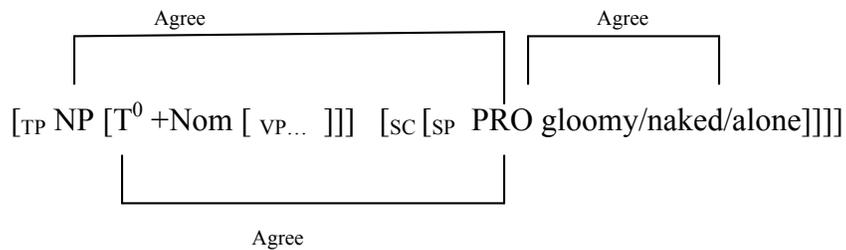
(a)



Derivational Steps:

- a. The host clause is built
[_{TP} John returned]
- b. The adjunct clause is constructed
[_{AC} PRO gloomy]
- c. Interarborescent Agree established between the matrix NP and PRO valuing PRO's phi-features
- d. Local Agree established between AspP and PRO. PRO receives [+Inst] Case
- e. Local Agree established between PRO and the secondary predicate
- f. Host clause and adjunct clause are merged.

(b)



Derivational Steps:

- a. The host clause is built
[_{TP} John left]
- b. The adjunct clause is constructed
[_{AC} PRO gloomy]
- c. Interarboreal Agree established between the matrix NP and PRO valuing PRO's phi-features
- d. Interarboreal Agree established between T and PRO. PRO receives [+Nom] Case
- e. Local Agree established between PRO and the secondary predicate "gloomy"
- f. Host clause and adjunct clause are merged

As noted earlier, in simplex sentences and subject control structures in Russian, adjectival secondary predicates surface either with Nominative or Instrumental Case while semi-predicates *odin* and *sam* appear with Nominative Case. Note that for both derivations (43a) and (43b), we assume that the main clause and the adjunct clause with the secondary predicate are assembled separately.

The derivation (43a) represents the structures in which the adjectival secondary predicate surfaces with Instrumental Case. In this derivation, Agree established between the matrix DP and PRO matches the phi-features of the DP and PRO. Then an Agree relation is established between PRO and AspP whereby PRO receives [+Inst] Case. Finally, an Agree relation is established between PRO and the secondary predicate whereby PRO transmits the phi-features of the matrix DP and the [+Inst] Case to the secondary predicate. The assumption here is that since the head of AspP is [+Inst] Case as proposed by Richardson (2007), PRO receives [+Inst] Case in the adjunct clause and this is the Case that is transmitted to the secondary predicate. After all the local and interarboreal relations are computed, the main clause and the adjunct clause are merged whereby [-h] feature on the host clause is valued.

As for the derivation (43b), following Richardson (2007), we propose that in the absence of a change of state meaning, the adjunct clause does not have AspP projection. In (43b), first an Interarboreal Agree relation is established between the matrix DP and PRO matching the phi-features of the two. Then an Interarboreal Agree relation is established between the matrix T head and PRO whereby PRO receives [+Nom] Case. Finally an Agree relation is established between PRO and the secondary predicate whereby PRO transmits the phi-features of the matrix DP and [+Nom] Case to PRO. In other words, in this derivation the secondary predicate surfaces with [+Nom] Case due to the lack of an AspP.

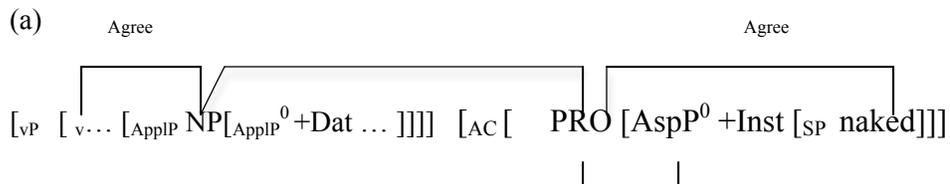
Note that (43b) also represents the simplex sentences and subject control structures in which semi-predicates *odin* and *sam* surface only with Nominative Case. Following Madariaga (2006), we suggest that semi-predicates are not compatible with

Instrumental Case, and therefore we assume that clauses with *odin* and *sam* do not have an AspP projection as they never appear with Instrumental Case.

5.2.2 Object Control Structures

Derivation (44a) below represents structures with regular adjectival secondary predicates which surface with Instrumental Case and derivation (44b) represents cases in which semi-predicates carry Dative Case. Derivational steps are given after each representation followed by the discussion of each derivation:

(44)

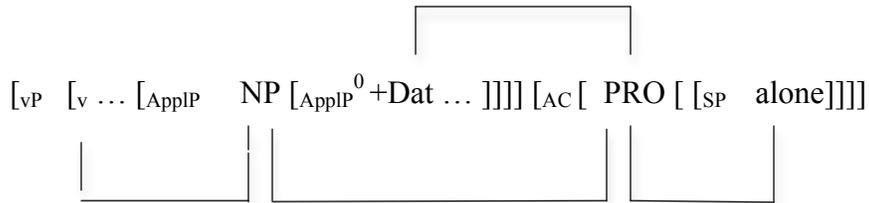


Derivational Steps:

- a. The host clause is built
[Mary asked Vanja]
- b. The adjunct clause is constructed
[PRO to sleep naked]
- c. Agree established between the matrix object NP and little v matching the phi-features of the two
- d. Interarboreal Agree established between the matrix object NP and PRO.
PRO's phi-features and [-R] feature are valued

- e. Local Agree established between AspP and PRO. PRO receives [+Inst] Case
- f. Local Agree established between PRO and the secondary predicate
- g. Host clause and adjunct clause are merged

(b)



Derivational Steps:

- a. The host clause is built
[We asked Ivan]
- b. The adjunct clause is constructed
[PRO to come alone]
- c. Agree established between the matrix object NP and little v matching the phi-features of the two
- d. Interarboreal Agree established between the matrix object NP and PRO. PRO's phi-features and [-R] feature are valued
- e. Interarboreal Agree established between Applicative head and PRO. PRO receives [+Dat] Case
- f. Local Agree established between PRO and the secondary predicate
- g. Host clause and adjunct clause are merged

Now let us look at these derivations in detail. We assume that in object control structures, object NP is dominated by an Applicative phrase.⁷³ Main clause and adjunct clause are assembled independently. In (44a), Agree is established between the little *v* and matrix DP matching the phi-features of the two. Then, Interarboreal Agree established between the DP and PRO transmitting the phi-features of the DP and valuing [-R] features of PRO. Next, Local Agree is established between the AspP Head and PRO whereby PRO receives Instrumental Case. Finally, PRO enters an Agree relation with the secondary predicate transmitting the phi-features of the matrix DP, and [+Inst] Case to the secondary predicate. Therefore, here the assumption is that due to the availability of AspP as the closest Case assigning head to PRO, the secondary predicate receives [+Inst] Case.⁷⁴ When all the local and Interarboreal Agree relations are computed and there are no unchecked features remaining, the main clause and adjunct clause are merged as a result of which [-h] feature is valued.

In (44b) the derivation proceeds in a similar fashion, only difference is being that the structure lacks an AspP.⁷⁵ First, Agree is established between the little *v* and

⁷³ The idea that object control structures incorporate an Applicative Phrase is also advocated in Pyllkanen (2002) and Landau (2008).

⁷⁴ Another way of accounting for the Instrumental Case on the secondary predicate would be to assume that although PRO might receive other Cases from the matrix clause (similar to Korean Case stacking cases), the last Case assigned in its minimal domain is AspP and therefore this is the Case that survives the derivation and the one that is transferred to the secondary predicate.

⁷⁵ We assume that semi-predicative *odin* (alone) does not indicate a change of state meaning and therefore lacks AspP. The other possibility would be to assume that there is an AspP but its head is

matrix DP matching the phi-features of the two. Then, Interarboreal Agree established between the DP and PRO transmitting the phi-features of the DP and valuing [-R] features of PRO. Next, Interarboreal Agree is established between the Applicative Head and PRO whereby PRO receives [+Dat] Case. Then, an Agree relation is established between PRO and the semi-predicate “alone,” whereby PRO transmits the phi-features of the matrix DP and [+Dat] Case to the semi-predicate. Finally, when all the local and Interarboreal Agree relations are computed and there are no unchecked features remaining, the main clause and adjunct clause are merged as a result of which [-h] feature is valued.

Note that in (44b), we assume that PRO enters Agree relation with the Applicative Head and not with the little *v* or matrix T head because along the lines of Hornstein (2009), the path from Applicative head to PRO is shorter than the path from the matrix T head to PRO (i.e. there are less MaxPs between the Applicative head and PRO than the one between T head and PRO).

It is worth noting that there seems to be some evidence for the analysis presented here from the literature on the acquisition of the Russian Case system. As Polinsky (2008) reports, Gvozdev’s (1961) (cited in Polinsky 2008) study shows the following order for the acquisition of Case system in Russian:

[-Instr] based on the empirical observation by Madariaga (2006) who observes that *odin* never bears Instrumental Case.

(45)

Nominative > Accusative/Genitive > Dative/Locative > Instrumental

As Polinsky (2008) points out, Gvozdev (1961) also shows that although the Case forms are basically acquired by age 2;0, instrumental case is the most difficult one to acquire for children and therefore the acquisition of the complete Case system takes much longer and is not completed until age 6.

In this study, it has been argued that Instrumental Case is tied to the presence of AspP. It is possible that the acquisition of Instrumental Case is delayed in Russian because it takes children time to learn the distinction between concrete and abstract (aspectual) uses of Instrumental Case but experimental studies are needed to support this potential difficulty for children, which remains for further investigation.

6. Summary

In this chapter, we outlined the general properties of depictive secondary predicates and pointed out how they differ from resultative secondary predicates. We also suggested that depictive secondary predicates differ on a spectrum with respect to the degree that they exhibit gender, number and Case agreement with the NP they predicate. We proposed that there are three main categories of depictives: Morphologically-dependent depictives (e.g. in Russian, Ukrainian, Greek), morphologically semi-dependent depictives (e.g. in Hebrew, Italian, Spanish, English etc.) and morphologically-independent depictives (e.g. in Turkish, Japanese).

Then we proposed a syntactic analysis of depictives assuming that the main clause and adjunct clause that contains the depictive are built separately. We argued that these two clauses are merged after local and Interarboreal Agree relations are established.

We suggested that in languages in which depictives do not show any Case agreement, there does not seem to be a semantic or morphological manifestation of an AspP. That is why we assumed that these languages do not have an AspP projection in the adjunct clause. For languages like Russian, which have morphologically dependent depictives, following Richardson (2007), we argued that the presence of Instrumental Case indicates the presence of an Aspect Phrase projection in Russian. We provided support for this argument from language acquisition studies in Russian pointing out that Instrumental Case is the last Case Russian children master as it might pose extra difficulty for children to figure out the distinction between concrete and abstract (aspectual) uses of Instrumental Case. However, further studies are needed to provide evidence for this potential difficulty faced by Russian children.

Chapter 4: Control into Purpose Clauses

In this chapter we will investigate properties of control in purpose clauses, which have not received much attention in the literature. As Jones (1991) points out, purpose clauses are usually treated as peripheral structures. Jones quotes the following story from Carl E. Linderholm (1971) to illustrate this point:

Addition, like mathematics, occurs on various cultural levels. A perfect example is provided by a certain meal in a restaurant in Athens. The diners at the table near the back are mathematicians. According to the custom of the place, when they have finished the waiter asks them what they had, takes down the items on his pad at dictation, affixing the prices, and adds up. At that point, for some reason, one of the mathematicians remembers – ‘Oh, yes. And besides all that, I also had a beer.’ In such an eventuality, a waiter will commonly add the price of one beer to the sum already obtained and present the corrected bill. This waiter, instead, tore up the incorrect bill and added up the whole meal again with the extra beer included. When the diners explained what was the more usual procedure in such cases, and suggested that it also produced the correct sum, the man in the question admitted that might theoretically be as they said. But he still stuck fast to his own method. ‘I have a restaurant to run: I am not a philosopher.’

Jones (1991) suggests that for syntacticians, purpose clauses are like the beer in this story because it is usually something that syntacticians treat as peripheral or forget about. This is an observation that is not specific to purpose clauses as other types of adjunct clauses are treated as peripheral as well. In this sense, purpose clauses are probably treated peripheral by virtue of being a type of adjunct clause.

We will first outline the properties of purpose clauses. Then we will present arguments for the adjunct status of purpose clauses. Next we will investigate the properties of control in purpose clauses and offer an analysis of control relations in purpose clauses by using Interarboreal Agree.

1. Properties of Purpose Clauses

Huettner (1989) defines purpose clause as an adjunct expressing the purpose of one of the matrix arguments in which “purpose” has the connotations of function and intention (p.12). Similarly Palmer (1986) indicates that the purpose clauses express what intention an argument of a sentence has in carrying out the action indicated in the main clause. For example in sentence (1) below from Jones (1991), Mary has the intention that John will have the function of talking to children:

(1) Mary brought John_i along [e_i to talk to the children]

In the literature purpose clauses are distinguished from two superficially similar constructions: rationale clauses and infinitival relative clauses (Faraci 1974, Huettner 1989, Jones 1991). In the next section, we give a brief overview of the tests used to distinguish these structures.

1.1 Purpose clauses vs. Rationale Clauses

Rationale clauses and purpose clauses have different interpretations. As Huettner (1989) observes, a rationale clause expresses the intention motivating the main clause action and lacks the orientation towards one of the arguments of the main clause that is present in purpose clauses.

Faraci (1974) points out that one test that can be used to distinguish rationale clauses and purpose clauses is that while rationale clauses can be pre-posed,⁷⁶ purpose clauses cannot as can be seen in the following examples:

(2) [In order to [e to talk to him]], they brought John along

(3) * [e to talk to them], they brought John along

⁷⁶ Note that this is not a test that could be applied to Turkish purpose clauses as Turkish is a scrambling language in which the word order is flexible.

In addition to this, as Bach (1982) and Browning (1987) note, purpose clauses may allow object gaps while rationale clauses cannot as can be seen in the following examples:

(4) Mary_i chose an interesting book_j [e_i to read e_j]

(5) * Mary_i invited John_i to the dance [in order e_i to please e_j]

1.2 Purpose Clauses vs. Infinitival Relatives

As noted by Faraci (1974), another structure that looks superficially similar to a purpose clause is infinitival relatives. The following sentence illustrates an infinitival relative:

(6) I saw the book to give to your sister

(Bach, 1982)

According to Huettner (1989), there is a semantic difference between purpose clauses and infinitival relative clauses. Infinitival relative clauses express purpose or function (in this case the purpose or function of the head noun), however, they differ from purpose clauses in that the purpose expressed in infinitival relative clauses is an intrinsic property rather than a temporary or idiosyncratic one. For example, Faraci (1974) notes that in a sentence like “Mary bought a rack to hold dresses” in the infinitival relative clause interpretation, we are talking about a special kind of rack

manufactured just for the purpose of holding dresses and no claims is made as to what Mary plans to do with the rack while under the purpose clause interpretation we are talking about Mary intending to hang dresses on the rack that she bought.

Apart from the semantic difference between infinitival relative and purpose clauses, there are some syntactic tests that can be used to distinguish the two structures. For instance, Bach (1982) argues that (6) involves an infinitival relative and not a purpose clause because substituting a pronoun for the NP would render (6) ungrammatical as (7) below illustrates:

(7) * I saw it to give to your sister

Along the same lines, Jones (1992) notes that infinitival relatives cannot be predicated of proper names or pronominals while purpose clauses can. This can be used as a test to distinguish the two structures as illustrated in (8) and (9) below:

- (8) a. A man_i [e_i to talk to the children]] came along with them
b. * [John_i [e_i to talk to the children]] came along with them
c. * [He_i [e_i to talk to the children]] came along with them

- (9) a. Mary brought a man_i along [to talk to her]_i
b. Mary brought John_i along [to talk to her]_i
c. Mary brought him_i along [to talk to her]_i

[Jones, 1991:27]

Thus, in this study, we will use examples with names and pronouns to restrict ourselves to purpose clauses.

1.3 Purpose Clause Contexts

According to Faraci (1974) predicates that may take purpose clauses include predicates of transaction such as *give, buy, sell, take, steal, borrow, lend*; transitive verbs of motion such as *send, bring, take*; verb of creation such as *build, construct, devise, make* and the verb *use*. Note that a common property of the predicates in the list Faraci (1974) gives is that they are all transitive verbs.

Following Faraci (1974), Bach (1982) gives a list of contexts for purpose clauses. He underlines that there are three contexts in which purpose clauses commonly occur:

- I. *have, be* (in a place, on hand, available, at one's disposal, in existence...)
- II. Transitive verbs which involve continuance or change in the state of affairs indicated in (I) and are of a "positive" sort
- III. Verb of *choice and use*

Bach (1982) gives the following example for context (I):

(10) Mary has her mother to consider

The main idea behind having something or someone at one's disposal is that the subject is able to affect that thing or person by the predicate that is used in the purpose clause. For example, in (10) Mary is able to carry out the action expressed in purpose clause, i.e. consider, because Mary has her mother at her disposal.

As for context II, Bach (1982) gives sentences such as the followings as examples:

(11) We always keep a fire-extinguisher in the kitchen to use in case of fire

(12) I brought George in to talk to him

According to Bach (1982), "positive" condition refers to maintaining "availability." For example in (12) above, as Bach (1982) notes, imagine that I have George at my disposal and if I bring him in, he is still at my disposal but if I send him out, he is no longer at my disposal. In other words, sending George out does not change George's availability in a "positive" way and hence the strangeness of the sentence in (13) below:

(13) ? I sent George out to talk to children

As an example of Context III, i.e. verbs of *choice* and *use*, Bach (1982) gives the following examples:

(14) I chose War and Peace to read to the students

(15) I used the hammer to open the door with

The common property of verbs of *choice* and *use* is that these verbs indicate utilization of an object or person that the speaker has available at his/her disposal. For example, in (15) you cannot use the hammer to open the door with if you do not have a screwdriver. Therefore, Bach suggests that purpose clauses in general involve an availability state.

Also note that in general purpose clauses can only be used if the main predicate is one that can be carried out volitionally. Verb of *choice* and *use* indicate that the speaker has the volition to carry out the action in question, i.e. compatible with the volitionality requirement but verbs like “hate” are not and therefore odd with purpose clauses. Consider the following sentence from Bach (1982) to contrast with sentences (14) and (15):

(16) ? John hates War and Peace to annoy his brother

As Bach (1982) points out, this sentence is odd because we do not think of hating as a property under voluntary control and hence a purpose clause is not compatible with a verb like *hate*.

1.4 Adjunct Status of Purpose Clauses

In this section we will show that purpose clauses behave like adjuncts and not like arguments. Both Faraci (1974) and Jones (1991) treat purpose clauses as adjuncts and offer a number of arguments for adjunct status of purpose clauses. For example, Jones (1991) notes that purpose clauses have properties that are associated with adverbial elements in that they generally do not show the idiosyncratic properties of lexical subcategorization that arguments show. As Jones (1991) points out, although the verbs *eat*, *dine*, *chew* and *devour* overlap considerably in meaning, the verb *eat* idiosyncratically subcategorizes for NP while *dine* optionally subcategorizes for a PP, *chew* subcategorizes either for an NP and an optional PP, and the verb *devour* subcategorizes for an obligatory NP. This is not the case with purpose clauses because although it is possible to have a general list of contexts in which purpose clauses commonly appear, as we discussed in the previous section, there are not verbs that obligatorily subcategorize for purpose clauses.

In purpose clauses, the absence of an argument causes ungrammaticality whereas the absence of a purpose clause does not cause ungrammaticality as the following examples illustrate:

- (17) a. * John put the car.
b. * John put in the garage.

- (18) a. Mary brought John along to talk to her.
b. Mary brought John along.

(Jones, 1991: 66)

Citing McConnell-Ginet (1982), Jones (1991) points out that there are some examples that complicate the adjunct/argument distinction on the basis of syntactic optionality as some verbs seem to categorize for certain adverbial adjuncts since some adverbial adjuncts seem to be obligatory with predicates like “reside”:

- (19) a. John teaches in Northampton.
b. John resides in Northampton.
c. *John resides.

(Jones, 1991:67)

However, as Faraci (1974) and Jones (1991) point out even with a verb that commonly appears with purpose clauses such as *use* the overt syntactic presence of the purpose clause remains optional as the following example illustrates:

- (20) John used the hammer [to pound the meat with.]
(21) John used the hammer.

(Jones, 1991:67)

Hence we will assume that purpose clauses are adjuncts as they are neither syntactically nor semantically necessary to specify the purpose of an action expressed in the main clause.

Also note that there is some evidence showing that purpose clauses are VP internal adjuncts:

(22) John didn't leave her_i here [e_i to talk to us]

a. John [didn't leave her here to talk to us]

b. 'It is not the case that John left her here to talk to us'

(23) a. * John [didn't leave her here] to talk to us

b. * The reason John didn't leave her here was to talk to us

(Jones, 1991: 59)

In the sentences above, the brackets in (a) sentences indicate the c-command domain of negation and (b) sentences indicate paraphrased readings. Jones (1991) argues that the interpretation in (23b) is disallowed suggesting that the purpose clause is not adjoined outside the scope of negation which indicates that the purpose clause is a VP internal adjunct.

2. Control into Purpose Clauses

Purpose clauses exhibit the properties of OC as the following examples illustrate:

- (24) a. * John_i said that Mary_j's brother_k brought George PRO_i to talk to children
b. * John_i's mother bought *War and Peace* PRO_i to read to children
c. John_i bought *War and Peace* PRO_i to read to children and Mary did too.

Sentence (24a) shows that PRO in a purpose clause requires a local antecedent. Sentence (24b) illustrates that PRO in purpose clauses requires a c-commanding antecedent. Finally, (24c) shows that PRO in purpose clauses has only the sloppy reading under ellipsis. (24c) is interpreted as “John bought *War and Peace* to read to children, and Mary bought *War and Peace* to read to children” in which Mary is doing the reading and not John.

After showing that control in purpose clauses exhibits the properties of OC, let us look at the types of OC purpose structures. Consider the following examples:

(25) John_i used the screwdriver [PRO_i to open the drawer]

(26) They hired John_i [PRO_i to design a new website]

Sentence (25) is an instance of subject control as the empty category in the purpose clause is obligatorily controlled by the matrix subject “John” while sentence (26) is an example of object control as PRO is obligatorily controlled by the matrix object.

However there are instances in which the controller of the empty category in the purpose clause is ambiguous. Consider the following sentence from Faraci (1974):

(27) The teacher_i sent the student_j to the office [PRO_{ij} to annoy the principal]

(Faraci, 1974:29)

Sentence (27) above is ambiguous in that either the subject NP “John” or the object NP “Mary” could serve as the controller.

Note that we called these structures in Chapter II, SOC (Subject or Object Control) structures. We will come back to this sentence later on when we analyze these structures.

3. Purpose Clauses in Turkish

In this section, we will look at the properties of purpose clause structures in Turkish and then discuss the properties of control in Turkish purpose clauses.

3.1 Properties of Purpose Clauses in Turkish

As noted by Ulas (2002) and Goksel and Kerslake (2005), purpose clauses in Turkish are formed by using morphological markers. Two morphological markers that are commonly used in forming Turkish purpose clauses are “icin” and “uzere” which are combined with the infinitival ending *-mAK* in purpose clauses as the following examples illustrate:

(28)

- a. Ayla [PRO kutu-yu ac-mak icin] tornivida-yi kullan-di
Ayla box-Acc open-Inf for screwdriver-Acc use-Past.3sg
“Ayla used the screwdriver to open the box”
- b. Ayla [PRO kutu-yu ac-mak uzere] tornivida-yi kullan-di
Ayla box-Acc open-Inf for screwdriver-Acc use-Past.3sg
“Ayla used the screwdriver to open the box”

Note that both sentences essentially have the same meaning and both of them involve the use of infinitival and an empty category in the embedded clause. Since the structure formed with “icin” is used more commonly, in this study this is the form that we will be using.

In Turkish, similar to English, purpose clauses are optional semantically and syntactically:

(29) a. John_i [PRO_i çocuk-lar-i sevindir-mek için] hediye-ler al-di
John-Nom child-Pl-Acc make happy-Inf for gift-Pl buy-Pst.3S
“John bought presents to make children happy”

b. a. John_i hediye-ler al-di
John-Nom gift-Pl buy-Pst.3S
“John bought presents”

In Turkish, similar to English, the purpose clauses do not need to be syntactically overt even with verbs like “use” which commonly occur with purpose clauses as illustrated in the sentences below:

(30) a. John [PRO et-i döv-mek için] tokmağ-ı kullan-dı
John meat-Acc pound-Inf for hammer-Acc use-Past.3sg
“John used the hammer to pound the meat with”

b. John tokmağ-ı kullan-dı
John meat-Acc use-Past.3sg
“ John used the hammer”

3.2 OC or NOC in Turkish Purpose Clauses?

Purpose clauses in Turkish exhibit the properties of OC as the following examples show:

(31)

- a. *John_i'ın parti-si_j PRO_{i/*j} başkan ol-mak için seçmen-ler-e
John-3.Gen party-Poss president be-Inf for electorate-Pl-Dat
hediye-ler gönder-di
gift-Pl send-Past.3sg

“John’s party send the electorate gifts to be president”

- b. John_i [PRO_i çocuklar-i sevindir-mek için] hediye-ler al-di
John-Nom children-Acc make happy-Inf for gift-Pl buy-Pst.3S
ve Mary de öyle yaptı
and Mary also so do-Past.sg

“John bought gifts to make children happy and Mary did so too”

(31a) shows that PRO in purpose clauses in Turkish requires a local c-commanding antecedent. (31c) shows that PRO only allows sloppy reading, in other words, (31b) is interpreted as John bought gifts so that he could make children happy and Mary bought gifts so that she can make children happy too.

Interestingly there is no ambiguity in the Turkish counterpart of sentence (27) which was an instance of SOC structure in English:

(32) Ogretmen_i ogrenci_j-yi [PRO_{i/*j} mudur-u kizdir-mak icin] gonder-di
Teacher student-Acc principal-Acc annoy-Inf for send-Past.3sg
“ Teacher sent the student to annoy the principal”

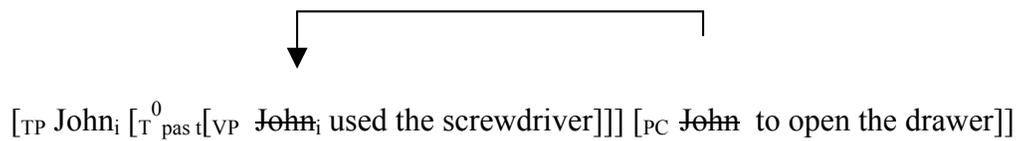
We come back to this point in the next section.

4 Analyzing Control into Purpose Clauses

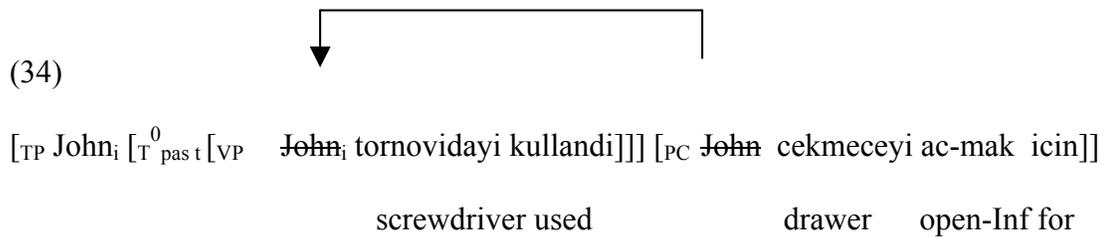
In the previous sections we presented evidence for the adjunct status of purpose clauses. Then we showed that both in English and Turkish control relation in purpose clauses exhibit the properties of obligatory control. Taking these into consideration, let us consider how Movement Theory of Control (MTC) and Agree-based Theory of Control (ATC) can account for purpose control structures.

Within (MTC), adjunct control structures are analyzed as an instance of sideward movement (Hornstein 2001, Boeckx et al 2010 among others). Assuming that purpose clauses are instances of adjunct control, then purposes clauses can be analyzed as an instance of sideward movement as sketched below for the English sentence (25) and its Turkish counterpart:

(33)



(34)



As noted earlier in the discussion of control in temporal adjunct clauses, in order to account for object control reading of sentences such as (35) in which either matrix subject or matrix object can be the controller, MTC assumes that the interpretation depends on where the purpose clause is adjoined (Hornstein, 2001)⁷⁷:

(35) The teacher_i sent the student_j to the office [PRO_{i/j} to annoy the principal]

Now let us consider how the ATC fares in accounting for purpose control structures. As we pointed out in the previous chapters, according to Landau (2000) adjunct control is expected to be an instance of NOC and therefore OC in purpose clauses is a

⁷⁷ However, as noted earlier in Chapter 1, it is not clear how the object DP can c-command its trace if the adjunct is adjoined to VP.

mystery within ATC. Nevertheless, if Interarboreal Agree is added as a mechanism to ATC as proposed in this study, ATC could account for control into purpose clauses. We propose that by using Interarboreal Agree both unambiguous sentences such as (25) and ambiguous sentences such as (27) can be accounted for.

Before discussing the analysis of these structures, however, let us point out the aspectual properties of purpose clauses, which will be relevant in the analysis of ambiguous SOC structures:

- (36) a. * I used the screwdriver [PRO to have opened/to be opening the drawer]
 b. * The teacher_i sent the student_j to the office [PRO_{i/j} to have annoyed/to be annoying the principal]

As the sentences above illustrate, purpose clauses above cannot co-occur with aspectual markers. Therefore, we propose that English sentences do not project an Aspect Phrase. Now let us consider the Turkish counterparts of these sentences:

- (37) a. Tornavidayi [PRO cekmeceyi ac-mis] ol-mak icin kullan-di-m
 Screwdriver-Acc drawer-Acc open-Evid LV-Inf for use-Past.1sg
 “I used the screwdriver to have opened the drawer”
 Intended meaning “I used the screwdriver just for the sake of opening the drawer”

b. Öğretmen öğrenciyi muduru kızdır-mis olmak için gönder-di
 Teacher student-Acc principal-Acc annoy-Evid. LV-Inf for send-Past.3sg
 “Teacher sent the student to have annoyed the principal”
 Intended meaning “Teacher sent the student just for the sake of annoying the
 Principal”

As can be seen in the sentences above, Turkish purpose clauses can co-occur with the evidential suffix *-mİS*.⁷⁸ Therefore, we propose that Turkish purpose clauses project an AspP Phrase.

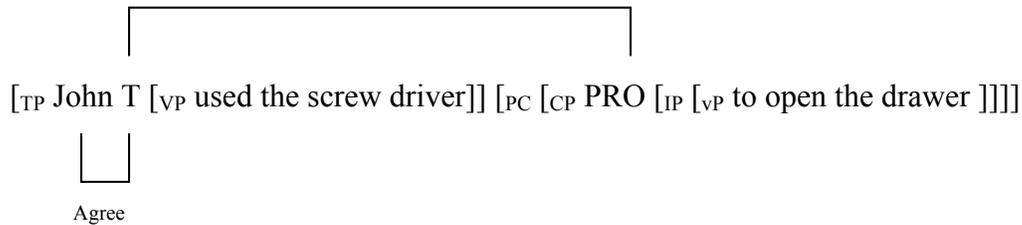
Assuming that Turkish purpose clauses project an Asp Phrase and English purpose clauses do not, we can account for SOC, i.e. ambiguity in control in purpose clauses such as (35). In this respect, SOC in purpose clauses in English patterns like SOC in temporal adjunct clauses in Turkish. For instance, in the discussion of temporal adjunct clauses we suggested that the existence of SOC in Turkish temporal adjunct clauses is tied to the lack of an Aspectual Phrase. We also proposed that the optionality of Nom/Inst Case in Russian secondary predicates was tied to the lack of Aspectual Phrase. For the SOC structures such as (35) in English, we will again propose that the optionality of the controller is tied to the lack of an Aspectual Phrase.

However, before we go into the analysis of ambiguous SOC structures, let us first briefly discuss the derivation of an unambiguous sentence such as (25) which is represented below as (38):

⁷⁸ Note that the *-mİS* ending is treated as an evidential suffix by Yavas (1980) and, Goksel and Kerslake (2005) among others.

(38)

Agree



Derivational steps:

- a. The host clause is built
[_{TP} John used the screwdriver]
- b. The purpose clause is constructed
[_{PC} PRO to open the drawer]
- c. Local Agree established between “John” and T⁰ matching the phi features of the two and transmitting [+R] feature of “John” to T⁰
- d. Interarboreal Agree relation established between T and PRO. PRO’s phi-features and [-R] feature are valued and it receives [+Nom] Case
- e. Host clause and adjunct clause are merged

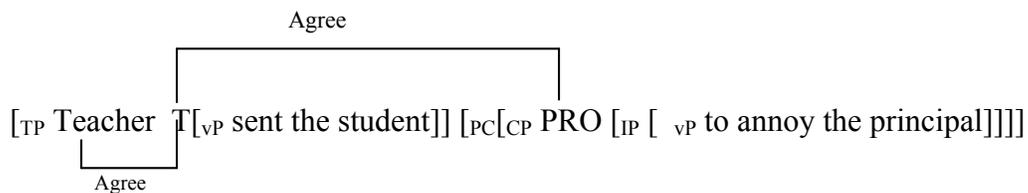
We assume that there is no AspP in the derivation because as noted earlier, English purpose clauses do not co-occur with aspect markers. In (38), the adjunct clause and matrix clause are constructed separately. Agree relation established between the T head and the matrix DP matches the phi-features of the two. This Agree relation is followed by an Interarboreal Agree relation established between the T head and PRO

whereby PRO receives the phi-features of the matrix DP and its [+R] feature. Note that this Interarboreal Agree relation is triggered by the needs of PRO to value its phi-features and [-R] feature. We suggest that the matrix object DP “the screwdriver” cannot serve as an antecedent because it is inanimate and does not have volition in Bach’s (1982) words (i.e. it does not have +Vol feature).⁷⁹ Lastly, the matrix clause and the adjunct clause are merged whereby [-h] feature of the matrix clause is valued.

Now let us consider the derivation for SOC purpose clause in (27) which is sketched below as (39):

(39)

a. Subject Control



Derivational Steps:

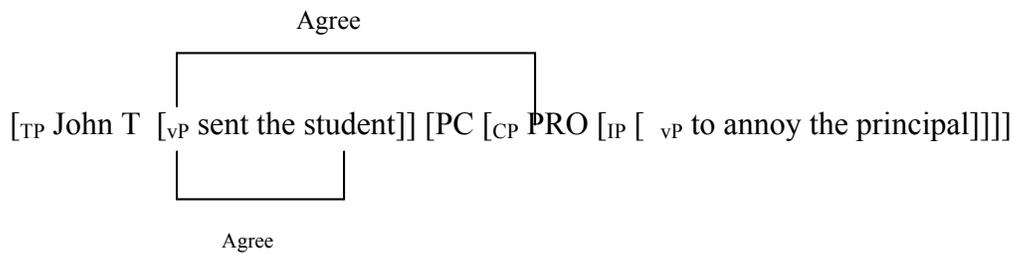
- a. The host clause is built

[TP John sent the student]

⁷⁹ What is meant here is that even under an interpretation in which “John” is not doing the tightening, an animate subject with volition is doing the tightening.

- b. The purpose clause is constructed
[_{PC} PRO to annoy the principle]
- c. Local Agree established between “John” and T⁰ matching the phi features of the two and transmitting [+R] feature of “John” to T⁰
- d. Interarboreal Agree relation established between T⁰ and PRO. PRO’s phi-features and [-R] feature are valued and it receives [+Nom] Case
- e. Host clause and adjunct clause are merged.

b. Object Control



Derivational Steps:

- a. The host clause is built
[_{TP} John sent the student]
- b. The purpose clause is constructed
[_{PC} PRO to annoy the principle]
- c. Local Agree established between little v and “the student” matching the phi-features of the two and transmitting [+R] feature of “the student” to little v.

- d. Interarboreal Agree relation established between little *v* and PRO. PRO's phi-features and [-R] feature are valued and it receives [+Acc] Case
- e. Host clause and adjunct clause are merged.

Now let us look at these derivations in detail. In (39a), Agree relation that is established between T^0 head and the matrix DP matches the phi-features of the two. Then an Interarboreal Agree relation is established between PRO and the T head whereby the phi-features of the matrix DP and its [+R] feature transmitted to PRO. Here we again assume that this Interarboreal Agree relation is an instance of Enlightened Self-Interest (i.e. triggered by the needs of PRO). Lastly, the matrix clause and the adjunct clause are merged as a result of which [-h] feature of the matrix clause is valued.

In (39b), similar to (39a), first the host clause and adjunct clause are built separately. The difference between the two derivations is that after a local Agree relation is established between “John” and the matrix T, little *v* enters an Agree relation with the matrix object DP “the student.” Then, little *v* enters an Interarboreal Agree relation with PRO transmitting [+R] feature and the phi-features of the student to PRO. Finally, the host clause and adjunct clause are merged. Note that as “the student” is an animate entity that has volition [+Vol], it can serve as an antecedent.

Next let us consider the Turkish counterpart of the sentence (i.e. sentence 32) which is not an SOC structure as noted earlier:

between the matrix T^0 and “John” through which the phi-features of the matrix DP and T head are matched. Next an Interarboreal Agree relation is established between the T head and AspP whereby the [+T] feature of the two are matched and the matrix DP’s [+R] and its phi-features are transmitted to AspP. Then, Agree is established between PRO and AspP through which PRO receives the phi-features of the matrix DP and its [+R] feature. Lastly, the matrix clause and the adjunct clause are merged whereby [-h] feature of the matrix clause is valued. Note that subject control interpretation of this sentence stems from the fact that since the adjunct clause has an AspP that needs to establish an Interarboreal Agree to match its [+T] feature and it receives [+Nom] from the T head, PRO ends up getting [+Nom] Case.

5. Summary

In this chapter, we first gave an outline of the properties of purpose clauses in general, and control relations in purpose clauses in particular. Then we presented evidence for OC nature of purpose clauses both in English and Turkish. We pointed out that in English there are some purpose control structures which exhibit optionality in terms of choice of the controller (i.e. SOC structures). We noted that this optionality does not exist in the Turkish counterpart of the English SOC structure. Extending the analysis of temporal adjunct clauses, we argued that this is due to the fact that English purpose clause structures do not project an AspP head as they cannot occur with aspectual markers. Then we suggested that the lack of optionality of the controller choice in SOC structures in Turkish stems from the presence of an AspP

which is evidenced by the availability of aspectual markers. The presence of an AspP in Turkish purpose clauses renders an Agree relation between PRO and vP not possible as AspP needs to enter an Agree relation with the matrix T^0 to match its [+T] feature. As a result of this Agree relation, matrix T^0 transmits [+Nom] and the phi-features of the matrix DP transmits to AspP. Hence, we provided a unified analysis for SOC structures in purpose clauses as well as SOC in temporal adjunct clauses that we discussed in Chapter 2.

Chapter 5: Conclusion

This dissertation investigated properties of control in three types of adjunct structures, namely control into temporal adjunct clauses, control into secondary predicates and control into purpose clauses proposing a unified analysis for these different types of adjunct structures.

This study fills in a gap in the ATC analysis of control in that it proposes an analysis that accommodates obligatory control reading in adjuncts. As noted earlier, ATC is mute when it comes to the obligatory control reading in adjunct control structures because adjuncts are opaque to syntactic relations as observed by Huang (1982) and Boeckx (2003) among others, and therefore Agree cannot penetrate into adjuncts. In order to address this problem, we proposed using Interarboreal Agree relation, which is similar to Sideward Movement analysis of control (Hornstein 2001, 2003, Boeckx et al. 2010) in spirit in that it takes place between two unconnected trees but explains control relations with a species of Agree relation rather than movement.

This study contributes to the discussion of control in the literature in two ways: a) It explores control relations in adjunct clauses which have received very little attention both in GB and MP, and b) it ties the availability of two different controllers in SOC structures to the aspectual properties of the adjunct clause.

The role of Aspect in grammar has been pointed out in previous studies. For instance, Kratzer (2002) reports that there are telicity effects associated with the Accusative Case in Finnish. Richardson (2007) argues that there is a correlation

between Instrumental Case and availability of an Aspectual phrase, which is an idea that we adopted in analyzing Russian secondary predicates. However, to the best of my knowledge, the correlation between the availability of Aspectual Phrase in the adjunct clause and the availability of SOC structures is a novel finding.

This study shows that we need to take Aspect into consideration in analyzing adjunct control. This raises the question of why there should be a correlation between Aspect and control. But then we could ask the question of why there should be a correlation between the Partitive Case and Aspect in Finnish, or Aspect and Instrumental Case in Russian. It is possible that antecedents of a control relation, Case and Aspect are all encoded in the same phrasal domain and in some languages these interact with each other more tightly. Needless to say Aspect seems to play an important role in establishing different grammatical relations the further investigation of which will be left for future work.

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