Institute for Research in Cognitive Science

**Null Vs. Overt Subjects in Turkish Discourse:
A Centering Analysis**
(Ph.D. Dissertation)

Umit Deniz Turan

University of Pennsylvania
3401 Walnut Street, Suite 400C
Philadelphia, PA 19104-6228

May 1996

NULL VS. OVERT SUBJECTS IN TURKISH DISCOURSE:
A CENTERING ANALYSIS

Ümit Deniz Turan

A DISSERTATION

in

Linguistics

Presented to the Faculties of the University of Pennsylvania in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

1995

_____

Ellen Prince, Supervisor of Dissertation

_____

, Graduate Group Chair

ACKNOWLEDGEMENTS

ABSTRACT

NULL vs. OVERT SUBJECTS IN TURKISH DISCOURSE:
A CENTERING APPROACH
Author: Ümit Deniz Turan
Supervisor: Ellen F. Prince

The purpose of this study is to explore an aspect of discourse coherence which involves anaphoric relations between utterances with special emphasis on subjects in Turkish. Based on an analysis of published narratives, three complementary and interrelated questions are addressed concerning discourse anaphora:

1. Which expressions are available for subsequent definite reference?

2. What factors determine the most salient entity in Turkish among a set of potential antecedents for subsequent definite reference?

3. What are the functions of a particular referential expression (null vs. overt pronouns vs. full NPs), depending on appropriate discourse conditions?

An exploration regarding question 1 indicates that, while some NPs evoke discourse entities, other NPs do not. These two types of NPs represent referential and nonreferential expressions and they can function as antecedents for definite and indefinite nonspecific anaphora, respectively. The distinction between null and overt pronouns in Turkish is that only the former can be in an anaphoric relationship with a nonreferential antecedent. Overt pronouns, on the other hand, are sensitive to referent identity: they must have the same referent with their antecedents. In other words, overt pronouns are strictly coreferential, while null pronouns are not constrained in this way.

The rest of the study investigates answers to questions 2 and 3 in instances where null and definite subjects alternate as definite anaphors. Centering Theory provides a cognitively plausible and computationally tractable framework for such an analysis with its precise rules which rely on linguistic knowledge constraining inferencing. As formulated in Centering Theory, each utterance contains a set of potential antecedents for reference in the subsequent utterance, i.e. a set of forward-looking centers (Cfs), that are ranked on the basis of their salience. The most salience entity in the Cf-list, the preferred center (Cp), is the entity that is predicted to become the backward-looking center in the subsequent utterance. The singleton backward-looking center (Cb) is taken to be the topic of the current utterance, i.e. the entity at the center of attention.

Centering transitions, which model the dynamic attentional state in a discourse segment, are obtained by analyzing each adjacent pair of utterances. The functions of referential expressions in subject position are determined on the basis of Centering transitions. The results show that Turkish subject types pattern neatly and categorically when these transitions are taken into account.

A brief discussion of language-specific and universal aspects of discourse anaphora is also included in the study.

Contents

Chapter 1

INTRODUCTION

One aspect of understanding language is relating new information to the information that has been introduced in the previous discourse. Languages make use of various devices to link information between the utterances to form a coherent discourse. One such link is accomplished through the use of anaphoric reference.

Anaphoric reference has constituted a major research topic not only in linguistics but also in various sub-disciplines of cognitive science: in psychology, philosophy and artificial intelligence due to its significance in understanding memory, discourse structure, syntactic and semantic interpretation, and its role in natural language processing. Various approaches have been suggested to analyze how anaphoric reference works throughout the discourse and across adjacent utterances within the local discourse (cf. the references in Chapter 2 and Grosz 1977, Sidner 1979, Grosz, Joshi and Weinstein 1983, 1986, 1995, among others).

In spite of this diverse research on English, only a few studies have been conducted on anaphoric reference in Turkish. Some of these studies investigate pronominalization rules in isolated sentences rather than discourse (Erguvanlı-Taylan 1986); some others explore what is subject to deletion and pronominalization in the subsequent discourse (Kerslake 1987, Ruhi 1992); others emphasize the role of context in resolving anaphoric reference across sentences (Tın and Akman 1992). The rules and generalizations concerning pronominalization in Turkish discourse are yet to be analyzed.

1.1   Purpose of the Study

As a relatively unexplored research area in Turkish, discourse anaphora deserves an investigation that will shed light on an understanding of pronominalization facts in Turkish discourse. The purpose of this study is to reveal the characteristics of anaphoric relations in Turkish at the level of the local discourse segment, i.e. in adjacent utterances.

In order to achieve this objective, three complementary and interacting phenomena concerning discourse anaphora will be explored. One of these phenomena involves determining which

expressions can potentially serve as antecedents for subsequent reference. This concerns distinguishing between referential and nonreferential expressions. A set of referential expressions can be potential antecedents for subsequent definite anaphora. Among this set of antecedents, a particular one is the most privileged, i.e. the most salient antecedent that is predicted to be mentioned anaphorically in the subsequent utterance. This study will explore the factors that determine how this salience is assigned. The third objective of this research is to specify the functions of null and overt pronouns and full NPs in subject position and to determine their appropriate discourse conditions.

This study will propose a set of well-formedness rules at the level of local discourse. It will be argued that these rules are universal, based on a cross-linguistic analysis of languages studied in the previous literature. These rules governing the use of referential expressions are assumed to be part of pragmatic and discourse competence.

Centering Theory provides the theoretical framework for an analysis of these reference relations and constraints in the local discourse in a cognitively plausible and computationally tractable manner. Centering Theory and some other approaches of discourse anaphora will be discussed in Chapter 3.

The following sections introduce the underlying theoretical background and the terminology to be used in this study. In addition, the types of null arguments in Turkish will be presented and the research studies on Turkish pronouns will be reviewed.

1.2   Terminology

1.2.1   Utterance, Discourse, and Discourse Structure

The term utterance is considered to be an expression uttered or written by a particular speaker or writer at a particular time and at a particular location. Utterances thus contrast with sentences which are possible abstract constructs not situated in time and space. Utterance form is not yet obvious, but is taken to correspond to a tensed clause in this study.

A discourse consists of two or more sets of utterances that are coherently linked. A discourse may be written or spoken and it involves an initiating [conversation] participant (ICP) and an other [conversation] participant (OCP) (Grosz and Sidner 1986). An ICP is the speaker or the writer who starts the discourse. The OCP, on the other hand, is the addressee, i.e. the hearer or the reader. ICP and OCP will be referred to as the speaker and hearer in this study including the writer and the reader, respectively.

Grosz 1977 and Linde 1979 have shown that there exists a highly constrained discourse structure in task-oriented dialogues. In Grosz's work, a flow chart of the task was predictable for the order of mention of related tasks. In addition, the choice of possible antecedents for pronouns in the discourse reflected the structure of the task as well. One important conclusion from these data was that pronouns could not be used to refer to entities in already completed subtasks.

These studies and related subsequent research (Grosz and Sidner 1986, Polanyi 1988) have indicated that discourse has a hierarchical structure that is constructed and processed incrementally (Polanyi 1988, Grosz and Sidner 1986), or in an 'on-line' fashion as psycholinguistic theories of discourse have shown (cf. Oakhill, Garham, and Vonk 1989, among others). Incremental or on-line discourse production and processing means that neither of the participants has the discourse as a total structured unit prior to its production, but rather they formulate and process it on a clause-by-clause basis. Grosz and Sidner (1986: 190) state that

> [t]he ... structure evolves as the discourse does. By the same token, the discourse participants' mental- state correlates of the ...structure are not prebuilt; neither participant may have a complete model of discourse "in mind" until the discourse is completed.

Grosz and Sidner 1986 propose that discourse structure consists of three distinct but interacting components: Linguistic structure, intentional structure, and attentional state, which capture various aspects of discourse structure.

Linguistic structure contains a sequence of utterances that form discourse segments. Discourse segments can embed subsegments and they can also be embedded, reflecting the intentional structure to be discussed below. An utterance has a particular role in a discourse segment. Although two adjacent utterances can be in the same segment, they can also be in different segments. In addition, since discourse has a hierarchical structure, two non-consecutive utterances can also be in the same segment. Factors that determine the boundaries of discourse segments are still under investigation and little agreement has been reached on where the segment boundaries are (see also Chapter 4). Linguistic cues convey information about discourse structure, and discourse structure constrains the interpretation of expressions. For that reason, linguistic expressions provide clues for discourse segment boundaries, such as the explicit use of cue phrases firstly, to start with, etc., intonation, changes in tense and aspect system. Linguistic structure also constrains the use of pronouns, which are restricted across segment boundaries.

Intentional structure captures the purposes conveyed by speakers in a discourse. Every discourse and discourse segment has a purpose analogous to Gricean utterance-level intentions. Even though a speaker may have more than one aim in involving a discourse (a story may entertain its listeners as well as describe a narrative), Grosz and Sidner distinguish one of these purposes to be foundational to the discourse. The underlying intentions in discourse and discourse segments are called Discourse Purpose (DP) and Discourse Segment Purpose (DSP), respectively. Intentional structure plays a significant role in segmenting the discourse. A discourse segment may be considered to correspond to a set of utterances which have a single DSP.

The third component of discourse structure is the attentional state. The attentional state is the component that keeps track of what the speakers are talking about by using pronouns and other referential expressions. The attentional state models the focus or center of attention of the speaker and hearer as the discourse progresses. This is the component which Centering and Focusing theories (see Chapter 3) address as they model speakers' attention in keeping track

of anaphoric relationships across utterances (Grosz 1977, Sidner 1979, 1981, Grosz, Joshi and Weinstein 1983, 1986, 1995). The attentional state models speakers' attention, however, it is only one part of cognitive state, crucially not the equivalent of it. The latter includes speaker beliefs, world knowledge, commonsense inferencing, etc., much more than the attentional state. The attentional state is a property of the discourse itself and not that of speakers.

The attentional state is a dynamic component; it receives and keeps track of information, and it updates the center of attention as new information comes into the discourse. The attentional state is modelled by a set of focus spaces and by a set of transition rules or delete focus spaces. A focus space contains a set of salient entities that the speaker and hearer are attending to, i.e. discussing or processing information.

These three constituents of discourse structure provide the information of how a certain utterance fits into the rest of the discourse, the reason why it is said, and what it means. The attentional state, furthermore, supplies a device for using the information in the other two constituents. All of the components are at work as the discourse proceeds.

This study concentrates on modelling the attentional state at the level of the local discourse segment. However, since all these three components are interrelated, relevant discussions of the other components will be included when they interact with the attentional state. For example, Discourse Segment Purposes of the intentional structure affect pronominalization and linguistic structure. Furthermore, discourse segments constrain the use of pronouns as well.

1.2.2   Discourse model and discourse entities

In the ongoing discourse, the speaker and hearer are expected to share and synthesize (understand) a similar discourse model (Webber 1979), which involves a mental representation which the speaker wants to communicate to the hearer. The discourse can be considered a set of tacit instructions to the hearer for synthesizing a discourse model which matches the speaker's as closely as possible.

A discourse model contains a set of discourse entities (a term introduced by Webber 1979 corresponding to the discourse referents of Karttunen 1976) evoked into the discourse, as well as their properties and their relations with other entities.

Webber's motivation to use the term entity is to keep the term refer as a distinct technical term. Speakers refer by using discourse entities. Discourses, on the other hand, evoke or access discourse entities. A discourse evokes an entity in the first mention, then it accesses (Webber 1983) or co-specifies (Sidner 1981) or realizes (Grosz, Joshi and Weinstein 1983, 1986, 1995) its corresponding entity in subsequent reference.

Discourse entities may be evoked by the discourse via explicit linguistic mention; otherwise, entities can be inferred within the discourse model due to universal or particular knowledge of entities and relations holding among them. Entities may also be situationally evoked (Prince 1981a, see below).

Once a discourse entity is evoked, it may be realized by definite anaphoric expressions as null

or overt pronouns and full NPs. In order to be able to use a pronoun, the speaker should believe that an entity is already in the hearer's discourse model and at the center/focus of attention. The choice among the expressions represents what sort of information the speaker and hearer have in their discourse models as they speak. The type of referential expression chosen signals the degree of focus or salience which its antecedent is assumed to have been assigned by the speaker. This choice furthermore indicates the nature of the discourse relationship which the current utterance holds with the previous one in which a reference to the same entity was made. Such salience identifies the potential antecedent of a pronoun.

As we shall see in Chapter 2, not all NPs evoke discourse entities (cf. Karttunen 1976, Webber 1979, 1983, Kamp 1981, Heim 1982). In English, For example, the dummy surface subject it in it seems to me that John is clever does not evoke an entity. NPs which do not evoke discourse entities will not be accessible for definite pronouns.

Some newly introduced NPs can be unspecified in terms of their evoking discourse entities as discussed in Chapter 2. For example, the scope of negation can be ambiguous, i.e. either the existence of the entity is denied or the action/event involving it may be negated. Only in the latter case can a discourse evoke an entity. A speaker's use of definite reference in such instances confirms and consolidates the existence of an entity within his/her discourse model. Furthermore, the use of an anaphor may actually trigger the introduction of a discourse entity into the discourse model: in the sequence of utterances, "I was looking for a car, and I found one", the anaphor one evokes an entity that can be discussed in the subsequent discourse.

1.2.3   Assumed Familiarity of Discourse Entities

A speaker makes certain assumptions when s/he conveys a message to the hearer concerning whether the hearer is already familiar with the entity or not. These assumptions determine the choice of a particular expression. Prince 1981a provides a taxonomy of such assumed familiarity of discourse entities. When an entity is introduced into the discourse, it is new, i.e. it creates a new file (in Heim's terms). A new entity can be Brand-new if it is totally unfamiliar to the hearer, For example as a guy I know . Otherwise, the speaker can assume the hearer is already familiar with the entity, but it is not at his/her discourse model at the time of utterance. For example, Noam Chomsky is familiar to a linguist, i.e. Hearer-old but unused unless explicitly mentioned and it becomes discourse new upon mention.

Brand-new entities, on the other hand, are both Hearer-new and Discourse-new and they are of two types. Anchored Brand-new entities are linked to a known entity, For example in a car I saw, the brand-new entity a car is linked to the speaker by the use of first-person singular pronoun. Unanchored Brand-new entities are not linked in this way, for example, a car .

Textually evoked entities are those that are already present in the discourse model and situationally evoked entities represent what is already salient in the extralinguistic context including the speaker and the hearer.

Inferrables are the entities that are linked to an already evoked entity via logical relationships.

For example, the introduction of an entity as a house, makes the door an available discourse entity. This is because people can infer via their world knowledge that houses have doors.

1.3 Null and Overt Pronouns in Turkish

Turkish is a pro drop language with null subjects that are locally identified via agreement morphemes on verbs. Turkish also allows definite and indefinite null objects although they are not locally identified in the same way with agreement markers or object clitics.

Null and overt subjects in Turkish occur both in main and subordinate clauses, and both necessarily agree with the number and person morphology on the verb. Third-person singular agreement morpheme is null and third-person plural morpheme is optional. Gender is not marked in Turkish.

Turkish has the following set of overt pronouns:

ben	'I'	biz	'we'
sen	'you, singular, informal'	siz	'you, plural, formal singular'
o	'he/she/it'	onlar	'they'

These pronouns have a zero nominative case in matrix subject position. They can be overtly assigned accusative, dative, ablative in the object position depending on a structural and inherent case-assigning verb.

The third-person plural morpheme is optional when the subject is overt. Compare 1a to 1b. Sentence 1a has a third-person singular subject and the verb has a null third-person singular agreement morpheme. The subject in 1b is overt and it has third-person plural features, the plural agreement morpheme on the verb is optional. On the other hand, the subject in 1c is null and the third-person plural morpheme must be overt:

1. a. Ali bugün Ankara'ya   gitti.
      Ali today Ankara.DAT go.PAST.
      'Ali went to Ankara today.'

   b. Ali ile   Meral bugün Ankara'ya   gitti.
      Ali with Meral today Ankara.DAT go.PAST.
      'Ali and Meral went to Ankara today.'

   c. Ali ile Meral bugün Ankara'ya gittiler.
                                    go.PAST.PLU.

   d. ∅ Ankara'ya   gittiler.
        Ankara.DAT go.PAST.3.PLU.
      '(They) went to Ankara.'

Null subjects can occur in the following contexts which will be discussed in the subsections below:

1. Simple Clauses

2. Subordinating Clauses

3. Possessive NPs

1.3.1 Simple Clauses:

Null subjects can occur in simple clauses as in 2b:

2. a. Ben dün   bir   kitap aldım.

     I   yesterday one book buy.PAST.1.SG

     'Yesterday I bought a book'

   b. ∅ Dün bir kitap aldım.

1.3.2 Subordinating Clauses:

The following inflectional suffixes are attached to the verb stem in Turkish to form a subordinate clause, where the capitalized letters show that the vowel undergoes Vowel Harmony:

a. -DIk

b. -EcEk

c. -mE

d. -mEk

e. -Is-

The subject of a subordinate clause is assigned genitive-case which agrees in person and number with the possessive suffix attached to the subordinate verb, as in 3. The agreement between the subject and the verb of a subordinate clause is analogous to the agreement in possessive NPs where the two nouns are assigned genitive and possessive agreement (see example 9 below). In addition, a subordinate clause, like an NP, is assigned structural or inherent case by the matrix verb. It has been suggested that subordinate clauses in Turkish are nominals, however, Kural 1994, argues against these suggestions. He claims that subordinate clauses have verbal properties.[1]

---

[1] Kural 1994's arguments that subordinate clauses formed with a morpheme such as IŞ have verbal properties are as follows:

(a) In a subordinate clause, a real noun cannot replace the putatively nominalized verb, as in the example below:

A. Ahmet'in   bu arabayı al-ış-ı.

    Ahmet.GEN.(3SG) this car.ACC buy.IŞ.POSS3SG.

    'the fact that Ahmet bought this car'

B. *Ahmet'in   bu arabayı al-ım-ı.

    Ahmet.GEN this car.ACC buying.POSS.3SG

    'Ahmet's buying this car'

(b) The subordinate verb, unlike a noun, can have one or more of the following verbal morphology: negation, passive, causative:

öl-dür-üş   ölüm   *öl-dür-üm.

die.CAUS.IŞ 'death' die.CAUS.NOM

(c) The subordinate verb but not a noun can be modified by a frequency adverb:

C. Ahmet'in   arada bir   koşuşu.

    Ahmet'GEN once in a while run.IŞ.POSS3SG.

    'the fact that Ahmet runs once in a while'

3. Ali [Ahmet-in   okula   gittiğini]   söyledi.
   Ali Ahmet.GEN school.DAT go.NOM.POSS.3.SG.ACC. say.PAST
   'Ali said that Ahmet went to school.'

The third-person plural morpheme is also optional in subordinate clauses. The plural morpheme may be unspecified, as in 4a. Note that 4a is identical to 3a but the subordinate subject in the former is singular while the one in the latter is plural. 4a and 4b can alternate: the plural morpheme may be absent as in 4a or present as in 4b:

4. a. Ali [Ahmet'le   Meral'in   okula   gittiğini]   söyledi.
      Ali Ahmet.WITH Meral.GEN school.DAT go.NOM.POSS.3.SG.ACC. say.PAST
      'Ali said that Ahmet and Meral went to school.'

   b. Ali [Ahmet'le   Meral'in   okula   gittiklerini]   söyledi.
      Ali Ahmet.WITH Meral.GEN school.DAT go.NOM.POSS.3.PLU.ACC. say.PAST
      'Ali said that Ahmet and Meral went to school.'

The verb in subordinate clauses lacks agreement when the two adverbial morphemes -ken 'while' and -ince 'when' are attached to form subordinating clauses, as in 5. In these cases, the subordinate subject does not carry overt case morphology.

The subject of the subordinate clause must be null when coindexed with the matrix subject, as in 5a and 6a. The overt subject in a subordinate clause is necessarily disjoint in reference with the higher subject, as in 5b and 6b (Kornfilt 1984, 1991, Erguvanlı-Taylan 1986):

5. a. Orhan$_i$ [$\emptyset_i$ çalışırken]   müzik dinler.
      Orhan   work.WHEN music listen.AOR
      'Orhan listens to music when he works.'

   b. Orhan$_i$ [o$_{*i/k}$ çalışırken]   müzik dinler.
      Orhan he   work.WHEN music listen.AOR

6. a. Ahmet$_i$ [$\emptyset_i$ tatile   gideceğini]   söyledi.
      Ahmet   vacation.DAT go.FUT.NOM.ACC. say.PAST
      'Ahmet said that he was going for a vacation.'

   b. Ahmet$_i$ [onun$_{*i/k}$ tatile   gideceğini]   söyledi.
      Ahmet he.GEN   vacation.DAT go.FUT.NOM.ACC. say.PAST

On the other hand, either an overt or a null subject can be coindexed with the object of the matrix clause:

7. Ahmet$_k$ Ali'ye$_i$ [onun$_{i/*k}$ çok beğendiği]   bir kitabı   aldı.
   Ahmet   Ali.DAT he.GEN   very like.REL.POSS.3.SG one book.ACC buy.PAST
   'Ahmet bought Ali a book that he liked a lot.'

D. *Ahmet'in   arada bir   koşumu.
   Ahmet'GEN once in awhile running.POSS.3SG.
   'Ahmet's running once in a while'

A null subordinate subject is ambiguous in coreference between the matrix subject and the object if they are both available antecedents, as in 8:

8. Ahmet$_k$ Ali'ye$_i$ [$\emptyset_{i/k}$ çok beğendiği] bir   kitabı aldı.
   Ahmet   Ali.DAT very like.NOM.ACC. one book.ACC. buy.PAST
   'Ahmet bought Ali a book which he liked.'

1.3.3 Possessive NPs

Turkish has the following possessive pronouns and they agree in number and person with the possessed noun as N-GEN N-POSS. The examples are as follows; in all these cases, the subject of the possessive NP can be null:

9.   ben-im   ev-im   biz-im   ev-imiz
    I.GEN.1.SG   house.POSS.1.SG   we.GEN.3.PLU.   house.POSS.1.PLU
    'my house'   'our house'

    sen-in   ev-in   siz-in   ev-iniz
    you.GEN.2.SG   house.POSS.2.SG   you.GEN.2.PLU   house.POSS.2.PLU
    'your house'   'your house'

    o-nun   ev-i   onlar-ın   ev-(ler)-i
    s/he.GEN.3.SG   house.POSS.3.SG   they.GEN.3.PLU   housePOSS.3.PLU.
    'his/her house'   'their house(s)'

The subject of a possessive NP must be null when it is coreferential with the matrix subject, as in 10a; if the possessive is informationally focused, the logophoric pronoun kendi 'own/self' is used, as in 10 b. The overt pronoun is necessarily disjoint in reference, as in 10c:

10. a. Ahmet$_i$ [$\emptyset_i$ annesini]   sever.
     Ahmet   mother.POSS.3.SG.ACC love.AOR.
     'Ahmet loves (his) mother.'

    b. Ahmet$_i$ [kendi$_i$ annesini] sever.
           self

    c. Ahmet$_i$ [onun$_{*i/k}$ annesini] sever.
           he.GEN.3.SG.

Turkish has null impersonal pronouns, as in 11. Impersonal pronouns can never be overt, alternatively an overt pronoun can never have an impersonal reading. Impersonal pronouns must have a third-person plural interpretation; the plural number agreement on the verb cannot be optional in this case. Impersonal null pronouns are further discussed in chapter 5.

11. $\emptyset$ Ahmet'i   ameliyat ettiler.
     Ahmet.ACC operation make.PAST.3.PLU.
    '(They) have operated on Ahmet.'

Turkish does not have any expletive (ambient) pronouns as in the weather verbs (e.g. it is raining, it is hot) and existentials in English (there is):

12. a. Yağmur yağıyor.
    rain   rain.PROG.
    'It is raining.'

    b. *O yağıyor.
    It

13. a. Dün   çok sıcaktı.
    Yesterday very hot.COP.PAST.
    'It was very hot yesterday'

    b. *Dün o çok sıcaktı.
            it

14. a. Buzdolabında   biraz süt var.
    Refrigerator.LOC some milk exist.
    'There is some milk in the refrigerator'

In the following, we turn our attention to null objects in Turkish. The object of a matrix clause can be null, as in 15B and 16b:

15. A: Gazeteyi$_i$ gördün   mü?
    newspaper.ACC see.PAST.2.SG. Quest
    'Have you seen the newspaper?"

    B: ∅$_i$ ∅ görmedim.
        see.NEG.PAST.1.SG.
    'I didn't see (it)'

16. a. Mektubu   yazdım.
    letter.ACC write.PAST.1.SG
    'I've written the letter.'

    b. ∅$_i$ daktilo eder   misin?
        type   do.PRES QUEST.2.SG.
    'Could you type (it)?'

Kornfilt 1984 shows that objects in a subordinating clause cannot be null intrasententially, as in 17:

17. Hocamızi   [öğrencilerinin onu$_i$/*∅$_i$ çok sevdiklerini]   iddia etti.
    teacher.POSS.1.PLU student.GEN. he.ACC. very like.3.PLU.NOM.ACC. claim make.PAST
    'Our teacher claimed that his students like him very much.'

However, an object of a subordinate clause can be null if the corresponding entity is within the previous discourse, as in 18b:

18. a. Pastalari   tazeymiş.

   cake.PLU. fresh.hearsay

   'The cakes are supposed to be fresh.'

   b. [Pasteneden $\emptyset_i$ getiren] çocuk   söyledi.

   bakery.ABL. bring.REL kid   say.PAST.

   'The kid who brought (them) from the bakery said so.'

Unlike verbs, some postpositions agree with their objects, in which case the object can be null, as in 19 and 20b:

19. Televizyonu   yanına   bırak.

   Television.ACC. next.POSS.2.SG.DAT leave.

   'Leave the television by your side.'

20. a. Baharda   ağaçi çiçek açtı.

   spring.LOC tree   flower bloom.PAST

   'The tree bloomed in spring.'

   b. $\emptyset_i$ Altında   oturduk.

   beneath.POSS.3.SG.LOC sit.PAST.1.PLU.

   'We sat beneath it.'

If the postposition does not carry agreement morphology, the object has to be overt, as in 21:

21. Ona/*$\emptyset$ göre   bu iş   biran önce   çözümlenmeli.

   he.DAT according this issue as soon as possible resolve.PASS.MUST

   'According to him, this issue has to be resolved as soon as possible.'

1.4   The Typology and Content of Pronouns

In the following section, the typology and content of null pronouns as empty categories will be discussed briefly. There are four types of expressions assumed in Binding theory (Chomsky 1981, 1982):

22. a. [+ anaphor, -pronominal]

   b. [-anaphor, +pronominal]

   c. [+anaphor, +pronominal]

   d. [-anaphor, -pronominal]

An example of 22a is anaphors, i.e. reflexives and reciprocals as in himself and each other, respectively. Reflexives and reciprocals cannot be free, but they must be bound within the binding domain by a local subject to be defined below. (See Kornfilt 1984 for an account of anaphors in Turkish.) Overt pronouns are instances of 22b both in English and Turkish. Definite descriptions such as Mary constitute the type in 22d. The category in 22c is the so-called control PRO, the subject of non-tensed clauses in English and Turkish. PRO either has an impersonal interpretation

11

as in 23a, or it is controlled by the subject as in 23b or by the object, as in 23c:

23. a. [PRO çalışmak] gerekli.

          work.INF necessary.

   'It is necessary [PRO to work]'.

   b. Ali [PRO dans   etmek]   istiyor.

     Ali dance do.INF want.PROG.

     'Ali wants [PRO to dance].'

   c. ∅ Ali'ye   [PRO gitmesini]   söyledim.

      Ali.DAT   go.INF.3.SG.ACC. say.PAST.1.SG.

     'I told Ali [PRO to go].

Empty categories have been explored on the basis of of the following typology shown in 24. The NP-trace is the type of trace left after the movement of, for example, the object to form a passive, or as in the raising of the subject in seem–constructions. Variables are traces bound from a nonargument (A') position like Wh -words. In addition, in English there are overt pronouns functioning as variables bound by a quantifier. It will be shown in Chapter 2 that overt pronouns in Turkish cannot function as bound variables.

24.

	OVERT	EMPTY
[+ana, -pron]	each other, himself	NP-trace
[-ana, +pron]	he,they, him, etc.	pro
[+ana, +pron]		PRO
[-ana, -pron]	Mary, Ali	variables

Each of these expressions are in complementary distribution in the grammar of a language. Reflexives and reciprocals, pronouns, and full NPs are subject to Principles A, B, and C of Binding theory (Chomsky 1981), presented in 25:

25. A. An anaphor is bound in its Governing Category (GC).

   B. A pronominal is free in its GC.

   C. A R-expression is free.

26. **Governing Category (GC):** Y is a GC for Y iff X is the minimal category containing Y, a governor of Y, and a subject accessible to Y.

27. **Government:** A governs B: [x.....B.....A....B], where

a. A=Xo or is co-indexed with B

b. where Y is a maximal projection, if Y dominates B then Y dominates A.

c. A c(onstituent)-commands B.

28. The accessible subject in Turkish (George and Kornfilt 1981, Kornfilt, 1984) is defined as follows:

a. the AGR(eement) element in finite clauses

b. the syntactic subject (i.e. [NP, S] or [NP, NP] elsewhere.

Kornfilt 1984 shows that null subjects are pure pronominal pro in Turkish. She shows that null subjects on the one hand, and reflexives and reciprocals on the other, are in complementary distribution in accordance with the Principles of Binding theory. According to Kornfilt 1984, if pro were an anaphor, it would occur in exactly the same positions as anaphors. Null subject pro is also in complementary distribution with PRO, because the latter can only occur in non-tensed clauses. Unlike PRO, the content of pro is identified with the number and person features on the verb morphology within a tensed sentence. Kornfilt 1984 also discusses the parallel behavior of pro in Turkish and English pronouns.

The content and typology of null objects in Turkish have not yet been investigated. Huang 1984 was the first to investigate and devise a typology of null objects in Chinese. Huang suggests that languages must be parameterized in two respects: null subject languages and zero topic languages. Huang agrees with the previous work done by Taraldsen 1978 and Jaeggli 1982 in that null subjects across languages are pronouns, i.e. instances of pro identified by a rich agreement system on the verb morphology. This rich agreement provides the recoverability of the null subject and sanctions its existence. On the other hand, null objects lack rich agreement, and are not locally identifiable. They are not pronouns, but rather variables bound by an unexpressed discourse topic which has moved to a non- argument (A') position.

Huang shows that empty subjects but not objects in Chinese behave like pronouns in English in terms of Principle B of Binding theory. Compare the following sentences from Huang:

29. a. John said that he knew Bill.

    b. John said that Bill knew him.

He and him in 29a and 29b, respectively, are pronouns and they are free in their GC; the former is ambiguous: it can be coreferential with the matrix subject John or it can be coreferential with another entity evoked in the previous discourse. The pronoun him in 29b is free in its GC, and it cannot be interpreted as Bill, but can be referentially dependent on John. Huang shows that the null subject is possible in Chinese in the corresponding sentence in 29a, but that this type of intrasentential reference cannot be construed with an empty object, as in 29b. The null object can have its antecedent only within the discourse which is a zero discourse topic in the A'- position in the sentence. The subject-object asymmetry, Huang argues, stems from the fact that these two empty categories have different typologies.

Huang's proposal is supported by Campos 1986 who shows that null indefinite objects in Spanish behave like empty operators rather than like pro . He presents diagnostics demonstrating that indefinite object drop in Spanish obeys the constraints on A-bar movement. Since A-bar movement in relative clauses and Wh-islands involves an operator, the object cannot drop. This is because the empty operator that is supposed to bind an empty object cannot cooccur with another operator. In other words, the complementizer cannot be simultaneously filled with a Wh -word and another operator.

Rizzi 1986 and Farrell 1990 argue against such an analysis concerning null generic objects in

Italian and null objects in Brazilian Portuguese, respectively. Rizzi shows that an empty category in object position can cooccur with a Wh - word in COMP In Italian:

30. a. Quale musica riconcilia ____ con se stessi?

'Which music reconciles ____ with oneself?'

b. Non so [che cosa le sue parole possano idurre a PRO concludere].

'I don't know [what his words can lead ____ to conclude].

Farrell 1990 claims that null objects in Brazilian Portuguese are instances of pro and that the analysis provided by variable analysis makes incorrect predictions. Even though the strong argument for the variable/operator analysis is the limited distribution of zero objects, Farrell claims that this phenomenon goes beyond the level of sentence grammar. Farrell states that 31 is ungrammatical, not because of the reasons given by the variable analysis, i.e. the embedded object (a putative variable) is A-bound by the matrix subject, which is ruled out. Farrell admits that the sentence cannot be ruled out by a pro-analysis.

31. *O Jono sabe que o Pedro viu $\emptyset$.

'J knows that P saw $\emptyset$.'

However, Farrell claims that the argument made by variable analysis supporters is not a valid argument, since matrix subjects cannot be antecedents of null objects extrasententially, either, as in 32c:

32. a. O Jono falou que a Julia esteve no Rio a smana passada.

'J. said that Julia was in Rio last week.'

b. Mas ele nem viu.

'But he didn't even see $\emptyset$.'

c. *Mas ela nem viu $\emptyset$.

'But she didn't even see.'

Hence, a condition beyond the level of sentence grammar is responsible for contrasts of this type. Huang's variable argument fails to account for these kinds of constructions. By contrast, a null object within a relative clause can take a matrix argument as its antecedent:

33. Aquela casa nunca foi pintada pelo cara que $\emptyset$ comprou de mim.

That house was never painted by the guy that $\emptyset$ bought from me.

This sentence should also be mistakenly ruled out by Condition C in the variable analysis. However, if the empty categories in the example above are treated as pro 's, no problem arises. They occur in positions where overt pronouns are allowed.

One property of pronouns, as opposed to reflexives, reciprocals, and variables, is that they are not bound. Due to this, the following sentence displays ambiguity:

34. O gato vai comer a rato se voce deixar $\emptyset$ ali.

'The cat will eat the rat if you leave $\emptyset$ there.'

If the empty category in the above sentence were a variable bound by an operator, it would

not be ambiguous. In operator constructions such as parasitic gaps, adjectival complements, comparatives, and tough -movement, the empty variable is strictly bound, so that it cannot manifest any kind of ambiguity.

Unlike empty operators, pronouns may precede their antecedents when the antecedent is in the matrix clause, as in the following:

35. Before he came home, John did grocery shopping.

Like overt pronouns, empty pronouns can also precede their antecedents. This behavior of null objects cannot be accounted for by an operator analysis.

This study will not concentrate on objects. However, a few initial observations will be made here concerning the typology of null objects. Huang's analysis does not appear to be maintained in Turkish. First of all, empty objects coreferential with subjects are strongly disfavored in Turkish across sentences. Turan 1994b has found in an analysis of objects based on Centering theory in naturally-occurring data, among 226 tokens when objects were overt 88% of the time when they were coreferential with a subject across sentences, whereas in 183 tokens they were null 86% of the time when they were coreferential with other objects. It is true that null objects coreferential with subjects are not categorically ruled out in Turkish discourse and they were null 22% of the time. Nevertheless, these percentages indicate that there are also constrains at the level of discourse on null objects coindexed with subjects across sentences.

Kornfilt 1984 shows that relative clause formation in Turkish involves an operator, as in English. The difference, however, is that the operator is empty in Turkish while it is overtly expressed as a relative pronoun in English.

36. [[e$_i$ okula   giden]Op$_i$]COMP adam$_i$
    school.DAT go.REL man
    'the man who goes to school'

An object can be null in Turkish in a relative clause given as in example 18 above. If two operators are not possible at COMP, there cannot be a zero topic operator at the COMP simultaneously with the relative clause operator. As a result, a null object cannot be bound and the sentence should be ungrammatical, but it is not.

Moreover, null objects like their overt counterparts display ambiguity unlike variables:

37. Eğer ∅   orada   bırakırsan, kedi   fareyi yer.
    if   there leave.COND.2.SG. cat   rat.ACC. eat.PRES.
    'If you leave (it) there, the cat will eat the rat.'

The null object can be interpreted as the cat, the rat, or any other entity (cheese, etc) from the previous discourse.

Like pronouns, null subjects can precede or follow their antecedents in certain contexts as in the following:

38. a. Eğer ∅ görürsen, Can'ı yemeğe davet et.

      if   see.COND.2.SG John.ACC dinner.DAT invitation make.

      'If (you) see (him), invite John for dinner.'

   b. Eğer Can'ı görürsen, ∅ yemeğe davet et.

      If   John.ACC see.COND.2.SG., dinner.DAT invitation make.

      'If (you) see John, invite (him) for dinner.'

The null object in 38a is ambiguous: it can be interpreted as someone introduced in the previous discourse or John. The one in 38b is can be interpreted as John or any other referent. These facts cannot be explained by a variable analysis in Turkish.

1.5   Related Research on Turkish Pronouns

1.5.1   Erguvanlı-Taylan 1986

Erguvanlı-Taylan 1986 has investigated the distribution of overt versus null pronouns in Turkish within a sentence and across sentence boundaries. She proposes three ways in which the coreference can be expressed: only by the obligatory use of null pronouns, only by the obligatory use of overt pronouns, and by the optional use of either overt or null pronouns.

Null pronouns are obligatory when the matrix subject and the genitive pronoun in the object position are coindexed. An overt genitive pronoun forces disjoint reference whether the antecedent precedes or follows the pronoun, as shown in 39:

39. a. Erol$_i$ onun$_{*i/k}$/$\emptyset_i$ karısı için herşeyi yapar.

      Erol$_i$ he.GEN$_{*i}$/$\emptyset_i$ wife.POSS.3.SG. for everything do.AOR.

      'Erol does everything for his wife.'

   b. Onun$_{*i/k}$/$\emptyset_i$ karısı için Erol$_i$ herşeyi yapar.

      he.GEN$_{*i}$/$\emptyset_i$ wife.POSS.3.SG. for Erol$_i$ everything do.AOR.

      'Erol does everything for his wife.'

The position of the antecedent matters when the genitive pronoun can be coindexed with either the subject or the object. The null genitive subject in 40a is ambiguous: it can either be coindexed with Ahmet or Erol. In 40b and 40c, however, it must be coindexed with the subject and the object, respectively, depending upon the precedence:

40. a. Ahmet$_i$ Erol'a$_k$ $\emptyset_{i/k}$ karısını sordu.

      Ahmet Erol.DAT wife.POSS.ACC ask.PAST.

      'Ahmet asked Erol about his wife.'

   b. Ahmet$_i$ $\emptyset_{i/*k}$ karısını Erol'a$_k$ sordu.

      Ahmet wife.POSS.ACC Erol.DAT ask.PAST.

      'Ahmet$_i$ asked Erol$_k$ about his$_{i/*k}$ wife.'

   c. Erol'a$_k$ $\emptyset_{*i/k}$ karısını Ahmet$_i$ sordu.

Erguvanlı-Taylan also shows that a subordinate subject coindexed with a matrix subject must be null, regardless of the surface order. The overt pronoun in the subject position of an embedded clause is necessarily disjoint in reference with the matrix subject, as in the following examples cited in Erguvanlı-Taylan (1986:215):

41. a. Erol$_i$ bana [$\emptyset_i$/onun$_{*i/k}$ toplantıya gelmiyeceğini]   söyledi.
      Erol I.DAT he.GEN.   meeting.DAT come.NEG.NOM.ACC. say.PAST.
      'Erol$_i$ told me that (he)$_i$ wouldn't come to the meeting.'

   b. [$\emptyset_i$/Onun$_{*i/k}$ toplantıya   gelmiyeceğini]   Erol$_i$ bana söyledi.
      he.GEN.   meeting.DAT come.NEG.NOM.ACC. Erol I.DAT say.PAST.
      'Erol$_i$ told me that he$_{*i/k}$ won't come to the meeting.'

On the other hand, any subordinate nonsubject pronoun coindexed with an argument in the matrix clause must be expressed by an overt pronoun, as exemplified below:

42. a. [Ahmet'in$_i$ işe   aldığı   kızlar]   onu$_i$/*$\emptyset_i$ severler.
      Ahmet.GEN work.DAT take.OREL.POSS3S girl.PLU. he.ACC like.AOR.
      'The girls that Ahmet hired like him.'

   b. [$\emptyset_i$ işe   aldığı   kızlar]   Ahmet'i$_i$/onu$_i$/*$\emptyset_i$ severler.
         work.DAT take.OREL.POSS3S girl.PLU. Ahmet.ACC/he.ACC like.AOR.

According to Erguvanlı-Taylan, if the subject is not emphasized or contrasted, a null subject in the subordinate clause is possible because the subject can be identified through the agreement morpheme on the verb. However, since there is no object-verb agreement in Turkish, the object will not be locally identified and hence has to be overt, as in 42a-b.

In conjoined clauses, unlike subordinate clauses, both null and overt objects are possible:

43. a. Erol Nazan'ı$_i$ her   akşam işinden   alır,
      Erol Nazan.ACC every night   work.POSS3SG.ABL. take.AOR.

      ve   onu$_i$/$\emptyset_i$ yemeğe götürür.
      and she.ACC dinner   bring.AOR.
      'Erol picks up Nazan from her work every evening and takes her to dinner.'

   b. Erol Nazan'ın$_i$ evine   gitmiş
      Erol Nazan.GEN. house.POSS.3.SG..DAT go.PAST

      ama ona$_i$/$\emptyset_i$ hediyeyi vermeden   geri dönmüs.
      but she.DAT gift.ACC give.NEG.ABL back return.PAST
      'Erol went to Nazan's house, but came back without giving her the gift.'

Erguvanlı-Taylan emphasizes the role of discourse context in pronoun resolution. For example, in 44 and 45, the null and overt pronouns in the B sentences are interpreted as coreferential with the subject and object of the previous sentences, respectively, which convey information about these two individuals. If this information is not supplied in the previous discourse, the null pronoun in 44B and the overt pronoun in 45B are interpreted intrasententially.

44. A: Erol$_i$ yemeğe   gelecek   miydi?

        Erol dinner.DAT come.FUT QUEST.PAST

        'Was Erol going to come dinner?'

   B: Nazan bana   [onun$_i$/∅$_i$ yedide   geleceğini]   söylemişti.

       Nazan I.DAT he.GEN   seven.LOC come.NOM.FUT.3S.ACC. tell.PAST.PAST.

       'Nazan told me that he would come at seven.'

45. A: Erol'u$_i$ bu şirkette   kim sever?

        Erol.ACC this company.LOC who love.AOR.

        'Who loves Erol at this company?'

   B: [Ahmet'in   işe   aldığı   kızlar] ∅$_i$/onu$_i$ severler.

       Ahmet.GEN work.DAT take.O.REL girl.PLU.   he.ACC love.AOR.

       'The girls who Ahmet hired like him.'

Erguvanlı-Taylan indicates that c-command relations correctly predict that the matrix subject cannot be coindexed with an NP in the subordinate clause, as in 46:

46. *O$_i$ bana [Erol'un$_i$ geleceğini] söyledi.

    he   I.DAT Erol.GEN come.FUT.POSS3SG.ACC say.PAST.

    '*Hei told me [that Erol$_i$ is coming].'

However, c-command cannot account for the sentences below, where the subordinate object does not c-command the object in the matrix clause and yet the pronoun is used to refer to its non-c-commanding antecedent:

47. Ben [Erol'un$_i$ kitabını   kaybettiğimi]   ona$_i$ söylemedim.

    I   Erol.GEN book.POSS3S.ACC lose.NOM.1.SG.ACC he.DAT say.NEG.PAST.1SG.

    'I didn't tell him$_i$ that I've lost Erol's$_i$ book.'

In this case, the surface position of the antecedent plays an important role in the coreference relationship. If this precedence does not hold, the two NPs will not be coindexed:

48. *Ben ona$_i$ [Erol'un$_i$ kitabını kaybettiğimi] söylemedim.

    I   he.DAT Erol.GEN book.POSS3S.ACC   lose.NOM.1SG.ACC say.NEG.PAST.1SG.

    'I didn't tell him$_i$ that I've lost Erol's$_i$ book.'

Erguvanlı-Taylan concludes that it would be preferable to account for pronominalization facts at the sentence level as well as the discourse level by a single rule rather than separate rules.

1.5.2 Enç 1986

Enç 1986 proposes that null and overt subjects in Turkish are not in free variation, but rather the choice between the two is determined by the contextual rules governing the use of sentences. For example, a speaker can utter 49a when s/he and the addressee have not been speaking for a while, and when the speaker initiates the conversation. On the other hand, 49b would be appropriate as an answer to the question "Why are putting your coat on?"

49. a. Ben çarşıya   gidiyorum.

      I   market.DAT go.PROG.1.SG.

      'I am going to the market.'

  b. ∅ çarşıya   gidiyorum.

      market.DAT go.PROG.1.SG.

     '(I) am going to the market.'

In the former case, Enç suggests that the overt pronoun in 49a establishes a topic of discourse, while in 49b, the question in the context establishes the topic, i.e. why the person is putting on his/her coat. The utterance in 49b is a comment on the previously established topic.

Enç assumes that *topic* is a primitive, but points out the difficulties of defining such a primitive. Informally, the topic is defined as what the discourse is about. Enç employs the notion of topic akin to the notion proposed by Keenan and Schiefflin (cited in Enç 1986:198) as the proposition that the question of immediate concern presupposes. A topic is a proposition that states what the discourse is concerned about, and the center of topic [Enç's terminology] is what the sentence is concerned about. Propositions as "somebody's thinking about so and so" can be a topic.

Enç suggests that overt pronouns in Turkish are used to shift the topic of discourse. For example, in the two consecutive utterances in 50a-b, the function of the overt pronoun is to shift the topic from Ali's trip to Ankara to his recent absent-mined behavior :

50. a. Ali$_i$ yarın   Ankara'ya   gidiyor.

      Ali tomorrow Ankara.DAT go.PROG.

      'Ali is going to Ankara tomorrow.'

  b. O$_i$ bu günlerde   çok dalgın.

      he this day.PLU.LOC very absent-minded.

      'He's been very absent-minded lately.'

Enç proposes that any of the six pronouns can be used to change topic. She shows that overt subjects are also used to contrast the referents of two NPs as in the following:

51. Arabayı Ahmet yıkamadı.   Ben   yıkadım.

    Car.ACC Ahmet wash.NEG.PAST, I wash.PAST.

    'Ahmet didn't wash the car. I did.'

52. a. Bu havada   kimse   top oynamaz.

      this weather.LOC nobody ball play.NEG.PRES.

      'Nobody will play ball in this weather.'

  b. Ben oynarım.

      I   play.AOR.1SG.

      'I'll play.'

In the example above, the assertion in 52a is denied by giving a counterexample with an overt pronoun.

The two different functions of overt pronouns, according to Enç, changing the topic and indicating contrast, are related, because the change of topic involves another way of contrast. When a speaker uses a pronoun to change a topic, s/he states that they are not talking about a particular topic any more, thus contrasting the old and the new topic.

However, note that defining the discourse topic as conveying propositions is not a well-defined or well-understood notion, and an analysis cannot be based on such a fuzzy notion of topics. There are other cues as well that signal that we have moved to a different discourse segment. For example, in 50, the intention of the speaker changes from Ali's trip to his absent-mindedness and the change in segmentation is also signalled by the change in tense in 50b. The use of overt pronouns signals a new discourse segment which is usually but not always correlated with a shift in topic. In fact, as will be discussed later in the analysis of the functions of subjects, there are instances in the data where a speaker signals a discourse segment boundary with an overt subject even though s/he continues to talk about the same entity.

1.5.3   Kerslake (1987)

Kerslake (1987) presents a brief survey of what she calls 'NP deletion' and its relation to agreement and pronominalization. Kerslake identifies four distinct types of NP deletion in Turkish as follows:

1. Deletion in coordinate structures, under conditions of structural identity,
2. Equi NP deletion,
3. Pro-drop (where the pro is identified by agreement marking),
4. Zero Anaphora (no such agreement identifies the content of the empty category).

According to Kerslake, an identical element in the second conjunct must be deleted, as in the examples below:

53. Ayşe$_i$ şarkı söyler   ve $\emptyset_i$ piyano   çalar.
    Ayşe song sing.PRES and piano play.PRES.
    'Ayşe sings and plays the piano.'

54. Mehmet arabayı$_i$ tamir etti,   Mustafa $\emptyset_i$ temizledi.
    Mehmet car.ACC repair make.PAST Mustafa clean.PAST.
    'Mehmet repaired and Mustafa cleaned the car.'

'Equi-NP deletion', in Kerslake's terminology, involves control PRO and some instances of small pro. For example, 55 is a case of 'Equi-NP deletion' according to Kerslake (1987:92):

55. Ahmet [Fransa'ya gitmek] istiyor.
    Ahmet France.DAT go.INF want.PROG.
    'Ahmet wants to go to France.'

Likewise, Kerslake proposes that the following empty category is deleted in accordance with 'Equi NP deletion'. This is because the adverbial morpheme -ince 'when' in the subordinate verb does not carry subject-verb agreement morphology:

56. [∅/o gelince]   hepimiz   sofraya   oturduk.
    s/he come.WHEN all.1.PLU table.DAT sit.PAST.1.PLU.
    'When s/he came, we all sat down at the dinner table.'

Furthermore, Kerslake (1987:94) writes:

> There is one other construction in Turkish to which a rule of Equi NP deletion seems
> to apply. This is the type of relative clause in which the subject of the participle is
> coreferential with the head NP, and undergoes obligatory deletion. Since the participle
> in this type of relative clause cannot have possessive marking, there is no impediment
> to including this particular deletion process in the Equi category.

The example is as follows:

57. [∅$_i$ bu   kitabı   yazan]   adam$_i$
        this book.ACC write.REL. man
    'the man who wrote this book'

Kerslake's motivation is to make a distinction between those empty categories that are identified with agreement and those that are not. However, there appears to be a problem in this type of classification. All of the empty categories in these examples are of different types and they should be treated differently. The empty category in 55 is a PRO controlled by the subject, the one in 56 is a pro which apparently can alternate with an overt pronoun (unlike PRO). On the other hand, as Kornfilt 1984 has shown, the empty category in 57 is a variable bound by the empty relative clause operator and it can never alternate with a pronoun.

Kerslake's category 3 above involves prodrop. Kerslake points out that in Turkish null subjects and overt pronouns correspond to unstressed pronouns versus stressed pronouns, respectively, in English. She argues that subjects should be overt when they receive stress focus. For example, in 58, the subjects cannot be null because they need to receive contrastive stress:

58. a. Onlar evde   kaldılar,   ben sinemaya   gittim.
       they home.DAT stay.PAST.PLU, I   cinema.DAT go.PAST.1Sg.
       'They stayed at home, and I went to the movies.'
    b. *∅ evde kaldılar, ∅ sinemaya gittim.

She states her observation as follows:

> The distribution of subject pro-drop in Turkish corresponds approximately to that of
> unstressed subject pronouns in English.

> The distribution of overt subject pronouns in Turkish corresponds approximately to
> that of stressed pronouns in English.
> (Kerslake 1987:96)

Zero anaphora, according to Kerslake, involves null objects because the content of objects is not identified by agreement morphology on the verb. Kerslake shows that in Turkish, as indicated

in the following example, deletion of the object is the norm and an overt object in 59b and 59c will render the discourse incoherent:

59. a. Şu kitabı$_i$ bitirince,   bana $\emptyset_i$ verir misin?
that book finish.WHEN I.DAT   give QUEST.2SG.
'When you finish that book, would you give (it) to me?'

b. Zeynep $\emptyset_i$ çok methetmişti.
Zeynep   very praise.PAST.PAST
'Zeynep had praised (it) highly.'

c. Ben de $\emptyset_i$ okumak istiyorum.
I   too   read.INF want.PROG.1Sg.
'I want to read (it) too.'

In the rest of the paper, Kerslake (1987:98) explores prodrop and zero anaphora in two published short stories in Turkish within the framework of Givon's 1983 accessibility hierarchy (for a discussion of Givon, see Chapter 3). Kerslake found that slightly more than half of the sentences in her stories have no overt subjects. The ratio of deleted objects are very low, 5analysis indicates that null objects occur less frequently than null subjects in these two short stories. Kerslake proposes that a subject is null if its corresponding entity is immediately accessible, which is defined as being the subject of a previous sentence or as having just been introduced into the discourse.

1.5.4   Ruhi 1992

Ruhi 1992 investigates the distribution of null and full NP subjects in Turkish texts. Her study also examines whether paragraph boundaries block the use of null anaphora. As data, she uses narratives written by first-year university students who are native speakers of Turkish. She obtained her data by asking the students to rewrite from memory a story by a Turkish writer, in order to obtain texts of similar type and comparable length.

Ruhi states that the null subject is mainly reserved for the protagonist. She observes that the shift from null to overt pronoun or full NP takes place when non-protagonist characters are actively involved. She notes that full NPs representing the protagonist occur at episode boundaries. However, she states that this is a tendency rather than a general rule. Ruhi observes that null pronouns are preferred if the subjects are coreferential in the preceding clause and the episode boundary clause. She concludes that the role of a paragraph as a barrier for null pronouns is not clear.

Ruhi investigates anaphora at a global discourse level. Her study contributes to an understanding of discourse anaphora. Nevertheless, because she does not employ a theory in which to embed her findings, her results are very general and impressionistic. An analysis of discourse anaphora based on more precise concepts is preferable if we are to understand discourse competence and how speakers and hearers produce and process discourse anaphora.

1.5.5   Tın and Akman 1992

Tın and Akman 1992 propose a computational framework for anaphora resolution in Turkish based on the version of situation semantics proposed by Fenstad et. al. 1987. In this framework, the informational content of an utterance is determined not only by its linguistic form (i.e. its phonology, morphology and syntax), but also by a number of contextual factors.

A simple sentence has a situation schema and a fact schema. A situation schema is a theoretical notion for summing up information from linguistic form that is relevant for semantic interpretation. It is derived through an extension to the traditional format of Lexical Functional Grammar (LFG) of Kaplan and Bresnan 1982. A situation schema also bears some similarity to a Logical Form. A simple declarative sentence can be regarded to have a semantic predicate relating a number of actors playing various roles (Agent, Theme, etc.). A situation schema is anchored to a relation with arguments and location, and also a polarity of the fact.

A fact schema is a means for conveying partial or complete information, either from the situation schema or world knowledge. For a sentence like *Erol dün evlendi.* ('Erol got married yesterday'), a fact schema will convey information like 'he got married to someone', and that it occurred in the past. Since we have specific knowledge about the world, further information will come from the subject individual: that he is male, then he is a groom, that he is married to a woman and she is the bride, etc. Further, from world knowledge it will be inferred that he has a wife and that he is her husband. All these pieces of information are kept in a pool for further use during anaphoric processing. Then, an inference mechanism can use the discourse context to disambiguate ambiguous pronouns in the text. Thus, if a sentence like *Ahmet Erol'a karısını sordu.* ('Ahmet asked Erol about (his) wife') is preceded by 'Erol got married yesterday', information from the fact schemata kept in the pool will resolve the ambiguous genitive pronoun "his".

This algorithm is very ambitious since Tın and Akman intend to build a unified theory of anaphora based on the information from research on syntax, semantics, discourse, context and world knowledge.

1.6   Null Subjects and Clausal Reference

Iatridou and Embick 1994 show that pro in Greek and some other pro drop languages, e.g. Bulgarian, Italian, Catalan, cannot be anaphorically linked to a clause, while the third-person pronoun 'it' in English can. This distinction between Greek and English is observed both intersententially, as in 60 and 61 and intrasententially, as in 62 and 63:

60. A. o   Kostas ine panda argoporimenos.
     the Kostas is   always delayed.

   b. Pragmatika. *Ke pro epise   ton patera tu   na   to   agorasi aftokinito.
      Indeed.   And pro convinced the father MOD buy him a   car.
      ' Intended reading: *It convinced his father to get him a car.'

61. A. John is always late.

  B. I know...And it convinced his father to get him a car.

62. *An [ftasume arga]$_i$ pro$_i$ tha   tromaksi tin Maria.
     if   we   arrive late pro FUT scare   the Mary.ACC.

63. If [we arrive late]$_i$, it$_i$ will make Mary think that we don't like her.

An expletive subject pro can appear in related environments, but in this case it is not coreferential with the clause, as in 60 and 61:

64. An o   Kostas argisi   pro tha   ine dropi.
    If the Kostas is late, pro FUT be shameful.'

65. pro fanike   agenes   [pu   ftasame arga].
    pro seemed impolite that we   arrived late.

Iatridou and Embick show that pro in Italian, Catalan, and Bulgarian behave exactly the way it does in Greek. Their observation appears to hold for Turkish as well. For example, the expletive subject in 66 cannot be interpreted as anaphorically linked to the previous clause. In fact, ayıp 'shame' seems to function as a subject and renders another subject, null or overt, irrelevant. In addition, a thematic pro cannot be coreferential with a clausal antecedent, as in 67:

66. [Eğer geç kalırsan] ayıp   olur.
    if   late remain   shame happen.PRES.
    'If you come late, (it) will be rude.'

67. *[Eğer geç kalırsan]$_i$,   pro$_i$ babanı   araba almaya   ikna   edecek.
    if   late stay.Cond.2SG pro father.Poss2.Acc car   buy.Inf.Dat convince do.
    '*If you are late, it'll convince your father to buy a car.'

Iatridou and Embick discuss two possible approaches to account for this phenomenon: the first is what they call 'the ontological approach' and the second 'the grammatical approach'.

According to the ontological approach, pro cannot refer to whatever the antecedent refers to. In this instance, one can claim that pro cannot refer to events. However, Iatridou and Embick show that this approach is not sufficient for examples like 60 through 63. In an event in which one often arrives late, the pronoun 'it' cannot be used to refer to a single event; it must refer to a collection of such events. Secondly, this approach is inadequate because it can be anaphorically linked to clauses under negation in English:

68. If [we don't return by 9pm]$_i$, it$_i$ will convince the boss that....

Discarding the first approach because of these observations and discussions of ambiguity between events and facts, Iatridou and Embick suggest that the grammatical approach is on the right track. They propose the following:

69. pro cannot have a CP/IP as linguistic antecedent.

   pro can have only a nominal antecedent.

Note that this extends to Turkish. In 70, pro can only be interpreted as coreferential with the subject of the sentence, but not with the IP:

70. a. [Mehmet$_i$ problemi   çözdü.]$_k$
       Mehmet   problem.ACC. solve.PAST.
       'Mehmet solved the problem.'

    b. pro$_{i/*k}$ öğretmenini   şaşırttı.
               teacher.POSS.3SG surprise.CAUS.PAST.
       'pro surprised the teacher.'

However, the clause itself can be a subject when it is nominalized:

71. [Mehmet'in   problemi   çözmesi] öğretmenini şaşırttı.
    Mehmet.GEN problem.ACC solve.INF.POSS.3SG.
    'The fact that Mehmet solved the problem surprised his teacher.'

According to Iatridou and Embick, the reason why pro cannot have a CP/IP antecedent is that pro is licensed by Phi-features (number, person, gender), or consists of Phi-features itself. However, an IP/CP lacks such features, as shown in 72:

72. a. I saw [$_{IP}$ John leave]$_i$.

      I saw it, too.

    b. I saw [$_{IP}$ John leave]$_i$ and [$_{IP}$ Mary arrive]$_k$.

      *I saw them$_{i+k}$ too.

If IP had Phi-features, the antecedents in 72b would be plural in number and the plural pronoun could be interpreted as coindexed with the two IPs in 72. Consequently, the incompatibility of pro in an anaphoric relationship with an IP/CP follows.

Turkish disallows both overt and null subjects/objects with Phi-features to be anaphorically linked to IP/CP. In 73, neither the overt nor the null subject can be coindexed with the clause:

73. *[Eğer geç kalırsan]$_i$, o$_i$/pro$_i$ anneni   endişelendirir.
    if   late   remain.2SG it/she/he/pro mother.POSS.2SG.ACC worry.PRES.
    'If you stay out late, it will worry your mother.'

A deictic pronoun in the same position is grammatical:

74. *[Eğer geç kalırsan]$_i$, bu$_i$ anneni endişelendirir.
    if   late   remain.2SG this   mother.POSS.2SG.ACC worry.PRES.
    'If you stay out late, that will worry your mother.'

The plural number feature for the third-person is optional in Turkish as has been previously mentioned, and it may be homophonous with the third-person singular. Thus, subject-verb agreement does not constitute a good test to check whether IP/CP has Phi-features that are in agreement with verbal morphology. Instead, the features of the deictic pronoun can be used. A deictic pronoun, as we have seen in 74, can be in an anaphoric relationship with a CP. It has both a singular *bu* 'this' and plural *bunlar* 'these' form, depending on the number feature of its antecedent. If IP/CP lacks number features, the deictic pronoun does not agree with its antecedent in number. Consider 75:

75. a. [Enflasyon arttı]$_i$.
      inflation   increase.PAST.
      'Inflation has increased.'

    b. [Işsiz   sayısı   fazla]$_k$.
      jobless number much.
      'The number of unemployed people is high.'

    c. Bu$_{i+k}$/bunlar$_{i+k}$ hükümeti   önlemler   almaya   zorluyor.
      this/these   government precaution.PLU take.INF.DAT force.PROG.
      'This/These force(s) the government to take precautions.'

The deictic pronoun in 75c can either be singular or plural when it is in an anaphoric relationship with the two IPs in 75a and 75b. If IP lacks number, a plural pronoun should not be acceptable.

Iatridou and Embick investigate cases where the verb gets plural morphology in agreement with a subject that consists of two conjoined CPs. They cite McCloskey, who suggests that this agreement is possible "when the conjoined propositions are contradictory or incompatible, otherwise the verb has to have singular morphology." One example is shown in 76:

76. a. That the President will be reelected and that he will be impeached are equally likely at this point.

    b. That the shares are overvalued and that the decline is in order is/are widely believed in Wall Street.

According to Iatridou and Embick, the verb agrees with the IP/CP subject when the IP/CP is properly individuated, as in 77:

77. **Principle of Individuation:** Clauses trigger plurality only if their contents are properly individuated.

Lexical items like both and equally can be used to favor individuation of states or events. In 78, a plural deictic is not possible because the principle of individuation does not apply, and a deictic pronoun unspecified for number is used, since the one that is marked for plural is not possible:

78. a. [Ali'nin   çalıştığını]   [Ahmet'in   televizyon seyrettiğini]   gördüm.
    Ali.GEN work.Nom.Poss.Acc Ahmet.GEN television watch.Nom.Poss.Acc saw.1SG
    '(I) saw that Ali was working and Ahmet was watching TV.'

  b. Bu/*bunlar beni   şaşırttmadı.
    this/these   I.ACC surprise.CAUS.NEG.PAST.
    'This didn't surprise me.'

To sum up, we have seen that pro in Turkish, as in Greek, Italian, Catalan and Bulgarian, cannot have an IP/CP antecedent. A third-person overt subject is also prohibited from being anaphorically related to the IP/CP antecedent; a deictic pronoun must be used instead. We have seen that Iatridou and Embick's analysis appears to account for Turkish facts as well: IP/CP does not seem to have Phi-Features and the deictic pronoun does not agree unless the clauses are properly individuated. Future research on the prohibition of overt pronoun and pro in an anaphoric relationship with a clausal antecedent in Turkish will hopefully extend these observations.

1.7   Organization of the Study

The rest of the study is organized as follows: Chapter 2 examines which expressions are available for subsequent definite reference. Some related research on English and Turkish is reviewed and discussed. Chapter 3 presents the theoretical framework for the analysis in this study, i.e. Centering Theory and some other approaches to discourse anaphora. Chapter 4 investigates the factors that determine salience assigned to discourse entities and what is predicted to be discussed anaphorically in the subsequent discourse. Chapter 5 explores the discourse functions of null vs. overt subjects and full NPs in Turkish. Chapter 6 is devoted to a crosslinguistic examination of the languages studied in the Centering literature and their findings are compared with the findings in Chapter 5. Finally, Chapter 7 summarizes the study and discusses the conclusions.

Chapter 2

Evoking Discourse Entities, Referentiality, and Pronominalization in Turkish

One important task in the study of anaphoric reference is to specify what a discourse potentially makes available for subsequent reference. This chapter investigates the way in which nominal expressions evoke discourse entities for definite reference in Turkish.

There are cases where overt pronouns and null arguments occur in complementary distribution with respect to the referentiality or nonreferentiality status of their antecedents. Locating the contexts where overt pronouns are prohibited, as opposed to those where they are allowed, is of critical importance. This is because we need to categorize the data according to the availability of an option between overt and null pronouns. Thus, there are two levels of distinctions made between overt pronouns and null arguments. One is that there are cases where no alternation between the two is available. On the other hand, overt vs. null pronouns can be selected depending on the salience assigned to the antecedents and Centering rules. In the analysis of these two complementary tasks of anaphoric reference, Centering Theory is devised to determine the salience and the choice of an appropriate referential expression when speakers have such a choice. Centering does not propose an analysis for evoking discourse entities which enable them to be referred to anaphorically by definite pronouns and full NPs, but rather is concerned with tracking anaphors once they are evoked in the discourse model.

The concern in this chapter is on the form and content of the NPs that first evoke entities in a discourse model. The establishment of a discourse entity is validated by a speaker's reference to that entity with a definite anaphor which confirms and consolidates its existence. This is the approach taken in Karttunen 1976 and Webber 1979, as well.

The chapter is organized as follows. After the background of the problem is discussed in Section 1, and the related research on English is presented in Section 2, the notion of referentiality is given in Section 3 and the relevant research on Turkish is reviewed. Section 4 presents the linguistic

devices that mark referential vs. nonreferential expressions in Turkish. In Section 5, short term discourse entities are discussed. Section 6 is concerned with the different types of pronouns, and finally, in Section 7 the findings in the chapter are summarized.

2.1 Background of the Problem

NPs that do or do not evoke discourse entities have not been studied in detail in Turkish. Dede 1986 and Tura 1986 explore referentiality in Turkish, but they do not discuss referential expressions in relation to future definite reference. The studies done by Dede and Tura will be reviewed in section 3.1. Enç 1991 has studied specificity in Turkish and her work will be discussed in section 4.3.

Erguvanlı 1984, who works on the function of word order in Turkish, has made a brief remark that the use of an overt pronoun is prohibited when the antecedent is a nonreferential expression. Objects that are not overtly assigned accusative case or modified by 'bir' ('one') have been claimed to represent nonreferential expressions (Erguvanlı 1984, and the other references cited in this chapter). Erguvanlı claims that number and definiteness are irrelevant for nonreferential expressions. Therefore, an NP that does not represent a referential expression is not assigned accusative case in the object position and is not modified by the indefinite numeral bir 'one', the devices to mark definiteness and indefiniteness, respectively cf. Tura 1986; Dede 1986.[1] Accusative case marking is overt when the object receives structural case otherwise, the object receives an abstract null case morpheme under the government of the verb or the caseless object is assumed to have undergone incorporation with the verb, which will be discussed later. [2] Accusative case-marking has been claimed to be a definiteness or specificity marker for objects in Turkish. Based on these observations, Erguvanlı defines bir resim ' a picture' as referential in 1a and resim 'picture' as nonreferential in 1c. Erguvanlı claims that an overt object in 1d is not allowed because its antecedent resim 'picture' is nonreferential:

---

[1] Definiteness is also determined by the position of the NP in a sentence. Definite NPs appear either in sentence initial or postverbal positions, while indefinites occur in the immediately preverbal position.

[2] Nominative case is phonologically null in Turkish. All other cases, i.e. dative, ablative, genitive, possessive are marked by overt morphemes.

1. a. Ali kaç   gündür bir resim$_i$ yapıyordu.

    Ali how many days   one picture do-PROG.PAST.

    'Ali was painting a picture for many days.'

   b. Bugün onu$_i$/∅$_i$ bitirdi.

    today it-ACC finish-PAST.(3SG.)

    '(He) finished (it) today'.

   c. Ali kaç   gündür resim$_i$ yapıyordu.

    Ali how many days   picture do-PROG.PAST.

    'Ali was picture-painting for many days.'

   d. Bugün #onu$_i$/∅$_i$ bitirdi.

    today #it-ACC finish-PAST.(3SG.)

    '(He) finished today'.

In 1a, the expression denoted by the NP bir resim 'a picture' is a referential indefinite since it is preceded by the indefinite numeral bir 'one'. Therefore an accusative case-marked overt pronoun onu 'it' can alternate with a zero pronoun to access this entity. On the other hand, resim 'picture' in 1c is a nonreferential expression. Hence, the infelicity of an overt pronoun in 1d follows. It is plausible to assume that if a nonreferential expression is introduced, not to highlight the object that it denotes, but rather to modify the verb, it cannot stand as an independent entity, and therefore cannot be accessed by an overt pronoun. Erguvanlı appears to be making the correct prediction at first glance. Consider he naturally occurring discourse in 2:

2. a. Annem   para   verdi,

    mother.POSS.1SG. money give.PAST.3SG.

    'My mother wanted to give money,'

   b. adam ∅ almadı.

    guy   take.NEG.PAST.3SG.

    'the guy didn't take (it)'.

   b'. #O/∅ çok az   bir paraydı.

    it   very little one money.COP.PAST.

    '(It) was a small amount of money.'

    (Abdüllatif Minkari. 1993. *Bir Cerrahın Anıları.* 51)

In 2a, para 'money' is a bare NP. Following Erguvanlı's claim it represents a nonreferential expression and the use of an overt pronoun to access it will be infelicitous as in 2b and 2b'.

However, Erguvanlı's analysis does not extend to all bare objects and her data appear to misrepresent the facts. First of all, native speakers have stated that in 1a, unless they wanted to stress the number, they would use an NP without the indefinite numeral bir 'one' to refer to a discrete entity. This may be due to Turkish employing two strategies to mark indefiniteness, contrary to Erguvanlı 1984, Dede 1986 and Tura 1986, i.e. a null morpheme and an indefinite numeral bir 'one', corresponding to the English unstressed a/an and stressed one, respectively.

Conclusive evidence for this, however, has to await future research.

The second problem is that the native speakers have also stated that an overt pronoun to access the bare noun resim 'picture' in 1d is felicitous, contrary to Erguvanlı's judgement. This observation is verified in the naturally-occurring data, where speakers refer back to entities represented by bare NPs using overt pronouns. Consider the example below:

3. a. Balık tutacaktık   mutlaka.
   fish   catch.FUT.PAST.1PLU absolutely
   '(We) were certainly going to catch fish .'

   b. Tuttuk   da.
   catch.PAST.1PLU too.
   'And we did too.'

   c. Ben istavrit$_i$ yakaladım.
   I   mackerel catch.PAST.1SG.
   'I caught (some) mackerel.'

   d. Avladığım   ilk   balıktı   onlar$_i$.
   Hunt.Rel.1SG. first fish.PAST they.
   'They were the first fish I ever caught.'
   (Gülderen Bilgili. 1987. *Bir Gece Yolculuğu* :63)

Note that istavrit 'mackerel' in 3c is not modified by any indefinite modifier as biraz 'some, or bir 'one'[3] yet it is accessed by an overt subject pronoun onlar 'they' in 3d.

Nevertheless, Erguvanlı has identified and pointed out an important observation in Turkish discourse. Since her study concentrated on word order, her remarks on prohibition of overt pronouns in nonreferential contexts were limited to brief remarks and they need to be elaborated on with a study on pronouns. This need constitutes the motivation behind this chapter. With this in mind, we now turn our attention to some related research on English.

2.2   Some Related Research on English

Karttunen 1976, in his pioneering research study, distinguishes indefinite NPs that can serve as antecedents for definite pronouns from those that cannot, labeling the former discourse referents. Later work was done by Webber 1979, 1981 and Heim 1982, 1983. In the following, their research will be reviewed.

2.2.1   Karttunen 1976

Karttunen specifies the contexts that provide future reference for a novel individual introduced into the discourse. For example, the utterance "Bill is not a linguist" (Karttunen 1976:365), is not

---

[3]Note that balık 'fish' is a count noun in Turkish, and it can be modified by bir ' one'.

31

about two individuals, it is about Bill. It is out of question that a future reference will contain "the linguist which Bill is not". However, "a car" in the following example (from Karttunen 1976:366) may be followed by information about that specific car:

4. a. Bill has a car.

    b. It is black.

NPs that introduce individuals into the discourse for subsequent reference, such as a car in 4a are coined as discourse referents by Karttunen. Karttunen distinguishes discourse referents from NPs under the scope of negation and those that appear as complements of modal verbs or some main verbs like expect, try, plan, intend. The latter do not establish discourse referents. On the other hand, a class of verbs, which Karttunen calls implicatives as manage, venture, remember, see, fit imply the existence of their complement unless they are negated. Thus, an indefinite NP in an affirmative sentence establishes a discourse referent if the proposition represented by the sentence is asserted, implied, or presupposed by the speaker to be true. The complements of a group of intensional verbs like need, promise, want do not introduce discourse referents even if the sentence is not negated, as in 5:

5. a. I needed a car.

    b. #It was a Mustang.

The life-span of discourse referents depend on whether they are asserted to exist in non-modal or modal contexts. While long-term referents can last throughout the discourse, short-term discourse referents in a group of modal contexts can only serve as antecedents for definite anaphors provided that they sustain the same modal contexts that they occur in. These will be discussed later in some detail.

2.2.2 Webber 1979; 1981

Webber shows that the form and content of NPs that evoke discourse entities contribute to the interpretation of definite pronouns and full NPs.

As has been previously stated, Webber's term discourse entities corresponds to Karttunen's discourse referents. Discourse entities may be individuals, sets, events or actions and they are the main constructs of Webber's notion of discourse model, which corresponds to Lyons' universe of discourse, Heim's file cards, and Kamp's discourse representations. Discourse entities are conceptual coathooks on which descriptions are hanged. A discourse model contains a set of entities evoked into a discourse and makes available the interpretation of definite reference or member-set relations as in one-anaphora in referential contexts, as in "John has bought five candies and he gave me one".

Webber, like Sidner and Grosz, Joshi, and Weinstein 1983,1986, distinguishes the notion of reference from evoke or access. Speakers refer to objects, but discourses evoke or access entities. A speaker refers to an object, person, etc. which corresponds to a discourse entity. The first mention evokes an entity in the discourse model, and the subsequent mentions access the corresponding

discourse entity.

Webber constructs complex semantic representations including quantification over a set of individuals. In Webber's theory, initial descriptions (IDs), the first mention of an entity, are special since they involve information about an entity that can be assumed to be shared by the speaker and the hearer alike. Thus, the speaker assumes it is an inference that the hearer can make at least initially. A crucial aspect of Webber's theory, is that IDs can be left unspecified. This may be due to the ambiguity of the scope of negation as in 6: Bill either didn't marry a blonde but married someone else or there is no such blonde at all. In the same vein, 7a has two interpretations: there is a woman Bill is involved with and she is in jail, or there is not such a woman. Both of these interpretations are available initially, and they are disambiguated in the subsequent discourse.

6. a. Bill didn't marry a blonde.

   b. She had red hair.

7. a. Bill didn't marry.

   b. She is blonde.

   b'. She is in prison.

Webber's rules, which apply successively, are presented below for the sake of completeness. In her theory, every clause is first syntactically parsed. This creates an input to he semantic interpretation-Level 1 representation. Level 1 representation supplies semantic information like possible scope assignment of quantifiers, selectional restrictions, the argument structure. At this level, ellipsed verbs and scope assignment remain unresolved. IDs are formed at Level 2 representation.

Webber suggests that in order to form appropriate IDs the following requirements must be fulfilled: Definite and indefinite NPs and singular and plural NPs should be distinguished. Furthermore, for each modifier in a plural NP, it should be determined whether it conveys information for the whole set denoted by the NP or whether about the individual set-members. For example, in an utterance like Bruce gave Wendy five dollars, the NP five dollars can either evoke a set or individual entities and the entity is accessible for the individual reading, as in one of them was counterfeit, or for the set reading as in it was more than he gave Sue. Any VP ellipses should be resolved prior to ID formation. Quantifier scope assignment must be determined.

2.2.3   Sidner 1981

Sidner concentrates on tracking anaphora in discourse rather than evoking entities and her theory will be discussed in detail in Chapter 3. Here, the relevant part of her study will be presented briefly. Sidner's (1981:217)cognitive elements correspond to Karttunen's discourse referents and Webber's discourse entities. Sidner, like Webber, keeps the term to refer for the act of a speaker performed by using the language. Thus, words themselves do not refer but they specify or co-specify a cognitive element.

In the following example, the NP green apples specifies a cognitive element in the hearer's mind. The speaker uses the information in a cognitive representation. A cognitive element is called the specification of green apples. Cognitive elements are present in the memories of speakers and hearers and are related to other cognitive elements. For example, the pronoun they in 8 specifies the same cognitive element green apples does. Since both NPs bear the same relation to the representation of apples they co-specify that cognitive element.

8. a. I think green apples taste best.

b. And they make the best cooking apples, too.

Sidner states that specifications represent the objects referred to, they bear a well-structured correspondence to the objects in the real world. For phrases such as Santa Claus, where there is no world object, a specification represents the mental schema to which are attached the properties normally associated with the imaginary person.

Sidner shows that pronouns do not always have to co-specify cognitive elements. For example, in 9, the pronoun they is used to refer to the whole class of bikes, while a monster Harley 1200 mentions only some particular Harley 1200. Even if a phrase and a pronoun do not co-specify, the specification of the phrase may be used to generate that of a pronoun:

9. a. My neighbor has a monster Harley 1200.

b. They are really huge but gas-efficient bikes.

As a result of this observation, Sidner proposes that the pronoun interpretation is not simply finding out the antecedent, but some additional process must generate a specification for the anaphor from the related phrase a monster Harley 1200.

2.2.4   Heim 1982, 1983

Heim develops a file change semantics akin to Kamp's 1981 Discourse Representation Theory (DRT) to account for definiteness and indefiniteness. Only an indefinite NP that introduces a discourse referent in Karttunen's sense can open a file card in the hearer's mind. A definite NP, on the other hand, has to be familiar and the corresponding file card must be in the domain of an already existing file. Heim revives the traditional approach to (in)definiteness, which was proposed by Chistophersen and Jespersen, later termed as familiarity theory by Hawkins 1978. Familiarity theory basically states that A definite is used to refer to something already familiar, and an indefinite is used to introduce a new referent.

Every file card is assigned a referential index with a number and it mediates between language and world. A hearer has a stack of zero file cards in his/her mind and as soon as s/he hears a discourse as in 10, a metaphorical file clerk starts writing the entries on the files, as shown below:

10. a. A woman was bitten by a dog.

b. She hit it.

c. It jumped over the fence.

For every indefinite the hearer starts a new file card, and for every definite the existing file

card is updated. A novel definite as in inferrables such as a bus, the driver, where the driver is introduced for the first time into the discourse model via the mention of a bus is accommodated by a set of accommodation rules mapping it onto the existing file card.

Sentences are generated on various levels of representations one of which is the Logical Form. Each logical form is assigned a file change potential. Heim's system also includes an assignment of truth conditions to files. If a file represents facts, i.e. meets the truth conditions, then a sequence of individuals satisfies the file: ¡a1, a2¿ satisfies F1 iff a1 is a woman, a2 is a dog, and a2 bit a1. An imaginary file clerk then changes the files as every proposition p determines a file change from F to F': F+p=F", which reads on the result of updating F on account if p is F'. This file change is filtered out by the well-formedness conditions such as disjoint reference.

The domain of a file F is the set that contains every index of some card in the file. For File 1, for example, Dom (F1) =(1, 2), which means that in File 1, there are two cards numbered 1 and 2. A novel NP is not yet in the domain of any file, and a new file has to be created if it establishes a discourse referent.

Heim uniformly distinguishes NPs that do not evoke discourse entities from those that do not. Karttunen has shown that nonspecific indefinites do not introduce discourse entities if they are within the scope of negative operators, quantifiers, yes/no questions, or when they are complements of intensional verbs like want and need . Heim suggests that intensional verbs, negation, conditional alike involve operators which take scope over an indefinite like other operators, i.e. genericity, questions and quantifiers.

Heim (1982:393) explains Karttunen's examples cited in (11) and (12) below as follows: "[b]oth "want" and "know" involve universal quantification over a certain set of possible worlds, in one case the set of worlds that conform to the subject's desires, in the other case the set of worlds which are compatible with the subject's knowledge. The worlds that conform to someone's desires often do not include the actual world; but the worlds that conform to someone's knowledge always do, that is what makes "know" factive." Heim accounts for the acceptability of pronouns in 12b by accommodating a card in John's knowledge-world.

11. a. John wants to catch a fish.

b. Can you see it here?

12. a. John knew that Mary had a car.

b. But he had never seen it.

Therefore, the life-span of a discourse entity starts with a card's addition to the file and ends with that card's elimination from the file (Heim, 1982:283).

2.3   Referentiality

2.3.1   Related Research on Turkish

Dede 1986 and Tura 1986 both investigate referentiality and definiteness in Turkish. Both studies pursue the same approach, but they complement each other in that Dede examines verbal sentences, while Tura analyzes existential sentences. Hence, the following discussion of Dede incorporates both studies.

Dede (1986:148) defines referentiality following Givn 1978 as "the speaker's intent to 'refer to' or 'mean' a nominal expression to have a non-empty reference -i.e. to exist - within a particular universe of discourse." Definiteness, on the other hand, is defined after Chafe 1976 as being at the consciousness of the addressee at the time of utterance. Based on these definitions, Dede establishes six statuses of subjects and objects in Turkish concerning referentiality and definiteness:

(i) definite-referential

(ii) definite-nonreferential

(iii) indefinite-referential

(iv) indefinite-nonreferential

(v) nondefinite-referential

(vi) nondefinite-nonreferential

Subject NPs that are used with possessive morphemes and those that are modified by deictic terms have referential interpretation in non-modal contexts (i.e. in contexts out of the scope of negation, future, generic, modal verbs, etc.). Word order plays a significant role in determining definiteness. Indefinite or nondefinite NPs occur in preverbal position. An NP in sentence initial position is always definite unless it is stressed. Dede proposes that stress on NPs triggers nondefinite, nonreferential status. For example, in 13B, Dede (1986:153-154) suggests that if NP saat 'clock' is stressed, "the identity of the subject NPs is irrelevant...In other words, the subject NPs are incorporated into the verbs." However, when the stress is on the verb, the NP has a referential, definite interpretation:

13. A: Bu   ses   ne?   Ne   oluyor?
       this sound what? what happen.PROG
       'What is this sound? What is happening?'

    B: Saat çalıyor.
       clock strike.PROG.
       'The clock is striking.'

Dede (1986:154) shows that nondefinite NPs are those that are not marked for number in the preverbal position as çocuk 'child' in 14:

14. Yerde   çocuk yatıyordu.
    ground.LOC child   lie.PROG.PAST
    'On the ground child was lying.'

Bare objects have been claimed in the literature to be incorporated and nonreferential (see the references cited in this chapter on Noun Incorporation). Dede shows that not all bare objects are incorporated. This is in agreement with the findings in this study as we shall see later. NPs that are not marked for number and definiteness are nondefinite but some can be referential although Dede does not distinguish between those that are referential and those that are not.

Dede suggests that modal operators as future, possibility, negation, conditional, question, probability, genericity are triggers of nonreferentiality. Accusative case is a marker of referentiality in nonmodal contexts. Accusative case-marked objects in generic sentences are definite but nonreferential.

2.3.2   Referential Expressions

In this study a referential expression is described as an NP that evokes a discourse entity in a discourse model. Since "entities. [...] are ascribed the properties and relationships predicated of them in the text" (Webber 1991:111), a discrete referential expression introduced into discourse can always be talked about anaphorically with a definite pronoun or a definite NP.

A referential expression asserts or presupposes the existence of an individual (or set of individuals) that could be described by the expression E within the discourse model. In other words, when a speaker uses a noun phrase with expression E, it makes sense to ask 'Which X is E?' (Appelt 1985:198). The physical existence of an object is not necessary, for conceptual entities may also be referential. Hence, fairy is a referential expression in a discourse of fairy tales. Thus, the physical existence is a sufficient, but not a necessary condition for an expression to be referential.

The referentiality depends on the speaker's intention on the particular use of an expression. Prince (1978) gives a discourse analysis of existential presupposition. In her analysis, following some work of Karttunen 1973, all definite NPs are marked as carrying Potential Sentence Presuppositions (PSP). Every PSP corresponds to a Stated Assumption (SA) at the level of discourse. In addition to Stated Assumptions, each individual has a set of Tacit Assumptions, corresponding to NPs that denote humans, and other entities, e.g. Americans, Turks, Henry Smith, etc, along with a set of propositions: Fires may be dangerous, etc. (Prince, 1978: 417). Tacit assumptions only exist in the cognition of individuals, and hence they vary according to each individual. According to Prince, these Tacit Assumptions enable people to speak about entities they may think do not exist, as in a speech about God between an atheist and a believer in God.

Hence, there is an anaphoric relation among Stated Assumptions of two speakers : SA1 is attributed to speaker A, and SA2 is attributed to speaker B. "B can utter SA1, where SA1= SA2 without fear of it being attributed to him." (Prince 1987:421) Stated Assumptions in the discourse models of two speakers thus allow them to talk about entities anaphorically. The hearer will build

a discourse model where the entities in SA1 are introduced by the speaker through the use of referential expressions. Otherwise, Prince notes, it will not be possible to distinguish between the comments of a psychotic and a therapist. The existence presupposition of an expression then includes a set of Stated Assumptions that certain entities are accepted to exist in the discourse models of speakers. These Stated Assumptions can be about objects in the actual or possible worlds.

The existence presupposition covers both attributive and referential expressions in the sense of Donnellan. Donnellan (1966:102) describes this distinction as follows:

> A speaker who uses a definite description attributively in an assertion states that something about whoever is the so-and-so. A speaker who uses a definite description referentially in an assertion, on the other hand, uses the description to enable his audience to pick out whom or what he is talking about and states something about the person or thing. In the first case the definite description might be said to occur essentially, for the speaker wishes to assert something about whatever or whoever fits that description; but in the referential use the definite description is merely one tool for doing a certain job - calling attention to a person or thing - and in general any other device for doing the same job, another description or a name, would do as well. In the attributive use, the attribute of being the so-and-so is all important, while it is not in the referential use.

Referential and attributive expressions approximately correspond to Value Loaded (VL) and Value Free (VF) referential expressions (cf. Barwise and Perry 1983, Grosz, Joshi, and Weinstein 1983, 1986, 1995).

In a sentence like "John is a doctor" the speaker refers to a particular individual named John through a referential expression. If the reference is successful, the hearer will correctly identify the individual. On the other hand, someone might say "The strongest man in the world can lift 450 pounds", without identifying anyone particular in the world. It may also be the case that the speaker has a particular person like Vladimir Jones in his mind, though this additional information does not make him/her expect that the hearer will necessarily pick up the referent. Likewise, when someone utters "the athlete who will win the race tomorrow", s/he may not expect the hearer to pick up the reference to a particular person like John, since the hearer could not possibly know who will fit the description. Nevertheless, it is still reasonable to ask "which runner will win the race tomorrow", for the expression presupposes that there will be such an individual. While John in our example of "John is a doctor" is a referential expression, "the strongest man in the world", and "the athlete who will win the race tomorrow" are attributive in the sense of Donnellan.

The following examples cited in Dede (1986:155) indicate the referential (Value-Loaded) and attributive (Value-Free) readings of the expression Cumhurbaşkanı 'President'. Unlike the approach taken in this study, Dede claims that attributive uses are nonreferential, and she gives the examples to illustrate referential versus nonreferential uses in 15a and 15b, respectively. This

study proposes that both expressions are referential although not in Donnellan's sense. In 15a, there is a particular person that administers the Presidential Office, Mr. Demirel in 1995. In 15b, on the other hand, there is not a particular person who is the president; it refers to any person who is elected for the position. Hence, Cumhurbaşkanı 'President' in 15a is a referential (VL) and the one in 15b is an attributive (VF) expression:

15. a. Cumhurbaşkanı bugün Amerika'dan döndü.
    president   today America.ABL return.PAST.3SG.
    'The President returned from the States today.'

b. Cumhurbaşkanı yedi yılda   bir seçilir.
    president   seven year.LOC one elect.PASS. AOR.
    'The President is elected every seven years.'

Unlike Donnellan's distinction, the term referential in this study covers both referential and attributive expressions. Webber (1979:Chapter 2, pp.12-14) states that the referential/attributive distinction is irrelevant in evoking discourse entities. In either case, there is one and only one individual discourse entity in the speaker's discourse model whether s/he knows anything more about that individual or not. That is all that matters for definite reference. A definite pronoun is used to refer to a unique discourse entity, independent of how many descriptions it satisfies: just as long as the given description is enough to make it unique.

The distinction, however, is relevant in the subsequent reference. Consider 16 cited in Grosz, Joshi and Weinstein (1983:46):

16. a. The vice president of the United States is also the president of the Senate.

b. Historically, he is the president's key man in negotiations with Congress.

c. As Ambassador to China, he handled many tricky negotiations, so he is well prepared for this job.

Both of the pronouns in 16b and 16c are third person singular. The one in 16b expresses no single individual vice president, whereas in 16c the person that is referred to is George Bush, who was the vice president at the time. This can be accounted for by observing that the evoking NP "the vice president of the United States" in 16a contributes to both VF and VL interpretations. Grosz, Joshi, and Weinstein suggest that it is also possible to move the reference from a VF interpretation to a VL interpretation in the next utterance or vice versa. They suggest that although the transition between 16b to 16c may sound unnatural to some speakers, similar sequences are possible. Nonetheless, strong constraints are imposed on the kinds of transitions. If a given utterance forces either a VL or a VF reading, then only that interpretation becomes available in the subsequent utterance. This constraint is also observed in Turkish discourse, as in 17. Speakers cannot proceed with the other reading once they have committed themselves to a certain reading:

17. a. Cumhurbaşkanı her hafta başbakanla görüşür.
     president every week prime minister.WITH meet.AOR.
     'The President meets the Prime Minister every week.'

   b. Ama bu hafta görüşemedi.
      but this week meet.NEG.PAST
      'However, s/he couldn't meet (him/ her) this week.'

   c. Her ay bakanlarla toplantı düzenler.
      every month minister.PLU.WITH meeting arrange.AOR.
      '(S/he arranges a meeting with the ministers every month.'

In 17a, both VF and VL readings are available. In 17b, however, the VL reading is enforced on the partial information given in 17a. This imposes the same reading in 17c, which might have been ambiguous at the discourse initial position.

The discussion so far has shown that a discourse entity can be unspecified with respect to VL and VF readings. As the speaker incrementally builds the discourse, s/he builds and maintains a discourse model in which s/he attempts to direct the hearer via the reference. The pronominal anaphora can then be conceived as a set of tacit instructions to the hearer for synthesizing a discourse model which equates as closely as possible to that of the speaker. This observation supports the findings of Situation Semantics Theory (Barwise and Perry 1983; Tın and Akman 1992 and the references therein) that utterances convey partial information.

2.3.3   Nonreferential Expressions

A nonreferential expression does not create a new file card or evoke a discourse entity, and cannot be discussed anaphorically by definite reference in the subsequent discourse. It is impossible to ask a question like 'Which X is E?' for a nonreferential expression E.

Referentiality vs. nonreferentiality in Turkish is marked by various linguistic devices. (Tura 1986; Dede 1986; Erguvanlı 1894). These factors are discussed below.

2.4   Referential Contexts and Discourse Entities in Turkish

In the following section, referential and nonreferential contexts and their roles in evoking discourse entities will be discussed. It will be shown that only referential expressions can become discourse entities and can be talked about subsequently using definite reference.

2.4.1   Predicative Nominals

An indefinite predicative nominal will not evoke a discourse entity (Kuno 1970; Webber 1979; Appelt 1985) as exemplified in 18a.

18. [talking about the competition in the exams.......]

    a. Her   şey   sonsuz bir yarış$_i$.

       every thing endless one race/competition.

       'Everything is an endless competition.'

    b. Ben sevmem   yarışları/#onları$_i$.

       I   like.NEG.1SG. competition.PLU.ACC

       'I don't like competitions.'

    c. Birileri   mutlaka çiğnenecektir   yarışlarda.

       one.PLU. definitely step.PASSIVE.FUT. competition.PLU.LOC.

       'Some people will definitely be stepped on in competitions.'

       (Gülderen Bilgili. 1987. *Bir Gece Yolculuğu* :65)

In 18a, yarış 'competition' is a predicative nominal. Note that one cannot ask 'Which competition don't you like?' to single out the entity. It does not evoke a discourse entity that can be accessed by a definite pronoun. It has to be mentioned by a full NP in its second mention in 18b and even in its third mention in 18c.

2.4.2 Situationally Evoked Entities

A discourse entity can either be textually evoked, or it can be situationally evoked by pointing at some entity in the perceptual field (Prince 1981a). If a cat enters the room, its appearance makes it a salient entity and enables the speakers to refer to it. Likewise, the modification of a noun by demonstratives as in 19 is used for situationally evoked entities. Possessive marked NPs also evoke entities unless the existence of the entity is denied within the scope of negation.

In example 19, şu öğrenci 'that student' is situationally evoked:

19. Şu   öğrenci seni   bekliyor.

    that student you.ACC wait.PROG.3SG.

    'That student is waiting for you.'

    (Dede 1986:150)

2.4.3 Accusative Case

Erguvanlı 1984 and Dede 1986 have emphasized the function of accusative case as a marker of both definiteness and referentiality.

Enç 1991 claims that accusative case in fact marks specificity. She devises a theory of specificity, which is closely related to Heim's theory of definiteness. According to Enç, definiteness and specificity are related phenomena because both require linking to previously evoked entities. The difference between definites and specifics in Enç's framework is the relationship with their antecedents. The relationship between the antecedent and the definite NPs (names, pronouns and definite descriptions) is that of an identity relationship which she calls a strong antecedent.

Specific NPs on the other hand, involve the inclusion relation which she calls a weak antecedent. Identity of referents also entails inclusion. Enç assumes that indefinites may be specific or non-specific, while partitives are necessarily specific.

Enç (1991:5) argues that object NPs in Turkish, unlike in English, are never ambiguous with respect to specificity. Specific NPs always receive accusative case, while nonspecific NPs do not carry case morphology as exemplified in 20 cited in Enç (1991:6):

20. a. Odama   birkaç çocuk girdi.
   room.1.SG.POSS.DAT several child enter.PAST
   'Several children entered my room.'

  b. Iki kızı   tanıyordum.
    two girl.ACC know.PROG.PAST.1SG.
    '(I) knew two (of the) girls.'

  b'. Iki kız tanıyordum.
     two girl know.PROG.PAST.1SG.
    '(I) knew two girls.'

If 20b is uttered after 20a, the two girls are included in the set of children evoked. On the other hand, 20b' is about two girls who are not in the set of children in 20a. They are novel in the sense of Heim and thus the NP introduces new discourse entities and a new file card has to be created.

Enç proposes that accusative-case-marked objects as 20b are semantically interpreted as partitives. This interpretation places a constraint on the structure of discourse in addition to the constraint placed by the definiteness of the NP. In Enç's theory of specificity, NPs bear referential indices as in Heim's theory. Enç ensures that all definites are specific by proposing that all NPs carry a pair of indices; the first represents the referent of the NP, and the second represents a previously mentioned discourse entity that it may be related to through the identity or inclusion relationships. The indices themselves bear a definiteness feature. The definiteness feature of the second index determines the specificity of the NP by constraining the relation of the entity to a previously evoked entity. For example, in 20 above, although the NP in 20b carries an indefiniteness index, it is partitive. The familiarity condition requires that it has to be dependent on a previously established file. Since it is required that iki kızı 'two girls' is a subset of birkaç çocuk 'several children', the former NP has a specific interpretation.

Enç's analysis ensures that every definite NP is specific. Since the definite NP has to be dependent on another file card, its second index will assign it a specific index. Enç (1991:9) writes: "The analysis proposed here predicts that there will be no nonspecific definite NPs. As a consequence, all definites in Turkish are predicted to carry accusative case in the object position."

On the other hand, the NP in 20b' carries an index marked for indefiniteness; it is not dependent on a previously evoked entity, and the NP is totally novel in the discourse. Therefore, the NPs in 20b and 20b' are both indefinites, but the nonspecific indefinite in 20b' is more novel

than the specific indefinite in 20b. This analysis assumes that specifics like definites must have their antecedents within the previous discourse, while nonspecific indefinites must be completely novel. A completely novel NP must not have an antecedent within the prior discourse, whereas a specific indefinite has to have one. If the indefinite marked NP is a subset of a previously evoked entity, it will be specific. If it is not linked to another entity, it will be nonspecific.

However, Enç's proposal that NPs in Turkish are never ambiguous with respect to specificity and that every specific NP must carry an accusative case morpheme appears to be too strong. For example, in 21a-b, cited in Tın and Akman 1992, the NP siyah bir araba 'a black car' is not overtly accusative case-marked, and yet it is ambiguous between specific and nonspecific interpretations at the discourse initial position.[4] The use of an overt pronoun in the subsequent utterance disambiguates the reading as specific. Since this specific NP has a wider scope than the operator of the intensional verb, it can create a file card for subsequent definite reference:

21. a. Ahmet siyah bir araba$_i$ arıyordu.

    Ahmet black one car   seek.PROG.PAST

    'Ahmet was looking for a black car.'

    b. Bir süre sonra onu$_i$ buldu.

    a   while later it.ACC find.PAST

    'After a while (he) found it.'

    c. Ama bisikletini   hala bulamadı.

    but   bicycle.POSS.3SG. still find.ABIL.NEG.PAST.

    'But (he) still couldn't find his bicycle.'

Compare 21 with 22. The same NP in 22 does not evoke a discourse entity, because it is nonspecific and is within the scope of an intensional operator along the lines of Heim 1982:

22. a. Ahmet siyah bir araba$_i$ arıyordu.

    Ahmet black one car   seek.PROG.PAST

    'Ahmet was looking for a black car.'

    b. Ama ∅/öyle bir araba bulamadı.

    but   ∅/such one car   find.NEG.PAST

    'But (he) couldn't find (one)/such a car.'

Furthermore, Dede 1986 shows that some NPs in generic sentences are 'optionally' accusative case-marked in the object position in Turkish. Consider 23 cited Dede (1986:157) and 24:

---

[4]However, in a footnote Tın and Akman write that the discourse is more coherent if the NP is accusative-case marked. The native speakers I consulted reported that 21 is more coherent without accusative case.

23. a. çocuklar çukulata sever.
      child.PLU chocolate like.AOR
      'Children like chocolate.'

   b. Çocuklar çukulatayı   sever.
              chocolate.ACC
      'Children like chocolate.'

24. Bizim evde   çay(ı)   her zaman Aytül yapar.
    our   house.LOC. tea.(ACC) all time   Aytül make.AOR.
    'Aytül always makes tea in our family.'

Erguvanlı (1984:19) proposes that animacy plays an important role in the assignment of accusative case in generic sentences. NPs that denote animates have to be marked by the plural morpheme -ler and the accusative case at all times, while nonanimates can be bare as in the following examples (Erguvanlı 1984:19):

25. a. Ben insan-lar-ı   severim.
       I   human.PLU.ACC like-AOR.1SG.
       'I like people/human beings.'
   b. *Ben insan severim.
   c. *Ben insan-lar severim.

In 25b and 25c, singular insan 'person' and plural insanlar 'people' are not grammatical, the NP has to be plural and overtly accusative case-marked.

On the other hand, inanimate entities can appear as bare noun phrases in the object position. They can appear without an overt indefiniteness marker, i.e. the indefinite numeral bir 'one' and definiteness markers like accusative case, possessive morphemes, and demonstratives. (Erguvanlı 1984:19-20):

26. a. Ben elma severim.
       I   apple like-AOR.1SG.
       'I like apples.'

   b. Ben elmayı   severim.
          apple.ACC
      'I like the apple.'
   c. *Ben elma-lar severim.

To sum up, accusative case marking functions as definiteness and specificity marker. In generic sentences, it has to be present when the entity denoted is animate or rather human, while it can be optional in a generic sentence when the object is inanimate. It appears that accusative case has a function to uniquely identify and distinguish one entity to the exclusion of others.

2.4.4 Generics

NPs in generic sentences are considered to be nonreferential expressions by Erguvanlı 1984 and Dede 1986. However, an accusative case-marked NP in a generic sentence can serve as an antecedent for a definite pronoun provided that the antecedent is uniquely identified and distinguished from all other objects. For example, in 27, the speaker can use an overt pronoun to refer to the generic object.[5] However, an overt pronoun can access the entity only when it 'exhausts' the whole category denoted by the NP.

27. A: Ben sütü   severim.
        I   milk.ACC. like.AOR.1.Sg.
        'I like milk.'

    B: Ben onu   sevmem.
        I   it.ACC. like.NEG.AOR.
        'I don't like it.'

        çayı   tercih   ederim.
        tea.ACC preference make.AOR.1Sg.
        '(I) prefer tea.'

Note that in 27B, the overt definite pronoun is acceptable, while in 28b only null indefinite anaphora can be used. This is because the milk the speaker drinks in 28b is only a subset of the category, and thus, the overt pronoun cannot exhaust the whole kind. Hence the infelicity of the overt pronoun follows.

28. a. Ben sütü   severim.
        I   milk.ACC. like.AOR.1.Sg.
        'I like milk.'

    b. ∅/#onu   her   gece içerim.
         it.ACC. every night drink.AOR.1SG.
        '(I) drink (some) every night.'

When someone says 'The butcher sells good meat' as in 29a meat denotes the category rather than distinguishing some particular amount of meat. Thus, it cannot function as a discourse entity and cannot be accessed by a definite pronoun, while a null argument is acceptable, as indicated in 29b:

29. a. Kasap iyi   et   satar.
        butcher good meat sell.AOR.
        'The butcher sells good meat.'

    b. Ben hep   #onu/eti/∅ ondan   alırım.
        I   always it/meat/∅ he.ABL buy.AOR.1SG.
        'I always buy (it) from him.'

---

[5]Note the list reading in this sentence imposes prosodic prominence on the object (i.e. phonological focus).

If the generic operator quantifies over the denotation of an NP, an overt pronoun cannot be used to denote a subset of that category, but a null pronoun is felicitous. If an overt pronoun is used, it must be completely identical to its referent and cannot be a subset of it.

2.4.5 Negation

Indefinite nonspecific NPs within the scope of a negative operator cannot evoke discourse entities, since negation creates a referentially opaque context. Tura (1986:172) writes: "Negation is the strongest operator that affects statuses of (in)definite NPs in existential sentences. It imposes the condition that there are no identifiable referents for the NPs in its scope." This observation is exemplified in 30:

30. Bahçede   köpek yok.   Korkma.
    garden.LOC dog   not-exist. afraid.be.NEG.
    'There is no dog in the garden. Don't be afraid.'
    (Tura, 1986: 172)

Example in 31b also shows the referentially opaque context created by the negation operator:

31. a. A: Kızla   buluşacağım   bu akşam.
          Girl.WITH meet.FUT.1SG. this night.
       '(I) will meet my girl friend tonight.'

    b. Şemsiyem de   yok   üstelik.
       umbrella. too not exist besides.
       'And besides I don't even have an umbrella.

    c. B: Ben sana   ∅/#onu   bulurum.
          I   you.DAT. find.PRES.1SG.
       'I'll find you one.'
       (Özdemir Başargan, 1979 Gurbet Sofrası: 370)

In 31b, şemsiye 'umbrella' is a nonreferential expression, and although a null pronoun can be used as in 31c, an overt pronoun is prohibited. The null pronoun functions as an indefinite anaphora analogous to nonspecific one-anaphora in English, as obvious in the translation.

Compare 32 with 33. In the utterance 33b, the speaker takes it for granted that the water existed, while the existence is denied in 32a. Consequently, the utterance in 32b is not felicitous because of the nonreferential NP in the negative context in 32a, while 33b is felicitous.

32. a. Musluktan   bir damla su   akmıyordu.
       faucet.ABL. one drop   water flow.NEG.PROG.PAST.
       'Not even a few drops of water were flowing from the faucet.'

    b. #O da bulanıktı.
       it   too muddy.COP.PAST
       'And it was muddy.'

33. a. Musluktan   bir damla su   akıyordu.
       faucet.ABL. one drop   water flow.PROG.PAST.
       'A few drops of water were flowing from the faucet.'

   b. O da   bulanıktı.
       it too muddy.COP.PAST
       'And it was muddy.'

However, negation does not create a referentially opaque context if an adverb like artık 'any more' which presupposes that the referent existed in the past is used. Due to this presupposition, in 34a ev 'house' can evoke an entity that can be accessed by the subject and object definite pronouns o 'it' in 34b and onu 'it' in 34b', respectively:

34. a. Artık   Ali'nin   evi   yok.
       any more Ali.GEN. house.POSS.3.Sg. not.exist.
       'Ali doesn't have a house any more.'

   b. O geçen hafta satıldı.
       it. last   week sell.PASS.PAST.
       'It was sold last week.'

   b'. Onu   geçen hafta sattı.
        it.ACC last   week sell.PAST.
        '(He) sold it last week.'

In addition, as has been previously mentioned, Webber 1979 shows that the scope of negation can be potentially ambiguous in English. This ambiguity is also observed in Turkish. For example, in 35, either the existence of a Swede or Ali's marrying her is denied. The ambiguity is resolved in the subsequent discourse: in 35b the reading Ali's not marrying is forced. On the other hand, when 35b' is uttered, the nonexistence of the entity is confirmed. Note that since in this reading the entity is not evoked in 35a, the NP in 35b' should be novel.

35. a. Ali bir Isveçli$_i$ ile   evlenmedi.
       Ali one Swedish with marry.NEG.PAST.
       'Ali didn't marry a Swedish.'

   b. Onunla$_i$ birlikte   oturuyor.
       she.WITH together live.PROG.
       'He lives with her.'

   b'. Aslında öyle bir Isveçli yok.
        In fact   such one Swede exist.not
        'In fact, no such Swede exists.'

To sum up, nonspecific NPs within the scope of negation do not evoke discourse entities. Nevertheless, the scope of negation can be ambiguous, and in these cases a single reading may not be available at first. In subsequent discourse, the entity may be confirmed by the use of definite

reference or denied, and thus the ambiguity will be resolved.

Such partial information is not only due to scope ambiguities. As has been previously discussed, referential expressions may be ambiguous in terms of their Value Free and Value Loaded readings, and NPs can be ambiguous in terms of specificity and incorporation.

2.4.6   Yes/No Questions

Indefinite nonspecific NPs within the scope of yes/no questions do not evoke entities:

36. A: Ali yeni bir araba mı   aldı?
       Ali new one car   QUEST buy.PAST.
       'Did Ali buy a new car?'

    B: Hayır, evini   sattıktan   sonra #onu/∅ alacak.
       No   house.POSS.3SG.ACC sell.NOM.ABL after it.ACC. buy.FUT.
       'No, he'll buy one when (he) sells his house.'

In 36A araba 'car' is a nonreferential expression. As a result, only indefinite null anaphora is allowed, as in 36B.

2.4.7   Noun Incorporation

It has been previously stated that definite direct objects in Turkish are overtly accusative case-marked, while indefinite objects do not have overt case markings. Indefinite objects are modified by numeral bir 'one' and indefinite quantifiers bazı, biraz 'some', bir kaç 'a few' and these objects are not overtly accusative case-marked unless they are specific (see the discussion of Enç 1991 above). There is another set of objects which are neither overtly accusative case-marked nor modified by the indefinite numeral or any other modifier. These objects will be referred to as bare objects[6] and it will be investigated whether they can be discourse entities.

Objects that are not case-marked behave differently than those that are case-marked. One such difference is that the former are strictly adjacent to the verb in the preverbal position, while

---

[6]There is a set of bare objects in Turkish that is excluded in the discussion. One type is the nominal part of idioms. These parts can be represented with a zero across sentences. However, since idioms are listed in the lexicon, and the verb and its complement have lost their original meaning, the object will never be an independent expression.

Furthermore, languages which allow object drop, like Mandarin Chinese and Turkish, do not allow a zero indirect object unless it has an antecedent within the previous discourse. These languages avoid zero objects in discourse initial positions by using either dummy or cognate objects, e.g. yazı yazmak ' literally 'to write writings' (Allerton, 1975:223). These dummy or cognate objects are bare as in the cognate object yemek 'food' in yemek yemek 'to eat' are not independent constituents. These objects can also be mentioned by null objects in the subsequent discourse, but can never be accessed with overt pronouns.

The bare objects of periphrastic verbs like etmek 'to do' never evoke discrete entities. The periphrastic verbs form a verbal complex with a nominal argument, mostly borrowed from foreign languages and listed in the lexicon as a single unit. Since Turkish, as other languages, resists adapting any foreign verbal morphology, it either borrows the noun or nominalizes the foreign verb to form a verbal complex with a native periphrastic verb. Some examples are as in ameliyat etmek 'lit: to do an operation / to operate on someone' and telefon etmek 'lit: to do telephone / to telephone'. The nominal part of such verbs can be zero across utterances in a discourse but can never be accessed with overt objects.

the latter can scramble to various positions in a sentence. (Erguvanlı 1984; Erkü 1983; Knecht 1986, among others). Objects that are not overtly case-marked cannot occur in sentence initial or postverbal positions, but are strictly anchored to the preverbal slot. They cannot be separated from the governing verb by an NP or by an adverbial. For example, in 37, while the accusative case-marked kitabı 'the book' can be separated from the verb by an adverb; the bare object should be anchored to the preverbal position; except one particular set of particles de 'too', bile 'even' and yes/no question particle mI :

37. a. Ali kitabı   yavaş yavaş okuyor.
       Ali book.ACC. slow   slow   read.PROG.
       'Ali is reading the book slowly.'

    b. Ali yavaş yavaş kitap okuyor.
       Ali slow   slow   book read.PROG.
       'Ali is reading (some) book(s) slowly.'

    c. *Ali kitap yavaş yavaş okuyor.

    d. Ali kitap da okuyor.
       Ali book too read.PROG.
       'Ali is reading (some) book(s) also (as well as some other things).'

    e. Ali kitap mı   okuyor?
       Ali book QUEST read.PROG?
       'Is it (a) book(s) that Ali is reading?'

The immobility of bare objects has led some researchers to argue that they undergo a process of Noun Incorporation (NI), where the object constitutes a semantic unit together with its verb (Nilsson 1984; Knecht 1986, and the references therein; Kuribayashi 1990a, 1990b for various syntactic treatments of NI in Turkish). In NI, the incorporated bare object modifies the verb and loses its independent semantic status. The definiteness and the number of the item denoted are irrelevant (Erguvanlı 1984; Hoffman 1991). Due to this, these types are called 'nondefinite' (Dede 1986), or 'categorial' (Nilsson 1984).

2.4.7.1   Bare Objects, Noun Incorporation and Referentiality

Nilsson 1984, Knecht 1986 and Kuribiyashi 1990a, 1990b have proposed that since a bare object loses its semantic independence, it will always be nonreferential. If so, incorporated bare objects will not evoke discourse entities. However, it does not appear to be the case that all bare objects are incorporated and lose their semantic independence. Nilsson (1991:100) writes

> [t]he choice between non-marking and marking [i.e.by accusative case] in the expression
> 'read the Koran' (Kuran / Kuranı oku) could not be related in the usual way to the
> contrast between "non-referring" and "referring", since 'Koran' stands for something
> unique and is therefore in some sense always a referring term, like proper nouns...
> [italics A.D.T.]

49

Furthermore, Dede (1986:148) classifies two categories of bare objects depending on whether they are referential vs. nonreferential expressions. She shows that NPs that are not modified by indefinite numerals or quantifiers occur in contexts where identifiability of the entity is irrelevant. There are two cases where the identifiability of the referent is irrelevant.

(i) The referent is identifiable by the speaker but he does not feel it necessary for the hearer to pick it out. That is, the speaker is not interested in the identifiability of the entity involved; he is interested in conveying the class membership of the referent.

Dede exemplifies this by the following example:

38. Bugün Ali'ye   çorap aldım.
    today Ali.DAT sock   buy.PAST.1SG
    'Today I bought socks for Ali.'

(ii) The referent constitutes an integral part of the meaning of the verb. That is, it is incorporated into the verb.

39. Aytül kitap okuyor.
    Aytül book read.PROG.3SG.
    'Aytül is reading (a) book.'

Dede argues that, in 39, the speaker's intention is not to make his/her hearer identify the entity, but to modify the action of "reading", and therefore, the noun undergoes incorporation. Dede argues that NPs of 'class membership' type in (i) above, can be referential or nonreferential expressions depending on the context, whereas the 'incorporation' type in (ii) will never be referential. For the sake of convenience, Dede's former class will be called 'class-membership' and the latter 'incorporated' in the discussion below.

Dede does not explicitly state that the use of definite reference is only allowed if the antecedent is a referential expression. Nevertheless, in 40 (cited in Dede 1986:161), Dede defines çorap 'socks', elbise 'dress', and ayakkabı 'shoe' as referential expressions. As evidence she suggests that they can be accessed by the quantifier hepsi 'all' in 41b (Dede, 1986:161) :

40. a. Dün   Ali'ye   çorap, Pınar'a   elbise, Aytül'e   ayakkabı aldım.
       Yesterday Ali.DAT. socks, Pinar.DAT. dress., Aytül.DAT shoe   buy.PAST.1SG.
       'Yesterday I bought socks for Ali, a dress (dresses) for Pinar (a pair of) shoes for Aytül.'

    b. Hepsini   de beğendiler.
       All.ACC. too like.PAST.3PLU.
       '(They) liked all (of them).'

Dede claims the same expressions will be nonreferential under the scope of future tense, and hence these NPs will not serve as antecedents for subsequent reference (Dede, 1986:161-162) :

41. a. Yarın   Ali'ye   çorap, Pınar'a   elbise, Aytül'e   ayakkabı alacağım.

     Tomorrow Ali.DAT. socks, Pinar.DAT. dress., Aytül.DAT shoe   buy.FUT.1SG.

     'Tomorrow I will buy socks for Ali, a dress(es) for Pinar, shoes for Aytül.'

    b. #Hepsini de   beğendiler.

     All.ACC. too like.PAST.3PLU.

     '(They) liked all (of them).'

According to Dede (1986:161), 41b is infelicitous because "at the time of utterance, the referents of the NPs are not yet existent for the speaker." However, Dede does not mention cases as in 42 where the reference is acceptable. Thus, if one accepts that the accessibility of an expression with a pronoun is an indicator of its referential status, then these expressions are referential:

42. a. Yarın   Ali'ye   çorap, Pınar'a   elbise, Aytül'e   ayakkabı alacağım.

     Tomorrow Ali.DAT. socks, Pinar.DAT. dress., Aytül.DAT shoe   buy.FUT.1SG.

     'Tomorrow I will buy socks for Ali, a dress(es) for Pinar, shoes for Aytül.'

    b. Umarım   hepsini/onları   beğendiler.

     hope.PRES.1SG All.ACC/they.ACC like.PAST.3PLU.

     'I hope (they'll) like them all.'

The contrast between 41 and 42 show that reference should be made in the same context. If tense is considered to be a modal operator, the reference to the entity should be made in the same modal context. Alternatively, if tense/modality is taken to be a discourse anaphor as suggested by Webber (1988 and the references therein), it is conceivable that these two types discourse anaphors interact, and that tense/aspect constrains the use of pronominal anaphora.

Dede argues that objects that have undergone incorporation will always be nonreferential, as she exemplifies in 43a (Dede 1986:162):

43. a. Aytül kitap okuyor.   çok   ilginç.

     Aytül book read.PROG.3SG. very interesting.

     'Aytül is reading (a) book(s). That's very interesting.'

    b. Aytül bir kitap okuyor.   çok   ilginç.

     Aytül book   read.PROG.3SG. very interesting.

     'Aytül is reading a book. It's very interesting.'

According to Dede, in 43a, the object is incorporated, forming a unitary constituent with the verb and thus has lost its independence. Dede proposes that, in 43a, what is interesting is Aytül's book-reading, rather than the book she is reading. In 43b, on the other hand, the NP represents a discrete entity that is not incorporated into the verb (note that it is modified by bir 'one'); hence the speaker can refer to it in the subsequent discourse.

However, it will be shown below that the bare object in 43a is not necessarily incorporated. For one thing, native speaker judgments are subtle as far as 43a and 43b are concerned. Some informants reported that both 43a and 43b are ambiguous between the two readings: Aytül's

reading is interesting, and the book she is reading is interesting. Yet, some other informants have reported just the opposite of Dede's judgments. These observations lead one to think that kitap 'book' in 43a is ambiguous. The bare objects in both 42a and 43a can either be referential or nonreferential, because NI is optional in Turkish. When kitap okumak 'to read (a) book' is incorporated, the noun cannot evoke an entity but when NI does not apply, the object evokes an entity. Only in the latter case, can a speaker utter çok ilginç 'It's very interesting' with the null subject pronoun 'it' felicitously accessing kitap 'book' as a discrete entity after an utterance like Aytül kitap okuyor, 'Aytül is reading (a) book(s).'

Below, both evidence and counter-evidence for NI will be presented. I will be propose that NI is optional in Turkish.

2.4.7.2 Arguments for Incorporation

One piece of evidence for incorporation is, as has been previously stated, no NP or adverb can intervene between the verb and its incorporated object. Secondly, an incorporated noun cannot head a relative clause, which implies that the noun is not an independent constituent. In 44a, yemek 'food' is a bare noun, the one in 44b is modified by bir 'one'. Note that only the latter can head a relative clause (Erguvanlı 1984:24):

44. a. *Nazan [hazmı   zor   olan]   yemek pişiriyor.
        Nazan digestion.POSS.3SG. hard be.REL meal   cook.PROG

    b.Nazan [hazmı   zor   olan]   bir yemek pişiriyor.
       Nazan digestion.POSS.3SG. hard be.REL one meal   cook.PROG
       'Nazan is cooking a (food) dish that is hard to digest.

The third evidence for incorporation comes from stress assignment. In lexical compounds, whether verbs or nouns, peak stress is assigned to the primarily stressed syllable in the first element of the compound. Stress cannot be shifted to the head of the compound. The following examples are cited in Knecht (1986: 91) and attributed to Swift:

45. boyÚNbağı 'necktie' (boyun 'neck' bağ 'tie')

    ÉV kapısı 'house door' (ev 'house' kapı 'door')

Knecht proposes that primary sentence stress cannot be assigned to the verb in the case of NI. In 46, the capitalized syllable shows the stressed syllable:

46. A: Murat odasında   mekTUP yazıyor,   değil mi?
     Murat room.POSS.LOC letter   write.PROG not   QUEST?
     'Murat is writing (a) letter in his room, isn't he?

   B: Hayır, yazmıyor.
    no,   write.NEG.PROG.
    'No, (he) isn't.'

    MekTUP okuyor/   *Mektup oKUyor.
    letter   read.PROG
    '(He) is reading (a) letter.'

2.4.7.3   Arguments against Incorporation

On the other hand, there is also counter-evidence for NI in Turkish. As has been pointed out above, certain types of particles (i.e de 'too' bile 'even') can intervene between the verb and the so called 'incorporated' noun.

Secondly, in naturally-occurring data, there are instances where a bare object functions as the head of a relative clause, as in 47 and 48:

47. Kırk yaşında   güzel   bir erkeğin [kandıramayacağı]   kadın   mı   vardır?
    Forty year-3Poss-Loc handsome one man   seduce.NEG.REL.ACC woman QUEST exist
    'Are there (any) woman who a handsome forty year old man can't seduce?'
    (Sait Faik, 1970, *Bütün Eserleri*, 2:48)

In 47, the bare noun kadın 'woman' is the head of the relative clause. If kadın kandırmak *'to woman seduce'* is an incorporated construction, it should not be possible to relativize it. Likewise, if köpek görmek *'to dog see'* is incorporated, the bare object should not head the relative clause in 48:

48. Siz hiç [sesi   kışılmış]   köpek gördünüz   mü?
    you ever [voice.POSS.3Sg. lower.PASS.PAST.REL] dog   see.PAST.2PLU. QUEST
    'Have you ever seen (a) dog that has lost its voice?'

Thirdly, as Erguvanlı (1984:25) suggests, NI should "detransitivize" the verb because the direct object has putatively formed a complex predicate with its verb. If NI really detransitivizes a verb, one would expect that this verb should not passivize, and yet incorporated verbs do passivize in Turkish. In 49, although *oy vermek* 'to vote give' is incorporated, it can be passivized.

49. Onlara   oy   verilir.
    They.DAT. vote give.PASS.AOR.
    'Lit: Vote(s) can be given to them.'

However, as Erguvanlı also states, this cannot be a strong argument for Turkish, because Turkish allows passivization of intransitive verbs as well as transitive verbs as in the following:

50. Geçen hafta dağa   gidildi.

    last   week mountain.DAT. go.PASS.PAST.

    'Lit: Last week, it was gone to the mountain.'/'the mountain was gone to.'

    (Erguvanlı 1984:25)

51. Gir-il-m-ez.

    Enter.PASS.NEG.AOR.

    'Lit: It is not entered/Do not enter.'

    (Knecht 1986: 41)

Passivization is not a strong argument against incorporation since it is conceivable that the incorporated complex verb is passivized as though they are intransitive verbs, as in 50 and 51.

The fourth argument against incorporation, however, is stronger. As Erguvanlı notes, an adverb cannot intervene between an object and its verb even when the object is a referential expression as in 52a and b. Thus, the adjacency requirement is not necessarily limited to the cases of incorporated *bare* objects. Consider 52:

52. a. Murat aceleyle   bir kitap okuyor.

      Murat hurriedly one book read.PROG.

      'Murat is hurriedly reading a book.'

   b. *Murat bir kitap aceleyle okuyor.

          one book hurriedly

   c. Murat bir kitabı   aceleyle   okuyor.

         one book.ACC hurriedly

     'Murat is reading a (certain) book hurriedly.'

     (Erguvanlı 1984:26)

In 52b, an adverb cannot intervene between the verb and its direct object if the object NP is not overtly case-marked. Note that overtly accusative case-marked NP in 52c allows the intervention of the adverb. The object in 52b is a referential expression, not a bare noun.

In conclusion, there is both evidence and counter-evidence for NI in Turkish.

2.4.7.4 NI is Optional

The evidence and counter-evidence for NI discussed above and the indeterminacy as to when bare objects represent referential expressions support the theory that some bare objects in Turkish can optionally undergo a process of incorporation. If incorporation applies, the bare objects cannot behave as discrete entities and independent constituents. They become the part of the complex predicate, and thus they cannot serve as antecedents for definite pronouns. However, when they are not incorporated, they can evoke discourse entities. Consequently, a sentence at the discourse initial position can convey partial information as to whether a bare object is incorporated or not. Consider 53:

53. Aytül kitap okuyor.

Aytül book read.PROG.

'Aytul is reading (a) book.'

The object kitap 'book', in 53, will either be incorporated or a discrete constituent. If it is incorporated, we will have a file card containing information that 'she is book-reading', but the book will not evoke a separate card, as shown in 54a. if it is not incorporated, the object will create a separate file card, as in 54b, and this file card can be updated in the subsequent discourse:

54a.
```
┌─────────────────────┐
│ Aytul:              │
│                     │
│ She is book-reading.│
└─────────────────────┘
```

54b.
```
┌─────────────────────┐
│ Book:               │
│                     │
│ read(Aytul, book)   │
└─────────────────────┘
```

Similarly, Porterfield and Srivastav (1988: 270) observe that, in Hindi, a phrase corresponding to 'read book' is ambiguous between referential and incorporated readings.

2.5   Short-term Discourse Entities

So far, it has been assumed that once a referential expression is introduced, it is available throughout the discourse (but cf. example 41 above). However, not all entities can persist throughout a discourse segment. Consider 55 and 56:

55. a. Eğer Can'ın   çocuğu$_i$ olursa,

If   John.GEN. child.POSS.3SG. be.PRES.COND.

'If John has (a) child,

b. onu$_i$ Adana'da   büyütecek.

s/he.ACC Adana.LOC grow.CAUS.FUT.

'(he) will raise him/her in Adana.'

c. Sonra da onu$_i$ yatılı   okula   gönderecek.

Then too s/he.ACC boarding school.DAT send.FUT.

'And then (he) will send him/her to boarding school.'

c'. #Onu   seviyor   mu?

s/he.ACC love.PROG. QUEST?

'Does (he=Can) love him/her?'

56. a. Ahmet'in   arabası   olduğunu   var   sayalım.
       Ahmet.GEN. car.POSS3SG be.NOM.ACC exist count.1PLU.
       'Let's assume (that) Ahmet has (a) car.'

    b. Onu   havaalanında bırakmış   olabilir.
       it.ACC airport.LOC. leave.PAST be.POSSIB.PRES.
       '(He) may have left it at the airport.'

    c. #Onu   görebiliyor   musun?
       it.ACC see.ABIL.PROG. QUEST.2.SG.
       'Can (you) see it?'

Examples 55 and 56 create hypothetical worlds in which the referents denoted by the NPs are assumed to exist. Thus, the NPs evoke entities which can be accessed by overt pronouns. However, they have a limited life-spa,n and they cannot serve as antecedents for pronouns in 55c' and 56c. Karttunen (1976:375-376) proposes that "[f]ictitious individuals may be referred to anaphorically as long as the proper fictitious mode is sustained, but when the illusion is broken, they cease to exist."

In Heim's (1982:253) theory, a permanent entity is either free in the text or bound by a quantifier whose scope encompasses the entire text. As has been stated, Heim proposes that conditionals, generics, modals and "attitude non-factive" (i.e. intensional) verbs such as 'want' all involve operators. Operators trigger existential closure inside their scope. Thus, NPs within the scope of operators will not be permanent entities, i.e. they will be alive until the end of the scope of the modal or verb, but not beyond. For instance, when someone says "If John buys a book, he must be reading it", the pronoun 'it' is possible because it is within the scope of an operator. This can explain why the definite reference in 55b is possible but the one in 55c' is not. However, note that the pronoun 55c is allowed in spite of the fact that it is beyond the scope of the operator. The reason, Heim suggests, is that pronouns as in 55c and 56b are acceptable, because they are under the same type of operator as in the initial sentences. Heim proposes an accommodation analysis. In a possible world created by suppositions and conditionals, the facts do not include the actual world. Thus, the reference to the actual world is not possible. One has to accommodate a card describing entities in a possible world. Therefore, the reference is well-formed to the extent that both definite pronouns and their antecedents are used to refer to an entity within the same or an equivalent possible world.

Roberts 1989 devises a formal theory of modal subordination within the framework of Discourse Representation Theory (DRT) to account for short-term discourse entities. Mood in Roberts's analysis is a feature of sentence use, not a grammatical feature of verbs; it relates to the speaker's commitment to the truth of a sentence in the actual world. If a speaker indicates by conventional means that a sentence is interpreted as true in the actual world, it is uttered in the factual mood. If a hypothetical assumption is made, or if some question arises about the actual truth of a sentence, then it is uttered in non-factual mood. Some means of indicating non-factual mood are expressions like suppose that, conditionals, adverbials like probably, supposedly, etc.

The speaker who makes a hypothetical suggestion does not commit himself/herself to the truth in the actual world. Roberts uses Kratzer's theory of modality, where necessarily, possibly, would, etc. are modal operators. A sentence like "Ella might lift that refrigerator" can be relativized to the set of possible worlds in which facts about human strength, gravity, etc. are true, and in that world Ella can lift the refrigerator. These possible worlds are subordinated under the Discourse Representation Structures (DRS) of Kamp 1981.

Following Heim, Roberts assumes that conditionals involve an operator, symbolized by the square necessity operator in the DRS above. Both of the clauses in the conditional are in non-factual mood and subordinated. Since there is no modal in 57b, speakers are not directed to interpret the sentence in the non-factual mood. Thus, the two utterances in the discourse are at different levels of DRS, one subordinated, while the other is not. As a result, the anaphoric relation in 57 is impossible. In 58, on the other hand, both utterances in non-factual mood are subordinated and the anaphoric relation is felicitous:

57. a. If John bought a book, he'll be reading it by now.

    b. #It's a murder mystery.

58. a. If John bought a book, he'll be reading it by now.

    b. It'll be a murder mystery.

To sum up, not all entities can endure throughout a discourse segment. However, an entity can be accessed by definite pronouns so long as both are uttered in the same mood.

2.6   Bound Variables and Pronouns of Laziness

This chapter has argued that an overt pronoun should not be in an anaphoric relationship with an NP unless both denote an identical referent. There are two types of intersentential pronominalization phenomena in English where definite pronouns can be in a different type of anaphoric relationship, i.e. they can function as bound variables and pronouns of laziness, as will be shown below. The suggestions made so far predict that overt pronouns in Turkish cannot occur in these cases, and this section investigates whether this prediction is borne out.

Consider 59, where the definite pronouns are anaphorically linked to the quantified NPs. This type of link cannot be that of coreference because, for example in 59a, there is not a single universal mother that every man loves, but rather every man has potentially a different mother whom he loves. By the same token, neither the quantified NPs nor the pronouns in 59a-c denote a unique identifiable male individual. The pronouns in 59a-c are not coreferential with the respective quantified NPs, but they are variables bound within the scope of a c-commanding quantifier and vary among the range of quantified individuals:

59. a. Every man loves his mother.

    b. Nobody thinks he should join the party.

    c. Everyone decided that the whisky is good for him.

Note that overt pronouns in Turkish cannot be in an anaphoric relationship with a quantified NP, as shown in the (a) sentences in 60-62, while they can access a referential expression in the (b) sentences. Since objects in embedded sentences cannot be null when coindexed with their matrix subjects in Turkish (cf. Kornfilt 1984, Erguvanlı 1986, Chapter 1), a logophoric pronoun homophonous with reflexive anaphor kendi or kendisi 'himself/herself' is used as a bound variable:

60. a. Herkes$_i$ (*onu$_i$)/kendisini$_i$ kovan müdürden nefret ediyor.
    everybody *s/he.ACC./him(her)self.ACC fire.REL. manager.ABL hatred do.PROG.
    'Everybody hates the manager who fired him/her.'

   b. Ali$_i$ onu$_i$/kendisini$_i$ kovan müdürden nefret ediyor.
    Ali he.ACC./himself.ACC fire.REL. manager.ABL hatred do.PROG.
    'Ali hates the manager who fired him.'

61. a. Her pilot$_i$ (*onu$_i$)/kendisini$_i$ kovalayan uçağa ateş etti.
    Every pilot *s/he.ACC./himself.ACC chase.REL. plane.DAT fire do.PAST.
    'Every pilot fired at the plane that chased him/her.'

   b. Ayşe$_i$ onu$_i$/kendisini kovalayan uçağa ateş etti.
    Ayşe she.ACC./herself.ACC chase.REL. plane.DAT fire do.PAST.
    'Ayşe fired at the plane that chased her.'

62. a. Hiç kimse (*onu)/kendisini eleştirenleri sevmez.
    No person *s/he.ACC/self.ACC criticize.REL.PLU.ACC. like.NEG.AOR.
    'Noone likes those who criticize him/her.'

   b. Canan onu/kendisini eleştirenleri sevmez.
    Canan s/he.ACC/self.ACC criticize.REL.PLU.ACC. like.NEG.AOR.
    'Canan doesn't like those who criticize her.'

The distinction observed between (a) and (b) sentences in 60-62 above vanishes when the pronouns are embedded subjects and possessive pronouns which cannot be overt even if they are coreferential with the higher subject, as in the (b) sentences in 63-64. Note that the postposition yanına 'next to (him)' in 65a-b is marked for agreement with its object and its object cannot be overt, either:

63. a. Herkes$_i$ (*onun$_i$)/kendi$_i$ annesini sever.
    Everybody *s/he.GEN/self mother.POSS3SG.ACC. love.AOR.
    'Everybody loves his/her own mother.'

   b. Ali$_i$ (*onun$_i$)/kendi$_i$ annesini sever.
    Ali *he.GEN/self mother.POSS3SG.ACC. love.AOR.
    'Ali loves his own mother.'

64. b. Herkes$_i$ (*onun$_i$)/kendisinin$_i$ çok akıllı olduğunu   sanıyor.
     Everyone *s/he.GEN.3SG./self.GEN.3.SG. very clever be.NOM.ACC. think.PROG.
     'Everyone thinks that s/he is very clever.'

   b. Ali$_i$ (*onun$_i$)/kendisinin$_i$ çok akıllı olduğunu   sanıyor.
      Ali *he.GEN.3SG./self.GEN.3.SG. very clever be.NOM.ACC. think.PROG.
      'Ali thinks that he is very clever.'

65. a. [Her   adam]$_i$ (*onun$_i$)/kendi$_i$ yanına   bir masa koydu.
     Every/each man   *he.GEN3S/self next.POSS3SG.DAT one table put.PAST.
     'Every/each man put a table next to him.'

   b. Ali$_i$ (*onun$_i$)/kendi$_i$ yanına   bir masa koydu.
      Ali *he.GEN3S/self next.POSS3SG.DAT one table put.PAST.
      'Ali put a table next to him.'

We have seen that overt pronouns in Turkish cannot be bound within the scope of a quantifier. Similar observations are made in other pro-drop languages, in Spanish (Montalbetti 1984), Spanish and Catalan (Rigau 1986:149-159), Chinese (Liejiong 1986:87), among others. Montalbetti 1984 shows that an overt pronoun in Spanish cannot be construed as a bound variable, while a null pronoun can (Overt Pronoun Constraint (OPC)) unless overt pronouns are in non-adjacent clauses (cf. Montalbetti, 1984 Chapter 3 for details).

Below, we turn our attention to pronouns of laziness, a term coined by Geach 1968, also known as paycheck sentences after Karttunen's 1969 famous example given in 66:

66. The man who gave his paycheck to his wife was wiser than the man who gave *it* to his mistress.

The pronoun it in 66 cannot be construed as bound because its antecedent his paycheck is not a quantified NP. It cannot be in a referent identity relationship with "his paycheck" either because the speaker intends to refer to a different paycheck by "it", the second man's paycheck.

Heim (1982: 391) suggests that pronouns of laziness in English can be explained by accommodation. For example, in 67, the definite pronoun *it* does not have a corresponding file card already in the discourse model. The hearer, upon hearing "it", must create an auxiliary file card with an entry of the Bible in this room:

67. a. Every motel room has a copy of the Bible in it.

   b. In this room, *it* was hidden under a pile of TV Guides.

According to Heim (1982:388) "from a psychological point of view [...] accommodation should go through smoothly when it is sanctioned by a parallel precedent." Heim argues that accommodation is more acceptable when it adds no new information to the file, i.e. both the existing file and the accommodated card added to it have identical satisfaction sets. There is an already existing file for "the Bible every motel room has". The satisfaction conditions for the accommodated card are the same as for this already existing file card.

Example 68 shows that pronouns of laziness[7] can be null pronouns, but overt pronouns are ungrammatical:

68. Maaşını   karısına   veren   adam
    Salary.POSS3Sg.ACC. wife.POSS3Sg.DAT give.REL man
    'The man who gives his salary to his wife,'

    (*onu)/∅ metresine   veren   adamdan daha akıllıdır.
    it.ACC   mistress.POSS.DAT give.REL man.ABL more smart.COP.AOR.
    'is smarter than the man who gives (it) to his mistress.'

In 68, maaş 'the salary' in the second clause is the salary of the man who gives to his mistress, while the salary in the first clause is the salary of the clever man. Since the two salaries are different, they have different referents. Since the pronoun and its antecedent are not coreferential, an overt pronoun is illicit in 68. The same explanation holds for the example in 69. Ali's money and Ahmet's money do not denote the identical money, and an overt pronoun is prohibited in 69b:

69. a. Ali parasını   bankaya   yatırdı.
       Ali money.POSS.3.Sg.ACC. bank.DAT. deposit.PAST
       'Ali deposited his money in the bank.'

    b. Ahmet (#onu)/∅ evde   saklıyor.
       Ahmet *it.ACC. home.LOC. keep.PROG.
       'Ahmet keeps (it) at home.'

To sum up, since overt pronouns have to be coreferential, they cannot function as bound variables or pronouns of laziness in Turkish.

2.7 Conclusion

This chapter investigated how discourse entities are evoked into the discourse model for subsequent definite reference in Turkish. We have seen contexts where overt and null pronouns are in complementary distribution: an overt pronoun has to pick up the same referent denoted by its corresponding entity, i.e. it has to uniquely identify and exhaust the maximal set, mass, or category denoted. Null pronouns, on the other hand, can have nonreferential antecedents, and can function as nonspecific indefinite anaphora or as pronouns of laziness.

It is observed that an initial expression can provide partial information with respect to its value, (Value Loaded/Value Free reading), with respect to the referential versus nonreferential statuses. In addition, we have seen that bare objects can be ambiguous as to whether or not they have undergone incorporation with the verb. Speakers disambiguate an initial reading in the subsequent discourse either by using definite reference or by denying the existence of a referent.

---

[7]Note that null objects as pronouns of laziness in Turkish are sanctioned if there is a semantic link (e.g. an entailment relationship) between the verbs of the two clauses (cf. Turan 1994a)

Thus, initial mention of an expression may convey partial information about the speaker's discourse model, which is updated in subsequent utterances via a set of tacit instructions that leads the hearer to devise a model that matches that of the speaker's as much as possible.

This chapter has located the contexts where null pronouns cannot alternate with overt pronouns. The rest of this study is devoted to definite anaphora where null and overt subjects can alternate as definite referential expressions.

Chapter 3

CENTERING THEORY AND OTHER APPROACHES TO DISCOURSE ANAPHORA

3.1 Introduction

In the previous chapter, we saw how an entity can be introduced into the discourse model and then can be anaphorically referred to via a zero or overt pronoun in the subsequent discourse in Turkish. In the remaining chapters, we will investigate anaphoric possibilities after an entity has been evoked and definite reference has been sanctioned. This involves an analysis of the interpretation of definite full NPs and pronouns. Centering Theory provides the theoretical framework for this analysis. The purpose of this chapter is to introduce the rules and constraints of Centering Theory and to discuss the related research done in Focusing Theory. In addition, other approaches to discourse anaphora (Hobbs, Fox, Givon, Ariel, Kuno, and Hajičová are briefly reviewed and discussed.

3.2 Centering Theory

Centering Theory has been formulated by Grosz, Joshi and Weinstein 1983, 1986, 1995 as a computationally tractable algorithm for resolving anaphora locally, i.e. within a discourse segment. Centering Theory models attentional state with respect to discourse entities during the incremental construction of the discourse model. Attentional state, as was discussed in Chapter 1, is a part of speaker's cognitive; the cognitive system has a richer structure than attentional state and includes at least world knowledge, beliefs, desires, and intentions (Grosz and Sidner 1986:180). Such a cognitive system is capable of complex inferencing. Attempting to model this complex inference system for pronoun resolution is not manageable at this stage. However, Joshi and Kuhn

1979 and Joshi and Weinstein 1981 suggest that the inferencing required for discourse processing and for anaphora resolution can be constrained via centering notions. These suggestions are elaborated in Grosz, Joshi, and Weinstein 1983, 1986, 1995.

Centers of attention are discourse entities that serve to link an utterance to other utterances; a single sentence in isolation does not have a center of attention. Besides, the same sentence uttered in different discourse situations has different centers. Thus, centers are not words, phrases, or syntactic forms, but rather they are semantic objects and discourse constructs that can be realized linguistically.

The term *realize* introduces a relation that relates centers to linguistic expressions. As stated in Grosz, Joshi, and Weinstein 1986, 1995:

> A center c, where c is a semantic interpretation, is realized in utterance U, if either c is an element of the situation described by the utterance U or c is directly realized by some part of U.

There are two basic types of centers: Forward-looking centers and Backward-looking centers. Forward-looking centers (Cf) are a set of potential antecedents for subsequent reference that are evoked or realized in an utterance and they are partially ordered and listed in the Cf-list on the basis of salience assigned to them by a speaker. Each Forward-looking center in an utterance must be realized in that utterance. One of these Forward-looking centers, the preferred center (Cp), is the most salient entity that is predicted to be the best candidate that will be under discussion in the next utterance (Brennan, Friedman, and Pollard 1987). This formulation restricts a set of potential antecedents down to one.

The Backward-looking center (Cb) in an utterance is the preferred center of the previous utterance, and it is the entity that the utterance is mostly centrally concerned about. There is precisely one Backward-looking center per utterance and it serves as an anaphoric link to the preceding adjacent utterance. Discourse initial utterances do not have Backward-looking centers.

These constraints can be summarized as follows:
For each utterance U in a discourse segment Ui...Un:

1. There is precisely one Backward-looking center Cb.
2. Every entity in the Forward-looking center list, Cf(Un), must be realized in utterance Un.
3. The Backward-looking center Cb(Un) is the highest ranked entity of the Cf-list of the immediately preceding utterance (Un-1).

Constraint 2 states that every entity in the Cf-list of an utterance must be present in that utterance. A Cf-list includes discourse entities that are realized with null and overt pronouns, full NPs and also with inferrable entities (Prince 1981a, Walker, Iida, and Cote 1994; Prince, and Walker 1993), though centers can be extended to propositions (Nakatani 1993). Not all NPs in a sentence contribute to the Cf-list; only those that evoke discourse entities can be listed.

Constraint 3 predicts that the Cb of the next utterance is expected to be the highest ranked entity, the preferred center, in the Cf-list of the current utterance.

Centering Theory also has a set of transitions from one utterance to the next which are determined by two factors: whether a particular Cb is also the Cp and whether or not the Cb of the two consecutive utterances is the same, i.e. whether the center of attention is the same entity.

Centering transitions are represented in the following table (Brennan, Friedman, and Pollard 1987) and these transitions will be exemplified in 2-5 after Centering rules are presented:

	Cb(Un)=Cb(Un-1)	Cb(Un)≠Cb(Un-1)
Cb(Un)=Cp(Un)	Continue	Smooth-Shift
Cb(Un)≠Cp(Un)	Retain	Rough-Shift

Centering Theory also posits the following set of rules:

1. If there is a pronoun in an utterance Un, the Cb is also realized as a pronoun.
2. The transitions are ordered with respect to processing complexity as follows:
   Continue > Retain > Smooth-Shift > Rough-Shift

Rule 1 does not preclude the existence of another pronoun in the utterance provided that the Cb is realized with a pronoun. This is not a hard rule, but the violation is costly on the part of the hearer, which requires additional processing complexity.

The use of a full NP instead of a pronoun to realize a centered entity may serve various functions other than merely referring and linking the two utterances with a referential link. For example, in 1, the mangy old beast, as opposed to a pronoun, either conveys some additional and new information about the entity (Grosz, Joshi, and Weinstein 1983, 1986), or it represents a new discourse segment. (Kameyama 1986; Grosz, Gordon, and Gilliom 1993).

1. a. I took my dog to the vet the other day.
   b. The mangy old beast ....
      (Grosz, Joshi, and Weinstein, 1983:49)

Otherwise, the use of full NPs in order to realize a centered entity would yield an incoherent discourse (Grosz, Joshi, and Weinstein 1986). Psychological research has also shown that centers realized as pronouns are read faster than the full NPs (see D'Zmura 1987, D'Zmura and Tannenhaus 1993, Grosz, Gordon, and Gilliom 1993).

As far as Rule 2 is concerned, Grosz, Joshi, and Weinstein (1983, 1986) state that a speaker:

1. may choose to CONTINUE discussing the same entity,
2. may RETAIN the same entity but also introduce a new one,
3. may SHIFT the attention to a new entity.

Brennan, Friedman, and Pollard 1987 suggest that there are two types of SHIFT: Shifting-1 and Shifting, which are later termed Smooth Shift and Rough Shift, respectively, in Walker, Iida, and Cote 1990.

As has been previously noted, it is presumed that the transitions are not processed with equal ease. We assume Continue is processed with the greatest ease, while Retain requires more effort than Continue, but less effort than Smooth Shift, which, in turn, is easier to process than the Rough Shift (Brennan, Friedman, and Pollard 1987; Prince and Walker 1993).

The transitions are illustrated by the following examples. Note that initial utterances have no Cbs. The center is instantiated in the (b) utterances in 2-5:

2. a. $Mike_i$ wanted to go the seaside.

        Cf: [Mike, seaside]

  b. He_i called $Mary_k$.

        Cb: (Mike)
        Cf: (Mike, Mary)

  c. He_i asked her_i whether she wanted to join him.

        Cb: (He: Mike)
        Cf: (Mike, Mary)

        Cb(Un) = Cb(Un-1)
        Cb(Un) = Cp(Un)
        CONTINUE

3. a. $Mike_i$ wanted to go the seaside.

        Cf: [Mike, seaside]

  b. He_i called $Mary_k$.

        Cb: (He: Mike)
        Cf: (Mike, Mary)

  c. $Mary_k$ got angry at him_i.

        Cb: (him: Mike)
        Cf: (Mary, Mike)

        Cb(Un-1) = Cb (Un)
        Cb(Un) ≠ Cp(Un)
        RETAIN

4. a. $Mike_i$ wanted to go the seaside.

        Cf: [Mike, seaside]

  b. He_i called $Mary_k$.

Cb: (He: Mike)
Cf: (Mike, Mary)

c. She$_k$ has always enjoyed going to the seaside.

Cb: (she: Mary)
Cf: (Mary)

Cb(Un-1) ≠ Cb(Un)
Cb(Un) = Cp(Un)
SMOOTH-SHIFT

5. a. Mike$_i$ wanted to go the seaside.

Cf: [Mike, seaside]

b. He$_i$ called Mary$_k$.

Cb: (He: Mike)
Cf: (Mike, Mary)

c. Mark had called her$_k$ before.

Cb: (her: Mary)
Cf: (Mark, Mary)

Cb(Un-1) ≠ Cb (Un)
Cb(Un) ≠ Cp(Un)
ROUGH-SHIFT

Centering Theory is a part of linguistic competence involved in both the production and the resolution of discourse anaphora (Kameyema 1985:91). Centering rules are constraints on determining the antecedent and choosing among various referential expressions in continuing to refer to an entity or shifting to another one. Linguistic competence concerning Centering rules is somewhat different from Chomsky's competence notion, which considers sentences as absolute theoretical constructs. Centering rules are not absolutes but rather tendencies which may be overridden by pragmatic factors. (see Di Eugenio 1990, Walker, Iida, and Cote 1990, 1994, Brennan 1993, among others).

3.2.1 Backward-looking centers and Sentence Topics

In this section, the relationship between Backward-looking centers and sentence topics will be briefly discussed.

Sentence topic has been used in the literature to refer to various statuses of NPs. Prague school linguists have proposed that topic is what the speaker wants to talk about. Thus, topic is

in contrast with the linguistic notion of focus, which adds new information to the topic. We shall return below to the discussion of focus when Focusing Theory and Hajičová's pronoun resolution algorithm are discussed. As we shall see, some linguists, e.g. Givon, use the term topic to refer to discourse entities in general.

The notion of Backward-looking center corresponds more or less to Reinhart's 1982 notion of sentence topic. According to Reinhart, the topic is what the sentence is about. Reinhart shows the difficulties of defining topic on the basis of subjecthood, linear order, or old information. Topics appear in subject position in the unmarked case, since "it is easier to use an [utterance] when we intend its subject to be a topic" (Reinhart 1982:9). However, not all subjects are topics. The following example cited in Reinhart 1982 illustrate that the notion of topic or Cb cannot be defined by the test of subjecthood alone. Note that, although 6 and 7 are identical, topic is Max in 6b, while it is Rosa in 7b:

6. a. Who did Max see yesterday?

   b. Max saw Rosa.

7. a. Did anyone see Rosa?

   b. Max saw Rosa.

As we saw in the preceding section, Centering Theory has defined Backward-looking center as the highest ranked entity in the previous utterance that is realized in the current utterance. We also saw that, if anything is pronominalized, the Backward-looking center must.

3.2.2   Focusing as a Precursor to Centering Theory

Centering is a theory that has developed in part from Focusing Theory, postulated by Grosz 1977 and extended by Sidner 1979. Focusing is an algorithm formulated to account for the use and interpretation of referential expressions with respect to attentional state.

First, however, a warning is in order. The term focus in Focusing Theory, and in natural language processing in general, contrasts with the notion of focus in the linguistics literature. In Focusing Theory, focus is a status of referential expressions in the discourse model, analogous to centers in Centering Theory. An entity in focus is the most activated entity (i.e. the one in consciousness, or in the short-term memory) that the speakers are paying attention to. In the linguistics literature, on the other hand, the term focus has been used to define various linguistic phenomena, including the one encoding a phonetically prominent element, and/or the one encoding and adding new information to the sentence (Chomsky 1972, Chafe 1976, Vallduví 1992, among others). Vallduví 1992 defines linguistic focus as the part of the sentence that encodes information, the most dominant and contrary-to-expectation part of the sentence. In Prince's 1981b, 1986 analysis of focus, focus is seen as a relation between the open proposition which contains old (i.e. predictable, presupposed) information and what fills the variable in the open proposition, conveying the new information in that context.

Thus, the term focus has been used to refer to distinct phenomena. The term focus in Focusing Theory does not have much in common with the use of focus in linguistics, but even more confusingly, it is analogous to the term topic, which contrasts with focus in the linguistics literature. In this chapter, the term focus is used in the sense intended in Focusing Theory, unless stated otherwise. With this in mind, we can now turn our attention to Focusing Theory.

Speakers consciously or unconsciously focus their attention on certain concepts or objects throughout the discourse. Focusing is an algorithm that keeps track of what the discourse is about. Attentional state includes a set of focus spaces, and a set of transition rules may add or delete these focus spaces. Grosz 1977 identifies two types of focus: global and immediate. Immediate focus is a local phenomenon that describes how a speaker's focus of attention may remain constant or shift in two successive utterances. Global focus, on the other hand, models the speaker's attention throughout the whole discourse. Focusing only a limited number of discourse entities at a time limits the search of the possible antecedents for a particular pronoun. Discourse entities that have been focused are said to be in the focus space. Focus space is different from a discourse model, although it is related. The focus stack, at a certain point in discourse, contains those entities relevant to the interpretation of the current utterance, which includes a part of discourse model. A focus space is open if the entity has been mentioned recently, that is, if the entity is still in focus. Entities that have been previously mentioned are in the focus space, but they are stacked. All the entities are stacked according to their relative salience in the discourse segment in which they appeared.

Sidner 1979 postulates three mechanisms to resolve anaphoric expressions: A current discourse focus, an ordered list of potential foci for the next utterance, and a focus stack that keeps the current focus to be returned to later within the discourse. The list of potential foci corresponds to the Cf-list in Centering. The Focusing algorithm posits two types of focus, Actor Focus (AF) and Discourse Focus (DF), in order to handle multiple pronouns in a single utterance. Sidner 1979 proposes that the DF is the main focus that the speaker would tend to talk about anaphorically. Sidner (1981:223) states: "[focusing] takes the discourse focus as primary, the discourse being what the speaker is talking about so far, while the actor focus is the locus of information about actions in the discourse." In this sense, the Discourse Focus roughly corresponds to Cb, but is not identical with it. As has been mentioned, unlike two foci (i.e. AF and DF), Centering posits exactly one Cb per utterance. Focusing, like Centering, is an algorithm restricting complex inferencing and posits a set of cognitively plausible and computationally tractable rules for pronoun resolution.

3.3 Other Approaches to Discourse Anaphora

In this section, some other approaches to discourse anaphora will be reviewed and discussed.

3.3.1 Hobbs

Hobbs 1979,1986 develops a naive algorithm for finding the antecedents of pronouns in English. He incorporates the well-understood syntactic constraints of coreference and noncoreference relations. A surface parse tree divides the sentence into subject, verb, objects, etc. The algorithm starts searching for antecedents to pronouns in the following way: It begins at the first NP or S node immediately dominating the pronoun and searches all the branches below this node in a left-to-right fashion. If the pronoun cannot find its antecedent in the S node, it searches for it in the previous sentence in the text in order of recency, the most recent first in a left-to-right manner. When an NP node is encountered, it is proposed as the antecedent. Hobbs combines this with selectional restrictions; for example in a sentence "He moved it", the pronoun "it" must be used to refer to a moveable object. However, Hobbs points out that such an algorithm cannot detect when the antecedent selection fails. He then suggests a 'semantic approach' on which he later develops his coherence relations. Hobbs' 'semantic approach' has four semantic operations:

a. Detecting intersentence connectives, which includes determining patterns of contrast, cause, violated expectation, temporal succession, paraphrase, parallel, and example. For example, a contrast pattern between the previous and current sentence is observed where: the predicates of S1 and S2 are contradictory or lie at opposite ends of some scale; one pair of corresponding arguments of S1 and S2 are identical, or the other pairs of corresponding arguments are similar.

b. Predicate interpretation includes making inferences by searching the lexicon. For example, for the predicate increase in a sentence like The price of coffee has increased , one must locate a scale with an associated real or vertical orientation. Thus, one can infer that an upward motion occurs in this scale.

c. Knitting helps resolving more implicit anaphoric relationships as between inferrables and their antecedents. For example, consider 8:

8. a. The boy walked into the bank.

   b. Moments later he was seen on its roof.

   In 8, the bank is represented by the entity X1 and the it of its by X2. The entire chain of inference forces us to assume that X1 is a building. The interpretation of roof demands X2 to be a building, too. Then the corresponding arguments of X1 and X2 are merged. As a result, the antecedent is identified as the bank.

d. Identifying entities, which is an operation that seeks to identify unidentified entities. For a definite NP, the previous discourse is searched until the corresponding entity is found; for an indefinite, a new entity is introduced.

Hobbs suggests that these four operations recognize the structure and relationships between sentences that are implicit in a discourse.

Hobbs determines the coherence relations in a discourse and assumes that pronoun resolution will follow as a by-product of these relations. The role of inference in pronoun resolution is undeniable. However, the present study follows another direction, where inferencing is constrained by a set of precise rules and only if these rules are overridden by pragmatic requirements do other factors such as inferencing and coherence relations become useful devices.

3.3.2 Givon

Givon 1983 constructs a topic continuity device to account for how referential expressions are used in discourse. Givon defines topics as the individuals about whom "the fate, affairs, doings, trials and tribulations" are discussed in the discourse (1984:137). Topics are, therefore, most commonly nominal. Potentially, he claims, all nominal arguments are topics in that sense. Givon's notion of topic does not correspond to Reinhart's notion of topic, which intuitively corresponds more or less to Cb, but rather seems to correspond to Webber's discourse entity. Givon basically treats Agent subjects as topics. The following topic accession hierarchy predicts the likelihood of the topic's being continued in the discourse (Givon 1984: 140) :

AGENT > DATIVE/BENEFACTIVE > PATIENT > LOC > INSTR > MANNER

1. If the simple clause has an Agent argument, then that will be the subject.

2. If the simple clause has no Agent but has a Dative/ Benefactive argument, then that will be the subject.

3. If the simple clause has no Agent, nor Dative/Benefactive but has a Patient argument, then that will be the subject.

According to Givon, the main behavioral manifestation of important topics in the scale above is their continuity in discourse. Continuity is observed by the recurrence or the frequency of occurrence. Topic continuity is measured by the following parameters:

1. Index of referential distance or lookback : Measures the distance, in terms of the number of clauses, between the current mention of a topic and its previous mention. Values range from 1 clause (most continuous) to an arbitrary number of 20 clauses (least continuous). Referential distance reflects the idea that topics with a higher value of referential distance are harder to identify.

2. Index of persistence or decay: Measures how long the current topic continues to be mentioned in the subsequent discourse. Values again are expressed with the number of clauses from 0 to the number of the clauses in the discourse. The idea behind decay is that more important topics will persist longer.

3. Index of potential interference ambiguity: Measures to what degree there are competing antecedents within the discourse.

70

Correlations are then established between linguistic forms and their degree of continuity in terms of these three metrics. The most continuous topics then will be mentioned by zero anaphora and/or unstressed pronouns. Less accessible or discontinuous topics will be expressed by stressed pronouns, full descriptions, cleft focus constructions in that order. The least accessible topics will be expressed by referential indefinite NPs. Givon, then explains this with the Iconicity Principle: '[T]he more descriptive, surprising, discontinuous or hard to process a topic is, the more coding material must be assigned to it" (1983a:18) Givon's approach is devised to account for definite anaphora, as is Centering Theory. However, it does not incorporate systematically defined precise rules for a framework desired for a robust and explicit analysis of pronominalization. Unlike Centering Theory, which allows transitions only across adjacent utterances within a local discourse segment, Givon attempts to analyze the totality of discourse. While analyzing pronominal rules at the global discourse level will illuminate our understanding of discourse coherence, Givon treats discourse as a linear construct without any internal structure. However, since Grosz 1977, it has been known that discourse has a hierarchical structure, that one discourse segment can embed a subsegment, and that what matters for pronoun resolution is the structure of discourse and not how many clauses there are between the pronoun and its antecedent.

3.3.3 Ariel

Ariel's 1988 approach is similar to that of Givon's. Ariel provides a theory of Accessibility, where information which is not automatically accessible is stored as 'general knowledge'. Recent linguistic material is more readily accessible than other familiar entities. The form of referential expressions serve as guidelines for retrieval.

Ariel, like Givon, discusses the effect of distance in choosing among the referential expressions. "The general picture that emerges from counts restricted to anaphoric references is that pronouns are predominantly used when the distances are short, anaphoric demonstratives are used in cases of intermediate distance, and definite descriptions mostly refer back to antecedents outside the sentence they occur in, when their antecedents are not even close by" (Ariel 1988:69-70). Ariel, again, like Givon, does not take into account hierarchical discourse structure or the different degrees assigned to set of entities.

3.3.4 Fox

Fox 1987 addresses the relationship between anaphor interpretation and discourse structure, basing her pronoun resolution approach on rhetorical structures as developed by Mann and Thompson. She suggests that it is necessary to 'parse' the discourse into its component units based on rhetorical structures before the relationship between anaphoric patterning and discourse structure are understood. In a rhetorical structure, the smallest unit is a proposition. A proposition basically corresponds to a clause. However, relative clauses and complement clauses in complex sentences constitute single propositions together with their main clauses. The reason, Fox argues,

is that relative and complement clauses are governed by principles of grammar rather than by those of discourse. However, she treats subordinate adjunct clauses separately. Propositions are organized by rhetorical structures (R-structures). An R-structure contains a nucleus, the main goals of the author, and by adjuncts, which provide supplemental information in the discourse. A nucleus consists of three higher level R-structures: issue, list, and narrate. An issue structure presents a claim and may include background and elaboration as adjuncts. A list structure contains an unlimited number of propositions and no adjuncts. A narrate structure describes a set of temporally ordered nuclei. Adjuncts might add information about reason, condition, purpose, etc., which may be signaled by conjunctions like because, if, in order to, respectively. Only entities within the active R-structure can be pronominalized; otherwise, a full NP must be used. An active R-structure means either that the previous proposition contains the entity, or, in the case of intervening propositions, that the discourse segment should be embedded in a higher level R-structure. In the latter case, which Fox calls return pop, the entity can be 'popped over' by a pronoun. If the intervening R-Structure is too complex, a return pop by a pronoun is impossible and the entity must be reintroduced by a full NP.

The approach taken in this dissertation differs from that of Fox's in several ways. First of all, discourse segmentation prior to resolution of pronouns is not necessarily required. This may merely be a methodological difference, but the purpose of this study is to account for definite anaphora in as a straightforward and computationally tractable manner as possible. Secondly, we believe that discourse segmentation involves a much more complex process than Fox would have us believe, as argued in Grosz and Sidner 1986. Nevertheless, this study, like Fox's recognizes the relevance of hierarchical discourse structure to pronominalization. In this vein, we shall see that pronominalization can shed some light towards on identifying discourse segment boundaries (although it is not a sufficient indicator of discourse boundaries). Discourse segmentation is signaled by various other factors as well, such as tense/aspect shift, cue words, and intonation, as well as pronominalization (cf. Grosz and Sidner 1986, Polanyi 1988, Ehrlich 1990, Webber 1988, among others).

3.3.5   Kuno

Kuno 1989 points out that, two opposing suggestions have been made in the previous literature on what can serve as antecedents for zero pronouns in Japanese discourse: Yoshimoto 1988 predicts that only topic-marked NPs can serve as antecedents for zero pronouns, whereas, Kameyama 1985 suggests that NPs that are not topic-marked can qualify as antecedents for zero pronouns. According to Kuno, these suggestions are both correct, but the two conflicting views stem from the fact that these two studies analyze two different types of zero pronominals, pseudo-zero pronominals and real-zero pronominals. Pseudo-zero pronominals are those that have undergone Kuno's Pecking Order of Deletion Principle: Delete less important information first and more

important information last (Kuno 1980, 1982, 1989).[1] Kuno 1980, 1982 argues that the Pecking Order of Deletion Principle is a cross-language discourse constraint that accounts for numerous deletion facts in many languages, including English, Chinese, Japanese, Russian, and Turkish. Therefore, the two types of pronouns he proposes for Japanese can be extended to other subject and object-drop languages. According to Kuno, pseudo zero-pronouns are those that arise from discourse deletion strategies in question-answer pairs and in parallel structures, with not criss-crossing allowed. If the null pronouns are not in answers to questions or in parallel constructions, then they are real-zero pronouns. Kuno 1989 presents the following Japanese examples of a real-zero pronoun (9b), and a pseudo-zero pronoun (10b):

9. a. Yamada$_i$ wa   syuran   da.

   Yamada TOPIC violent-when drunk-is.

   'Yamada gets violent when drunk.'

   b. Dakara   dare mo $\emptyset_i$ paatii ni yobani.

   Therefore anybody   party to invite-not-Present.

   'Therefore, nobody will invite him to parties.'

10. a. Taroo$_i$ ga   Hanako$_k$ ni   Ziroo$_m$ a gakkoo de syookaisiata no desu ka?

            NOM   ACC   to school at introduced   QUEST

   'Did Taroo introduce Hanako to Ziroo at school?'

   b. Hai $\emptyset_i$ $\emptyset_k$ $\emptyset_m$ gakkoo de syookaisiata no desu.

   Yes   school at   introduced.

   'Yes, (he) introduced (him) (to her) at school.'

In 9b, the zero-pronoun in the object position is coreferential with the subject of the previous utterance. Only real-zero pronouns can criss-cross in this way. On the other hand, no criss-crossing can apply in 10b, and the pronouns are deleted as required by the Pecking Order of Deletion Principle, and only the important information is retained along the lines of following principle:

Focus+Verb Discourse Deletion Strategy:

Retain the focus information, and delete everything else. If the focus is not the verb of the sentence, retain the verb also to yield a sentential answer.

The immediately preverbal position is reserved for focus (i.e. the most important information

---

[1] Although Kuno (1982: 133-134), in a footnote, states that his notion of less important should not be equated with given information, his analysis assumes that less important information roughly corresponds to two types of given information proposed by Prince. Prince 1985 distinguishes two types of shared knowledge, which includes what is represented by old and predictable information. Prince (1985, 1988) states the two types of shared knowledge are represented by the most salient entity, and what is merely given. Kuno implicates that the most salient information is the least important, and sanctioned to be null. Nevertheless, some given information can be important in Kuno's terms, provided that it receives phonological stress, e.g. some strong pronouns. Any element with phonetic prominence cannot be deleted regardless of its information status. Therefore, Kuno's notion of less important information is represented by an element that does not have phonetic or informational focus. Crucially, the term deletion should not be literally taken to mean that the constituents are actually deleted, but rather, that they are not phonologically spelt out and are recoverable from the discourse.

in Japanese and Turkish unless the verb is focus itself. (For Turkish see, Erguvanlı 1984, Erkü 1983, 1984, Hoffman 1995).

In Japanese as well as in Turkish and many other languages, the word order of elements in a sentence is conditioned by the following from old-to-new-information principle:

Flow-of-Information Principle

Elements in a sentence are ordinarily arranged in the order of less important information first and more important information last.

According to these rules and constraints, everything except the phonologically focused constituent and verb can be deleted in yes/no questions and parallel constructions, the deletion of the focused element violates the Pecking Order of Deletion Principle.

In the Japanese example in 11 (Kuno 1989:4), Kuno suggests that Speaker B does not delete merely the object French but the adverb hard, as well. The answer is not interpreted as 'Hanako is studying French'; but rather, as 'Hanako is studying French hard'. Kuno claims that, if a zero object is stipulated, a zero adverb also needs to be stipulated. He argues that this is not the case and that it is more plausible that 'French hard' is deleted in one swoop via the application of across-the-board discourse deletion:

11. A: Dare ga issyookenmei huransugo o benkyoosite imasu ka.
    who   hard   French   study   is   QUEST
    'Who is studying French hard?'

  B: Hanako ga benkyoosite imasu.
                studying   is.
    'Hanako is studying (it hard).'

Since only answers to yes/no questions and parallel structures can have pseudo-zero pronouns, Kuno suggests pseudo-zero pronouns and real-zero pronouns are distinguished by the following criteria:

- **Identification of Pseudo Zero Pronouns:**
  Pseudo-zero pronouns must follow the same order and same syntactic function as their source NPs. They are penalized if they violate the Pecking Order of Deletion Principle.

- **Identification of Real Zero Pronouns:**
  The antecedent of a zero pronoun must be an unpronominalized NP that is overtly marked as a topic or an NP whose referent is introduced into the discourse scene [discourse model].

- **Penalty for Real-Zero Pronouns with Nontopic Antecedents:**
  Real-zero pronouns with nontopic antecedents receive penalties inversely proportionate to their position in the syntactic hierarchy:

Syntactic Hierarchy:	Subject >	Object
Penalties:	Lower	Higher

- **Nonfocus Constraint on Real-zero pronouns:**

  A real-zero pronoun must be a nonfocus element in the sentence that it appears in.

- **Criss-crossing Constraint on Real-Zero Pronouns:**

  A sentence that involves a criss-crossing real-zero pronoun is unacceptable less the verb signals the criss-crossing relationship.

Kuno then computes discourse coherence numerically by assigning penalties using the conditions above. The penalty scores determine whether pronouns are instances of real or pseudo-zero pronominals. For example, the preferred interpretation in ambiguous 12c is predicted by determining which interpretation has the lowest penalty score.

12. a. Dare ga Rosai o matte iru no desu ka?

     who   waiting is   QUEST?

     'Who is waiting for Rosa?'

  b. Mary ga $\emptyset_i$ matte iru no desu.

               is waiting for.

     'Mary is waiting for (her).'

  c. $\emptyset_i$ $\emptyset_k$ yuusyoku ni syootaisita no desu.

         dinner to   invited.

     Strong preference: '(Rosa) invited (Mary) to dinner.'

     Weak preference: '(Mary) invited (Rosa) to dinner.'

12A. Assumption: $\emptyset_i$ = (Rosa wa), $\emptyset_k$ = (Mary o)

  Sentence interpretation: 'Mary invited Rosa to dinner.'

  $\emptyset_i$ and $\emptyset_j$ are pseudo-zero pronouns in 12c.

Pecking Order of Deletion Principle is observed, the important information is retained:

Total Penalty Score: 0

12B: Assumption: $\emptyset_i$ = (Rosa wa), $\emptyset_k$ = (Mary o)

  $\emptyset_i$ and $\emptyset_k$ are real-zero pronouns in 12c.

  Sentence interpretation: 'Rosa invited Mary to dinner.'

  The antecedent of $\emptyset_i$ is topic-marked: no penalty.

  The antecedent of $\emptyset_k$ is not topic-marked: penalty score: -2

Total Penalty score: -2

12C. Assumption: $\emptyset_i = $ (Mary wa), $\emptyset k = $ (Rosa o)

$\emptyset_i$ and $\emptyset_k$ are real-zero pronouns in 12c.

Sentence interpretation: 'Mary invited Rosa to dinner.'

The antecedent of $\emptyset_i$ is topic-marked, no penalty.

The antecedent of $\emptyset_k$ is a nontopic nonsubject NP: penalty -2.

Criss-crossing constraint on Real-Zero pronouns violated: penalty -1

Parallel Interpretation Preference: penalty -1

Total penalty score: -4.

The penalty scores in 12A - 12C predict that the pronouns in 12c are pseudo-zero pronouns, because the penalty score for this assumption is 0. If they are considered to be real-zero pronouns, they are penalized, as in 12B by a penalty score of -2. In addition, it is predicted that the interpretation assumed in 12C yields an incoherent discourse in comparison to 12A and 12B, since it has the highest penalty score.

If Kuno's distinction between pseudo-zero pronouns and real-zero pronouns is correct, Turkish also has pseudo-zero pronouns, because Pecking Order of Deletion also applies in Turkish. Kuno (1982:88ff), in his survey of the Pecking Order of Deletion Principle includes Turkish. He points out that the question particle mı (and its phonological variants that have undergone Vowel Harmony) in Turkish follow the informationally focused constituent, as in 13 (Kuno, 1980:88):

13. a. Sen mi   bunu   Paris'ten   aldın?
     you QUEST this.ACC Paris.ABL buy.PAST.2SG.
     'Did you buy this from Paris?'

    b. Sen bunu   mu   Paris'ten   aldın?
     You this.ACC QUEST Paris.ABL buy.PAST.2SG.
     'Was it this that you bought from Paris?'

    c. Sen bunu   Paris'ten   mi   aldın?
     You this.ACC Paris.ABL QUEST buy.PAST.2SG.
     'Was it in Paris that you bought this?"

    d. Sen bunu   Paris'ten   aldın   mı?
     You this.ACC Paris.ABL buy.PAST.2SG QUEST?
     'Did you buy (or did you steal) this in Paris?'

In an answer to a yes/no question, as in 14, the focused constituent cannot be null, but everything else can be deleted. Kuno (1980:89ff) writes: "[s]ince the interrogative mı is attached to the right of Paris 'from Paris/in Paris' in [14A] is in informational focus of the question. As expected all the answers shown in [14B], which delete this focus but retain the verb are unacceptable as answers..."

14. A: Sen bunu   Paris'ten mi   aldın?
      You this.ACC Paris.ABL QUEST buy.PAST.2SG.
      'Was it in Paris that you bought this?"

   B: a. Evet, ben bunu   Paris'ten aldım.
       Yes   I   this.ACC Paris.ABL buy.PAST.1SG.
       'Yes, I bought it in Paris.'

     b. #Evet, ben ∅ Paris'ten   aldım.
       Yes   I   ∅ Paris.ABL buy.PAST.1SG.
       '#Yes, I bought (it) in Paris.'

     c. Evet, ∅ bunu   Paris'ten aldım.
       Yes   ∅ this.ACC Paris.ABL buy.PAST.1SG.
       'Yes, (I) bought this in Paris.'

     d. Evet, ∅ ∅ Paris'ten aldım.
       Yes   ∅ ∅ Paris.ABL buy.PAST.1SG.
       'Yes, (I) bought (it) in Paris.'

     e. #Evet, ben bunu   ∅ aldım.
       Yes   I   this.ACC ∅ buy.PAST.1SG.
       '#Yes, I bought this.'

As Kuno states, the most natural answer to this question is 13Bd. This answer retains Paris, the most important information in Kuno's terms, and it also retains the verb in order to give its sentential status. According to Kuno 1989, both the subject and the object are thus pseudo-zero pronouns in this example since they have undergone the Pecking Order of Deletion Principle.

3.3.6 Hajičová

Hajičová 1993 develops a pronoun resolution algorithm that is related to but distinct in crucial ways from Focusing Theory. One major distinction is that, Hajičová attempts to combine the linguistic and natural language processing notions of focus. We have seen above that the notion of focus in Sidner's system roughly corresponds to the opposite notion, i.e. the notion of topic in linguistics. Hajičová's pronoun resolution algorithm is based on the Prague school notions of topic and focus. Focus is roughly defined as a constituent (i.e. verb or one of its arguments) that conveys new information, i.e. "contextually non-bound" (Hajičová1993:33). Those constituents that do not provide new information belong to the topic part of a sentence. Hajičová (1993:67) states it as follows, where focusL is linguistic focus (new information) and focusAI, is the focus in Focusing Theory (AI for Artificial Intelligence):

   (a) It is rather obvious that the items referred to by the parts of the focusL of the immediately preceding sentence are the most activated [i.e. salient] ones at every time point of the discourse.

(b) If an item is referred to in the topic part of the sentence, then at least two issues are to be taken into consideration:

(i) A pronominal reference seems to "strengthen" the activation of the item referred to a lesser degree than a reference with a full (definite) NP.

(ii) The activation of the items referred to in the topic part of the sentence seems to 'fade away' less quickly than that of the items referred to in the focusL part of the sentence.

(c) If the degree of activation of an item x is being changed (lowered, or raised), then also the degree of activation of the items associated with the object referred to by x is being changed in the respective direction. It should be taken into consideration, however, that frequently a mentioning of a particular object brings into the foreground only a fraction of a set of objects that has been activated earlier. Also other scales and hierarchies should be considered: thus, there is a hierarchy of more or less associative relationships, or that of prominence with regard to individual sentences and their positions in the text ...

(d) If an item of the stock of shared knowledge is neither referred to in the given utterance, nor included among the associated objects, then its activation lowers down.

Hajičová compares these suggestions with those of Focusing Theory. In Focusing Theory, speakers have options of maintaining the focus, changing it to another immediate focus, or return to another focus that is not in the immediate list of foci but that is in the stack. These are summarized below:

(a) the immediate focus of a sentence is the Current Focus (CF);

(b) there is partially ordered stack of foci, Partial Foci List (PFL);

(c) there is focus stack where immediate foci are listed.

Hajičová points out the similarities of these transitions with her suggestions. According to her, the most salient entities are those that are the linguistic focus of the immediately preceding utterance. The next most salient entities are those that have topic status. Finally, inferrables that are in a logical relationship with the topic in the immediately preceding utterance or other entities that are in other preceding utterances are the next most salient.

In Hajičová's algorithm, each utterance in a discourse is assigned numbers as in 13 where the utterances with the same numbers are those that are about the same entities. The capital letters denote the phonological focus of each clause.

15. 1. The school garden was full of CHILDREN.

    2a. They talked NOISILY,

    2b. but the teachers didn't REPROVE them,

    2c. because they were so EXCITED.

    3. Outside PARENTS were waiting.

    4a. One of them, a father, stood in front of a MICROPHONE,

    4b. as if he were prepare to TALK.

In 15-1, the children is the entity that is predicted to be talked about in the next utterance because it is the most salient entity with the intonation center, and, as predicted, this entity is talked about in the following utterance. In 15-2b, the new entity, the teachers is introduced, but it is not a brand-new entity, because it has a logical relationship with the school and thus, is inferrable in the sense of Prince 1981a. Due to this familiarity, the NP is definite. In 15-2b, the entity the children are still available and is also talked about anaphorically with the pronoun 'they'. In 15-3, another inferrable entity, i.e. parents is introduced in the focus of the sentence. Since the other entities the teachers and the children, are not mentioned in this utterance, they become less salient for subsequent reference. In Hajičová's algorithm, each entity is assigned a number that indicates the salience of that entity, starting from zero, which represents the highest ranked entity (i.e. the one in focus). Anaphora tracking is represented in the discourse schematically by following the introduction and slow fading of discourse entities and their salience.

In sum, Hajičová's algorithm is similar to Focusing Theory and Centering in that all three approaches show the interaction between discourse coherence and the degrees of salience of the discourse entities. The major difference in Hajičová's algorithm is that the informationally focused entity is the highest ranked. The Centerin and Focusing Theory algorithms determine saliency using factors that are often associated with topichood such as pronominalization, subjecthood, and agenthood. The focusing and Hajičová's approaches stack the previous entities that are not in the immediately preceding utterance, while Centering does not. The latter describes transitions between adjacent utterances in order to capture *local* coherence in discourse.

3.4   Conclusion

This chapter has introduced the constraints and rules of Centering Theory and its precursor Focusing Theory. In addition, some other accounts of discourse anaphora (e.g. Hobbs, Fox, Givon, Ariel, Kuno, Hajičová) have been reviewed and compared to Centering.

Chapter 4

RANKING FORWARD-LOOKING CENTERS IN TURKISH

Forward-looking centers in an utterance are ranked according to the degree of salience assigned to them. Grosz, Joshi, and Weinstein 1983, 1986, 1995 propose that the Cf-list is partially determined by the grammatical configuration hierarchy, the subject ranking higher than objects. This view has been widely accepted in the subsequent studies done on Japanese, English, Italian, Yiddish and Turkish (Kameyama 1985, 1986, D'Zmura 1989, Di Eugenio 1990, 1993, Prince 1994, Hoffman 1993, among others). Kameyama 1985 proposes and Walker, Iida and Cote 1990, 1994 agree that, in addition to the role of grammatical hierarchy, two special devices in Japanese grammar contribute to the salience of an entity: grammaticized topics and empathy (see below for the notion of Empathy). Due to this observation, Walker, Iida, and Cote 1990, 1994 and Cote 1993 claim that ranking forward-looking centers is determined by language-specific factors. Thus, Rambow 1993 suggests that ranking in German might follow the surface order position, as will be discussed below. Likewise, a series of experiments conducted by Gordon, Grosz, and Gilliom 1993 suggest that sentence-initial position seems to contribute to salience, even of non-subjects. Sidner 1979 has suggested that thematic relations are used for determining the ranking. The purpose of this chapter is to examine these suggestions and to investigate the factors that determine ranking Cf-lists in Turkish. The chapter is organized as follows: In Section 1, the background assumptions are presented. Section 2 addresses the role of sentence position as proposed by Rambow 1993, and Grosz, Gordon, and Gilliom 1993. The implications of these studies for Turkish discourse will be explored. In Section 3, the role of grammatical relations will be discussed, and evidence for and exceptions to this analysis will be given. The exceptions involve the behavior of Experiencer objects of psych-verbs. In relation to these objects, the role of Empathy and thematic relations will be discussed in some detail. Then, ranking in certain possessive constructions in Turkish discourse will be addressed. Section 4 presents a discussion on the relationship between Cf-ranking, point of view, and discourse segmentation. In Section 5, some problems in the analysis of naturally-occurring data will be presented, and some solutions will be proposed. Finally, Section

6 summarizes conclusions drawn and suggests areas for further research.

4.1   Background Assumptions

In this dissertation, the following assumptions are held based on Centering Theory (Cf. Prince 1981b, 1988, Kameyama 1985, Kerslake 1987, Walker, Iida, Cote 1990, 1994, Brennan 1993, among others):

1. There is precisely one backward-looking center (Cb) per utterance.

    (a) The Cb(Un) is the highest ranked entity of the Cb(Un-1).

    (b) If anything is a null pronoun, the Cb is a null pronoun.

    (c) Otherwise, an overt pronoun or a full NP can be the Cb.

2. The choice of referential expression is not arbitrary but depends on the degree of salience which the antecedent in the Cf-list is assigned by the speaker. Thus,

    (a) The least explicit expression (i.e. a null pronoun, otherwise an overt pronoun) is reserved for the most salient entity;

    (b) The most explicit expression, i.e. full NP, is reserved for a less salient entity. In other words, the explicitness of an expression is inversely proportional to the salience assigned to its antecedent.

4.2   The Role of Surface Position

Below, the arguments made in Rambow 1993 and Gordon, Grosz, Gilliom, 1993 will be presented and their implications for Turkish discourse discussed.

4.2.1   Rambow 1993

Rambow 1993 suggests that fronted entities between the finite and non-finite verbs in German affect their discourse salience. German is an underlyingly verb-final language, in addition to having a Verb-second (V-2) constraint in root clauses. That is, in root clauses, the finite (auxiliary or main) verb moves to the second position. This divides the clause into two parts: the position in front of the finite verb, theVorfeld (VF), and the position between the finite and non-finite verbs, the Mittelfeld (MF). The VF must contain precisely one constituent, which can be any argument, adjunct, or non-finite verb. The MF contains the remaining arguments and adjuncts of the sentence. Rambow argues that the movement of a single constituent to the VF is an instance of Topicalization and the movement of any number of constituents within the MF is scrambling. Rambow states that it is generally assumed for German that the ordering in the MF is determined by the theme / rheme (i.e. topic/comment) status of the arguments: An NP

may scramble over less rhematic NPs. Rambow argues that the theme corresponds to the Cb, which links an utterance to the previous discourse and is what the sentence is about. However, the ordered Cf-list is not represented by the theme / rheme hierarchy, but helps to determine the theme / rheme hierarchy of the next utterance. Thus, centers of Un that are not realized in Un-1 are more rhematic than any of those that are. Under this condition, Rambow proposes the following:

> NP A in Un that expresses a member of Cf(Un-1) may scramble beyond an NP B if one of the following two conditions holds:
>
> 1. B does not express a member of Cf(Un-1).
> 2. B expresses a member of Cf(Un-1) that is ranked lower than A.

Rambow proposes that the Cf of an utterance is the list of constituents of the MF ranked in their order of occurrence. He indicates that this ordering holds in the following examples, where the pronoun sie 'she' in 1B and 2B is ambiguous: German is a language with grammaticized gender and both eine solche Massnahme 'such a measure' and russischen Wirtshaft 'Russian economy' should be realized with the third-person feminine pronoun sie :

1. A: Glauben Sie, dass [eine solche Massnahme]$_i$ [der russischen Wirtshaft] helfen kann?
   Think   you that a   such   measure   the Russian   economy   help   can?
   'Do you think that such a measure can help the Russian economy?'

   B: Nein, sie$_i$ ist viel   zu   primitiv.
   No,   she is   much too primitiv.
   'No, it (she) is much too primitiv.'

2. A: Glauben Sie, dass [der russischen Wirtshaft]$_i$ [eine solche Massnahme] helfen kann?

   B: Nein, sie$_i$ ist viel zu primitiv.

In 1B and 2B, the ambiguous pronoun sie 'she' refers to the first entity in the MF, eine solche Massnahme 'such a measure' and russischen Wirtshaft 'Russian economy', respectively in 1A and 2A. If the arguments of a sentence are ordered according to their salience hierarchy, from left to right as suggested by Rambow 1993, then the preposed non-subject entity in 2A ranks higher than the grammatically most salient entity (i.e. subject) in the Cf-list, and this predicts that the Cb sie 'she' in 2B is the highest ranked entity of the previous utterance. Thus, the readings in 1B and 2B can be predicted if the Cfs in MF are ranked from left to right in German.

This suggestion made for German may have implications for ranking the Cfs in Turkish. Turkish, which is an SOV language, allows scrambling of each argument of the verb to various positions, depending on appropriate discourse conditions. The rich case system of Turkish identifies the predicate-argument structure in a sentence. The sentence-initial position in Turkish, like in German, is the theme position, where discourse-old information is represented, whereas the preverbal slot is reserved for new, unpresupposed, and or phonetically prominent information (cf.Erguvanlı 1984, Erkü 1983, Hoffman In prep.). Turkish differs from German in two relevant ways: Turkish does not have a verb-second constraint, and it is a pro-drop language.

There have been some preliminary studies of the effects of word order on Centering in Turkish. In these studies, Hoffman and Turan 1993 and Hoffman 1994 show that Cbs tend to appear in sentence-initial positions. In their data, in SOV sentences, the subject tends to be the Cb 55 % of the time, while, in OSV sentences, the object is the Cb 76% of the time (Hoffman and Turan 1993). Since sentence-initial position in Turkish is reserved for an argument or adjunct to link it to the previous discourse, it is not surprising that Cbs tend to be realized in sentence initial-position. However, Hoffman 1994 observes that a preposed non-subject entity does not necessarily rank higher. Although preposed objects tend to be the Cb of an utterance, speakers usually do not continue talking about them in the next utterance. They do not tend to function as Cps. In her data, preposed or postposed non-subjects do not significantly affect the Cf-ranking.

In the following, some examples from Turkish narratives will be discussed to shed light on whether preposed non-subjects in Turkish rank higher in the Cf list. Consider 3:

3. a. Heyetimizi$_i$ Ali$_k$ karşıladı.
   Delegation.POSS.1PLU Ali   meet.PAST.
   'Ali met our delegation.'

   b.ve $\emptyset_k$ heyeti$_i$ Başbakana   götürdü.
   and $\emptyset_k$ delegation Prime Minister.DAT take.PAST.
   '(He) took them to the Prime Minister.'

   c.$\emptyset_k$ onları$_i$ Ankara'da   misafir etti.
   $\emptyset_k$ they.ACC. Ankara.LOC guest   do/make.PAST.
   '(He) hosted them in Ankara.'
   (Aziz Nesin. 1961. *Zübük* :321)

In 3a, the direct object heyetimizi 'our delegation' is in sentence-initial position. According to Rambow's surface position hypothesis, it should be the most salient entity in the Cf-hierarchy. The Cb in 3b is realized with a null subject and is anaphorically related to the non-initial subject of the previous utterance. On the other hand, the full NP in object position in 3b realizes the sentence-initial object. In accordance with the assumptions given above, the non-initial subject in 3a must be ranked higher than the initial object.

In 4, the preposed direct object in 4a is realized with a full NP when used in subject position in 4b before the speaker continues to talk about that entity in the subsequent discourse, 4c-d. This strategy, as will be discussed later, is common in Turkish discourse. The speaker has to make an entity salient by bringing it to the center of attention before s/he can refer to it by a null subject (cf. Brennan, 1993 who discusses a similar strategy in English). This indicates that the sentence-initial position does not contribute to the salience of a non-subject:

4. a. Ŭmit'i$_i$ bile unutmuyor   Birsen$_k$.
   Ŭmit.ACC even forget.NEG.PROG Birsen
   'Birsen doesn't even forget Ŭmit.'

   b.Ŭmit$_i$ Amerika'ya   gitmiş,   .
   Ŭmit Amerika.DAT. go.PAST.
   'Ŭmit went to America'

   c.∅$_i$ milyoner   olmuş.
   ∅$_i$ millionaire become.PAST.
   '(S/he) became a millionaire.'

   d. ∅$_i$ Birsen'le   düğünümüze   milyoner   olarak   geliyor.
   ∅$_i$ Birsen.WITH wedding.POSS.3PLU.DAT millionaire becoming come.PROG.
   '(S/he) comes to our wedding as a millionaire.'
   (Selim Ileri, 1980. *Cehennem Kraliçesi*: 87)

Now consider 5 and 6 designed to be parallel to Rambow's examples. The subject, whether in non-initial position or not, ranks higher than the object in Turkish. In both 5B and 6B the null subject is interpreted as the subject of the previous utterance:

5. a.[Son karar]$_i$ ekonomiyi   düzeltir   mi?
   last decision economy.ACC improve.PRES. QUEST.
   'Will the last decision improve the economy?'

   b.Hayır, ∅$_i$ çok zayıf.
   No   ∅$_i$ very weak.
   'No, it's very weak.'

6. a.Ekonomiyi   [son karar]$_i$ düzeltir   mi?
   economy.ACC last decision improve.PRES. QUEST.
   'Will the last decision improve the economy?'

   b.Hayır, ∅$_i$ çok zayıf.
   No   ∅$_i$ very weak.
   'No, it's very weak.'

Thus, the set of examples discussed in this section suggests that sentence-initial position does not increase salience in Turkish. We now turn to Gordon, Grosz, and Gilliom 1993.

4.2.2   Gordon, Grosz, and Gilliom 1993

Gordon, Grosz, and Gilliom 1993 also explore the function of sentence-initial position as a potential factor in contributing to the salience of an entity in the Cf-list. In a set of psycholinguistic experiments, they test discourses as follows:

7. a. Susan gave Fred a hamster.

   b. In his opinion, she shouldn't have done that.

84

These utterances precede the following two alternative sets of discourses:

    c. She/Susan just assumed that anyone would love a hamster.

    d. Giving a pet as a gift can be somewhat of an imposition.

    c'. He/Fred doesn't have anywhere to put a hamster cage.

    d'. Giving a pet as a gift can be somewhat of an imposition.

In these discourses, the third utterances are critical. Gordon, Grosz, and Gilliom test whether the repeated name in the third utterance renders the discourse less coherent. The discourse is less coherent in their view if the utterance with a full NP takes longer to process than the utterance with a pronoun, i.e. the Repeated Name Penalty. The decreased coherence stems from the violation of the following centering rules:

    1. The Cb (Un) is the most salient entity in (Un-1).

    2. The Cb must be realized with a pronoun rather than a full NP.

Rule A is the standard definition of Cb in Centering Theory, as has been previously discussed. Rule B is a result obtained by Gordon, Grosz, and Gilliom 1993 in a set of psycholinguistic experiments. Thus, their hypothesis is as follows: if the entity realized with a full NP requires a longer processing time, it must not be very salient and therefore must not be the Cb. The Cb is the most salient entity in the previous utterance.

Their results show that, if the Cb is realized with a full NP, the critical sentences take longer to process. Their results show a Repeated Name Penalty if the non-subject in sentence-initial position in Un-1 is realized with a full NP in Un. A similar effect is observed for the entity realized as the non-initial subject in Un-1. Gordon, Grosz, and Gilliom conclude that the sentence-initial position contributes to salience.

In 8, the data given by Gordon, Grosz, and Gilliom are translated into Turkish and relevant cultural and linguistic changes are made to make the discourses coherent:

8. a.Suzan$_k$ Ferdi'ye$_i$ bir kedi verdi.
   Susan Fred.DAT one cat   give.PAST
   'Susan gave a cat to Fred.'

   b.Ferdi'ye$_i$ göre   Suzan$_k$ hata   yaptı.
    Ferdi.DAT according Susan   mistake make.PAST
    'According to Fred, Susan made a mistake.'

   c.∅$_i$ kedileri   hiç   sevmez.
    ∅$_i$ cat.PLU.ACC never like.NEG.AOR.
    '(He) doesn't like cats.'

   d. Birisine   hediye seçmek   çok zor.
     one.DAT gift   select.INF very hard.
     '(It) is very hard to select a gift for someone.'

   _____

   c'. ∅$_k$ herkesin   kedileri   seveceğini   sandı.
      ∅$_k$ every.GEN.3.SG cat.PLU.ACC love.FUT.POSS think.PAST
      '(She) thought everybody would like cats.'

   d'. Birisine   hediye seçmek   çok zor.
      one.DAT gift   select.INF very hard.
      '(It) is very hard to select a gift for someone.'

Note that an initial non-subject and a non-initial subject can be realized with null pronouns in the subsequent utterances in 8c and 8c'. This indicates that both the subject and the sentence-initial entity are salient. Compare 8b with 9b, where Fred is in sentence-final position:

9. a.Suzan$_k$ Ferdi'ye$_i$ bir kedi verdi.
   Susan Fred.DAT one cat   give.PAST
   'Susan gave a cat to Fred.'

   b.Hata   yaptı   Suzan$_k$ Ferdi'ye$_i$ göre.
    mistake make.PAST Susan   Fred.DAT according.
    'Susan made a mistake according to Fred.'

   c.∅$_i$ kedileri   hiç   sevmez.
    ∅$_i$ cat.PLU.ACC never like.NEG.AOR.
    '(He) doesn't like cats.'

In 9c, the null subject still realizes the entity in sentence-final position in 9b. This suggests that it is not the sentence position that contributes to the salience in Turkish. The equal salience of the subject and the non-subject entities both in English and in Turkish stems from the fact that the b sentences are from Fred's point of view, and both Susan and Fred are equally salient from Fred's perspective (cf. section 4 below).

In conclusion, we have seen that the discussion of Turkish data in this section has not provided evidence for the sentence-initial position contributing to the salience of entities.

4.3   The Role of Grammatical Relations

Although it is accepted that many factors figure in determining the Cf-ranking, Grosz, Joshi, and Weinstein 1983, 1986, Kameyama 1985, and Brennan, Friedman, and Pollard 1987 argue that subjecthood is a strong indicator of salience. They claim that the ranking in English is determined by grammatical roles:

Subject > Object(s) > others.

Likewise, Kameyama 1985, 1986 and Walker, Iida, and Cote 1990, 1994, and Iida, 1993 argue that grammatical role in Japanese discourse is significant in determining salience. Japanese has additional language-specific factors contributing to salience such as the grammaticized topic marked by wa and Empathy associated with verbs for giving and receiving. Each predicate in Japanese selects one of its arguments as the locus of Empathy, "the argument position whose referent's view point the speaker identifies with in varying degrees" (Kameyama 1985:141). The unmarked and marked empathy loci are the subject and the indirect object, respectively.

As in English and Japanese, the majority of the Turkish data can be accounted for if subjects are ranked higher than others. An example is given in 10. The null and overt pronouns in 10b, respectively, realize the subject and the object of the previous utterance. The object in Un-1 cannot be realized with a null subject in Un, if the subject is realized with a more explicit expression, as indicated in 10b' and 10b". On the other hand, the sequence of utterances 10a-10b"' is felicitous when the object in Un is realized with a full NP subject in Un-1. These coherence effects stem from the fact that subjects are more salient than objects:

10. a. Ali$_i$ Murat'ı$_k$ davet   etti.
        Ali Murat.ACC invitation do/make.PAST.
        'Ali invited Murat.'

   b. $\emptyset_i$ ona$_k$ içki   ikram etti.
        $\emptyset_i$ He.DAT drink serving do/make.PAST.
        '(He) served him (a) drink.'

   b'. #$\emptyset_k$ ona$_i$ içki ikram etti.

   b". #$\emptyset_k$ Ali'ye içki ikram etti.
        Intended reading: (He) served Ali (a) drink.

   b"'. Murat$_k$ ona$_i$ içki ikram etti.
        'Murat served him (a) drink.'

Likewise, the object in 11b is repeated as a full NP in 11c, while the subject can be a null pronoun. The null subject signals the most salient entity in the previous utterance:

11. a. $\emptyset_i$ Elindeki   raketi   mindere   attı

     $\emptyset_i$ hand.POSS racket.ACC cushion.DAT throw.PAST.

     '(He) threw the racket that was in his hand on the cushion.'

   b. $\emptyset_i$ Murat'a$_k$ doğru   ilerledi,

     $\emptyset_i$ Murat.DAT toward advance.PAST.

     '(He) advanced towards Murat.'

   c. $\emptyset_i$ delikanlıyı$_k$ kucakladı.

     $\emptyset_i$ young-man.ACC embrace.PAST.

     '(He) embraced the young man.'

   d. $\emptyset_i$ Sevincinden   neredeyse   ağlayacaktı.

     $\emptyset_i$ joy.POSS.ABL where-COND cry.FUTURE.PAST.

     '(He) almost cried from happiness.'

     (Kemal Bilbaşar. 1972. *Başka Olur Ağaların Düğünü*:160)

4.3.1   The Center Promotion Rule for Turkish

In the following discussion, more evidence for the salience of subjects is presented, and a Centering rule is introduced which is used extensively in Turkish discourse, illustrated in 12-15.

As has been previously stated, if an entity is evoked in object position, it cannot be referred to with a null subject unless it is brought to the center of attention. Notice that hamuru 'paste' in 12b, Murat'a ' to Murat' in 13a, and kitabi '(the) book' in 14b crucially have to be mentioned as a full NP in their respective utterances in the subject position. Only then can they be realized with a null subject:

12. a. Fatma Bacı$_i$ güldü.

    Fatma Baci   smile.PAST

    'Fatma Baci smiled.'

   b. $\emptyset_i$ Boynuna   sıvanan   hamuru$_k$ silkeledi.

     $\emptyset_i$ neck.POSS cover.REL paste.ACC shake.PAST.

     '(She) shook of the paste that was on her neck.'

   c. Hamur$_k$ gitti,

    paste   go.PAST

    '(The) paste went, and'

   d. $\emptyset_k$ Hatça'nın gözüne   yapıştı.

     $\emptyset_k$ H.Gen   eye.POSS.DAT stick.PAST.

     '(It) stuck on Hatça's eye.'

     (Kemal. Bilbaşar. 1972. *Başka Olur Ağaların Düğünü*::11)

13. a.$\emptyset_i$ Murat'a$_k$ bakraçla   ayran   getirdi.

    $\emptyset_i$ Murat.DAT bucket.with yogurt-drink bring.PAST.

    '(She) brought a yogurt drink in a bucket for Murat.'

   b.Murat$_k$ bakracı   aldı.

    Murat   bucket.ACC take.PAST.

    'Murat took the bucket.'

   c.$\emptyset_k$ Kızın$_i$ gözlerine   bakarak   ağır ağır içti.

    $\emptyset_k$ girl.GEN eye.PLU.POSS.DAT look.ADV slow slow drink.PAST

    'He drank (it) slowly looking at the girl's eyes.'

    (Kemal Bilbaşar. 1972. *Başka Olur Ağaların Düğünü*: 186)

14. a.$\emptyset_i$ Her bir parçasını   yırtabilsin   diye

    $\emptyset_i$ each one part.POSS.ACC tear.ABIL.SUBJU.2S so.that

    'So that he could tear every single piece of it,'

   kitabı$_k$ üç   parçaya   bölmeye   çalıştı.

   book.ACC three part.DAT divide.INF.DAT try.PAST.

   '(he) tried to divide the book into three pieces.

   b.Ama kitap$_k$ ciltliydi.

    but   book   bound.COP.PAST.

    'But the book was bound.'

   c.Kalın bir kapağı$_k$ vardı

    thick one cover.POSS have.PAST

    '(It) had a thick cover,'

   d. ve arkası$_k$ iplikle   dikilmişti.

    and back.POSS. thread.WITH sew.PASS.PAST.PAST

    'and its back was sewn with thread.'

    (Çiçekoğlu, 1991. *Uçurtmayı Vurmasınlar*: 34)

The same rule does not apply if an entity is evoked and realized in the object position in both utterances, for example the report$_i$ in 15:

15. a.$\emptyset$ Ceketinin   cebinde   sakladığı raporu$_i$ çıkardı.

    $\emptyset$ jacket.POSS pocket.GEN keep.REL report.ACC. take.PAST.

    '(He) took out the report he kept in the pocket of his jacket.'

   b.$\emptyset$ Bülent'e $\emptyset_i$ uzattı.

    $\emptyset$ Bülent.DAT   give.PAST

    '(He) gave (it) to Bülent.'

    (Başargan, 1979 *Gurbet Sofrası*: 44)

Compare 15b with the following variant, where we cannot refer to the report with a null subject because the report was introduced in the object position in 15a and is not the center of

attention:

  b'. Rapor$_i$/#$\emptyset_i$ çok uzundu.
   report/#$\emptyset_i$ very long.COP.PAST
   'The report was very long.'

The data indicate that subjects and objects are not assigned equal salience in Turkish discourse. Based on the observations above, the following Center Promotion Rule is proposed:

Center Promotion Rule for Turkish (CPR) (first approximation):

If an entity e is evoked in object position in Un-1, e cannot be realized with a null subject in Un.

So far, we have discussed the behavior of objects which are not Cbs. In 16, the object is also the Cb, and thus it can be continued by a null pronoun in the subject position in 16c:

16. a.Valiyle   görüşmesi öğleden sonraya kaldı.
   mayor.WITH meeting.POSS afternoon after remain.PAST
   '(His) meeting with the mayor was postponed until the afternoon.'

  b.Vali onu$_i$ saat üçe   doğru çağırdı.
   mayor he.ACC clock three.DAT towards call.PAST
   'The mayor called him about three o'clock.'

  c.$\emptyset_i$ Kocaman boyuyla   Vali'nin   önünde   bir kaç kez eğildi.
   $\emptyset_i$ big   height.POSS.WITH mayor.GEN front.POSS.LOC. one few times bend.PAST.
   '(He) bowed in front of the mayor a couple of times.'
(Yaşar Kemal, 1980. *Demirciler Çarşısı Cinayeti*: 197)

Thus, instantiated Cbs do not undergo the Center Promotion Rule. As a result, the rule needs to be revised as follows:

Center Promotion Rule for Turkish (CPR):

If an entity e is evoked in object position and is not the Cb in Un-1, e cannot be realized with a null subject in Un.

4.3.2 Psychological Verbs

Although entities in subject position in Turkish seem to be more salient in most cases, we shall see below that the objects of some psychological verbs rank higher than the subjects. Furthermore, in certain types of possessive constructions, the possessors are more salient than the entity evoked by the possessed NP. Thus, the discussion below will show that:

18. a. Not all subjects are equally salient.

  b. Some objects are more salient than subjects.

After the facts in Turkish is presented, related research in Focusing and Centering Theories will be discussed. After these discussions, we shall also see that in possessive constructions indicating

the cognitive or psychological state of the possessor or inalienable possession, the possessor noun is more salient than the entity evoked by the NP. For instance, in an NP like [John's$_i$ mind]$_k$, John ranks higher than John's mind.

In 19-21, the Experiencer objects in (a) utterances rank higher than the subjects. These objects do not undergo the Center Promotion Rule and they are immediately realized with null pronouns. The subjects, on the other hand, are repeated as full NPs in the successive utterances if they are promoted to subject position:

19. a.[Alana   inen   kocaman uçak]$_k$, heyecanlandırıyor   karısını$_i$.
    port.DAT land.REL huge   plane   excite.CAUS.PROG wife.POSS.
    'The huge plane that lands causes his wife to become excited.'

  b.∅$_i$ Hemen   yanındakilere   soruyor,
    ∅$_i$ immediately near.LOC.DAT ask.PROG
    '(She) immediately asks the people next to her'

    bu uçağın$_k$ bunun$_k$ ne   uçağı olduğunu.
    this plane.POSS this.GEN what plane be.NOM.ACC.
    'which plane this is.'

  c.Yanındaki, bir ad   söylüyor.
    near.POSS one name say.PROG.
    'The person near (her) utters a name.'
    (from Erol Toy. 1974. *Kördüğüm* :227)

20. a.Türkü$_k$ [Karaca Ali'yi]$_i$ bile yumuşatmıştı.
    song   Karaca Ali.ACC even soft.CAUS.PAST.PAST.
    'The song had softened even Karaca Ali.'

  b.#Karaca Ali$_i$/∅$_i$ Yanındakilere   uzun uzun baktı.
    #Karaca Ali$_i$/∅$_i$ Near.POSS.LOC.PLU.DAT. long long look.PAST.
    '(He) looked at the people with him for a long time.'
    (Yaşar Kemal. 1982. *Üç Anadolu Efsanesi*. 170)

In 20, the object does not undergo the Center Promotion Rule (CPR) unlike the other objects we have seen in the previous section. In 20b, we cannot use the full NP to realize the object Karaca Ali introduced in 20a is infelicitous. In utterance 21b, on the other hand, the subject has to be realized with a full NP. Therefore, in this case the subject rather than the object undergoes the CPR:

21. a.Türkü$_k$ [Karaca Ali'yi]$_i$ bile yumuşatmıştı.
    song   Karaca Ali.ACC. even soft.CAUS.PAST.PAST.
    'The song had softened even Karaca Ali.'

  b.Buk/bu türkü$_k$/#∅$_k$ Ahmet'in   bestesiydi.
    this/this song/#∅   Ahmet.GEN composition.COP.PAST
    'This/this song was Ahmet's composition.'

In examples 19-21, psychological verbs in the (a) utterances assign Theme and Experiencer theta roles to their subjects and objects, respectively. As a result, Experiencer objects rank higher than Theme subjects. There are two alternative theories available in the literature to account for these facts: the notion of Empathy or Thematic Relations. These will be discussed in the following sections.

4.3.2.1 Empathy

Kuno and Kaburaki 1975 introduce a theory of Empathy which is then elaborated in Kuno 1987.

> Empathy is the speaker's identification, which may vary in degree, with a person/thing that participates in the event or state that he describes in a sentence [through the eye of a camera].

(Kuno 1987:206)

Since Empathy is a significant factor in Cf-ranking in Japanese (Kameyama 1985, 1986, Walker, Iida, and Cote 1990, 1994, Iida 1993), it is conceivable that it is a discourse universal in determining Cf-ranking. The examples discussed in 19-21 may involve an Empathy effect which assigns the Empathy locus to the objects. The speaker identifies with the person who is going through a psychological experience. As a result, the experiencing person in the object position becomes more salient.

Though this proposal seems to be plausible, in Turkish the salience of objects is limited to the objects of psychological verbs, and the notion of Empathy cannot distinguish between psychological and nonpsychological verbs, e.g. verbs of giving and receiving in Japanese involve Empathy. Thus, for Turkish discourse, a theory that distinguishes psychological verbs from others is necessary. Furthermore, Experiencer objects of psychological verbs still rank higher than Theme subjects in objective, i.e. non-Empathy, contexts as will be shown below.

Kuno (1987:174) states that the objectivity of the observer conflicts with the camera angle of the experiencer. He proposes that an adverb like "understandably" signals the speaker's empathy with the Experiencer, while an adverb like "probably" makes the speaker's empathy impossible with the Experiencer's psychological state. Consider 22, a variant of 20, which is not from the speaker's empathy locus, shown by the adverb "belki" (*probably*):

22 . a.Belki   türkü$_k$ Karaca   Ali'yi$_i$ yumuşatmıştı.
       probably song Karaca Ali.ACC soft.CAUS.PAST.PAST.
       'Probably, the song had softened Karaca Ali.'

    b.Zaten $\emptyset_i$ bu   türküyü$_k$ çok   severdi.
       In fact $\emptyset_i$ this song.ACC very like.AOR.PAST.
       'In fact, he liked this song very much.'

As noted, whether the speaker empathizes with the Experiencer or not, the Experiencer still is the Cb in 22b, namely the highest ranked entity in the preceding utterance.

Another test to eliminate speaker's Empathy might be to embed the sentence under a clause like as "herkes açıkça gördü ki" (*everybody clearly saw that*), where the universal quantifier "herkes" (*everybody*) blocks the Empathy locus. However, the null subject in 23b realizing the object in 23a is still coherent:

23. a.Herkes   açıkça gördü   ki   Türkü Karaca Ali'yi$_i$ yumuşatmıştı.
     everybody clearly see.PAST that song   Karaca Ali.ACC soft.CAUS.PAST.PAST.
     'Everybody clearly saw that the song had softened Karaca Ali.'

   b.Zaten $\emptyset_i$ bu türküyü$_k$ çok severdi.
     In fact $\emptyset_i$ this song.ACC very like.AOR.PAST.
     'In fact, he liked this song very much.'

In conclusion, then, the behavior of psychological verbs in Turkish cannot be explained by Kuno's theory of Empathy.

4.3.2.2   Thematic Hierarchy

Thematic roles, unlike Empathy, can distinguish psychological verbs from others. Psychological verbs assign an Experiencer theta-role to one of their arguments, either the subject or the object. If the object has an Experiencer theta-role, the subject can receive either an Agent or a Theme role. Experiencer objects rank higher in the Cf list only when the subject has a Theme role; otherwise, when the subject is an Agent, it ranks higher. For example, the subjects in (a) sentences in 19-20 are assigned Theme roles. These subjects do not have the potential to act intentionally in order to achieve the psychological changes on the objects. Sentences in 24 and 25 show that neither an adverb like 'kasten' (*deliberately*) nor a purpose clause can coccur with these subjects, both of which require volitional actors, i.e. Agents:

24. *Bu yürüyüşler kasten   kendini toparlamasına yardımcı oluyordu.
    This walk.PLU deliberately himself.ACC pull.INF.DAT.   helpful   be.PROG.PAST.
    *'These walks deliberately helped him to pull himself together.'

25. *Türkü Karaca Ali'yi   bile sakinleşmesi için yumuşatmıştı.
    *Song Karaca Ali.ACC even calm.INF.ACC   for/to   soft.CAUS.PAST.PAST.
    *'The song had softened even Karaca Ali in order to calm (him/it) down.'

The same psychological verbs discussed above can have Agent instead of Theme arguments in subject position. In examples 26 and 27, the thematic roles of 'Ahmet' and 'türkü' (*song*) will be different, since the former, as a human being has the ability to behave volitionally. The adverb 'kasten' (*deliberately*) is acceptable when Ahmet is the subject, but not when türkü is. When the predicate assigns an Agent role, Ahmet can be realized with a null subject due to thematic salience, as seen in 26b. This indicates that an entity with an Agent role is more salient than an Experiencer. Note that the null subject in 26b necessarily realizes the Agent subject of 26a, not the Experiencer object:

26. a.Ahmet$_i$ Ali'yi$_k$ kasten   yumuşatmıştı.

       Ahmet   Ali.ACC. deliberately soft.CAUS.PAST.PAST.

       'Ahmet calmed down Karaca Ali deliberately'

   b.∅$_i$ onu$_k$ saatlerce   ikna   etmeye   uğraştı.

       ∅$_i$ he.ACC hour.PLU.ADV persuasion do.INF.DAT try.PAST.

       '(He) tried to persuade him for hours.'

On the other hand, a null subject is infelicitous when the subject has a Theme role, as in 27; either a demonstrative or a full NP is required:

27. a.Türkü$_i$ Karaca Ali'yi   bile yumuşatmıştı.

       song   Karaca Ali.ACC. even soft.CAUS.PAST.PAST

       'The song softened even Karaca Ali.'

   b.#∅$_i$/Türkü$_i$ Ahmet tarafından bestelenmişti.

       #∅$_i$/song   Ahmet by   compose.PAST.

       'The song was composed by Ahmet.'

Note that Kuno's notion of Empathy can account for the facts in 26-27 equally well, in that the speaker is identifying with a human entity, i.e. Ahmet, in the subject position in 26a, but finds it hard to identify with the inanimate subject in 26a. However, in order for Empathy to be the right analysis, it should also account for 28. In 28, the subject is an animate entity with a Theme role, with whom the speaker empathizes. Kuno (1987: 207) proposes that, given an expression x (e.g.John), and another expression f(x) dependent on (x) (e.g.John's brother), the speaker's empathy with x is greater than with f(x).

28. a.Ahmet karısını$_i$ farkına   varmadan   yumuşatmıştı.

       Ahmet wife.POSS awareness arrive.NEG.ABL. soft.CAUS.PAST.PAST.

       'Ahmet calmed down his wife without being aware.'

   b.∅$_i$ Artık   eskisi   gibi çok   çabuk sinirlenmiyordu.

       ∅$_i$ anymore old-one like very fast   nervous.NEG.PROG.PAST.

       '(She) didn't become nervous as quickly as she used to.'

In 28a, the speaker is expected to empathize with the subject Ahmet rather than with an expression that is dependent on it, i.e. his wife; this predicts that the former not the latter will be salient. However, as seen above, the dependent expression in object position must rank higher in the Cf list because it is the Cb, realized with a null subject, in the subsequent utterance. The thematic role hierarchy provides an explanation for this. The reason is that the object in 28a is Experiencer, while the subject, performing an action unintentionally, is the Theme.

The discussion so far suggests that entities in Turkish must be ranked based on thematic roles as in the following order:

    AGENT > EXPERIENCER > THEME.

4.3.3 Related Research in Focusing

Sidner 1979 formulates the expected focus hierarchy using thematic relations. She ranks the argument with a Theme role as the most salient entity in an utterance.

As introduced in Chapter 3, the two types of foci in Sidner's Focusing Theory, Actor Focus (AF) and Discourse Focus (DF), can both be the entities in the center of attention. Sidner suggests that DF is the entity that the speaker is mainly concerned about and that the AF, i.e. the argument with an Agent role, is less salient. Sidner's proposal contradicts with the suggestions of Jackendoff 1990, Grimshaw 1990, and Pesetsky 1995, among others, who claim that, for agentive verbs, the Agent always ranks highest in a salience scale. Kameyama 1985 argues against Sidner's suggestions and shows that a grammatical hierarchy can equally explain both Sidner's data and the facts in Japanese.

Suri 1992 extends Sidner's analysis. In her analysis, the Current Focus (CF) is the object or the Theme in the utterance. There is a separate Actor Focus (AF), identified with the entity in an Agent role in the utterance. Roughly akin to our Cf-list, Suri proposes keeping two separate Foci Lists for the CF and the AF. The CF and the AF are listed in the Potential Focus List (PFL) and in the Potential Actor Focus List (PAFL), respectively. If an utterance has no Agent, then the stacked AF is retained. PAFL contains all NPs that specify an animate entity in the database in an Agent role. A pronoun in Agent role is interpreted as the AF in the previous utterance. Suri, like Sidner, suggests that the object or the Theme should rank higher than the subject or the Agent in the hierarchy.

We have seen evidence that subjects rank higher than objects in Turkish in the discussion so far. Furthermore, given that there is precisely one Cb in Centering Theory, the Sidner/Suri analysis cannot be adopted here.

4.3.4 Related Research in Centering

4.3.4.1 Brennan 1993

Brennan 1993 carries out a set of psycholinguistic experiments to find out when English speakers use pronominal forms as opposed to full NPs to refer to previously evoked entities. In her data from recorded conversations, one of the speakers describes the basketball game previously recorded on the videotape to a hearer who cannot see the screen. Brennan chooses a basketball game because it is dynamic and fast moving, and it exerts a reasonably high degree of control over the center of attention, the basketball or the player with the basketball. Furthermore, it provides a domain with many opportunities to refer to entities of the same number and gender, establishing a test for centering predictions.

Brennan finds that prominent entities are introduced in subject position as opposed to object position. This is a signal to the hearer that the center of attention is the particular entity in subject position. This supports the centering hypothesis that the highest ranked entity in the Cf list is the subject.

Brennan's other findings also support centering predictions. She argues that, when entities are introduced as objects, speakers are likely to repeat them as full NPs in subject position before pronominalizing them. According to centering definitions, the Cp, the highest ranked entity, is in subject position and is the expected Cb of the subsequent utterance. A more explicit referential expression, i.e. a full NP, is used for a less salient entity which was not the subject. The following example from Brennan 1993 shows this strategy. The basketball player forty-one is introduced as the object in the first utterance and is repeated as a full NP in subject position in the subsequent utterance before being pronominalized:

17. a. Number thirty passes it of to...forty-one.

    b. Forty-one goes up for the shot

    c. and he misses.

Brennan notes that this strategy is employed even though describing a basketball game is biased against centering because a basketball game is often quite fast, and speakers have to keep up the pace of their descriptions. As a pronoun is shorter than a full name, we might except that speakers would avoid unnecessary repetition. However, as the object position is less salient, the speaker takes the time to bring the entity into subject position with a full NP before pronominalizing it.[1] This supports Centering Theory in that speakers do not use pronouns for all entities that are previously mentioned, but for those that are in the center of attention.

4.3.4.2 Cote 1993

Cote 1993 discusses the inadequacy of grammatical roles in determining the Cf-ranking in English. She points out that in Japanese, as shown by Kameyama 1985, and Walker, Iida, and Cote 1990, 1994, not only grammatical roles but the topic marker wa and the Empathy markers on verbs are relevant as briefly discussed above. Cote also cites Di Eugenio 1990, who shows that some verbal forms carrying tense and agreement morphology, may override centering predictions in Italian. Cote states that this constitutes evidence that the Cf-ranking cannot be composed entirely of syntactic features.

Cote presents additional evidence from null objects in English which motivate her use of Jackendoff's Lexical Conceptual Structures (LCS). She argues that null objects in English are not phonologically null pronouns or the result of ellipsis, but that they are lexically affected arguments that interact with Centering Rules.

Consider examples in 29-32 from Cote 1993. Certain verbs like eat in English may have null objects, but in fact these null objects affect the subsequent salience of the entity they realize. Notice that in the following example, even when the verb eat has a null object, it still evokes a discourse entity realized by 'it' in the subsequent utterance:

---

[1] In a small number of cases where speakers did not center an entity before pronominalizing it, they lengthened the pronoun slightly. This may be a strategy to signal to the hearer that the speaker is talking about another entity and not the Cp.

29. D: We ate at Jorges

    M: Was it good?

    D: Um:: it was all ri:ght.

    M: You know, I don't think that's as good as a lot of people think it is.

Unlike eat, verbs like clean and iron cannot have null objects that have salient antecedents:

30.A. E: Whadiyah doin.

    N: What am I doin?

    E: Cleanin?

    N: I'm ironing, wouldja believe that?

    E: Oh, bless its heart.

  B.

    E: Whadiyah doin with your shirts.

    N: What am I doin with them?

    E: Cleanin *∅/them ?

    N: I'm ironing *∅/them, wouldja believe that?

    E: Oh, bless its heart.

On the other hand, some verbs can have null objects only when they have a textually evoked salient object, as in 31-32:

31. She stopped at the Surcliffs' after dusk, and had a Scotch-and-soda. She stayed ∅ too late, and when she left ∅, it was dark and time to go home and cook supper for her husband.

32. A: What did you do on vacation?

    B: #I left.

All these verbs impose different idiosyncratic constraints on their objects. According to Cote, this idiosyncrasy can best be represented by the LCS, which combine the syntactic subcategorization frames and selectional restrictions of verbs.

For example, the LCS of a verb like eat can be given as follows, when the object is lexically affected. 0 indicates that the object can be null.

[CAUSE ([Thing] a [Event GO([Thing 0], [Path TO ([Place IN ([Thing MOUTH-OF ([a])])])])])]

Cote proposes that LCS can be used as 'Cf-templates', an abstract construct, used in ranking the Cf-hierarchy as follows:

Conceptual Structure Cf-template for English:

Begin by ranking arguments of the phrasal conceptual structure from left-to-right.

Mark all 0 arguments as -pronominal for U_{n+1} unless no other interpretation is possible.

The proposal made for the Cf-ranking in this study is along the lines of Cote's proposal, since thematic roles are a part of LCS. As Jackendoff (1990 cited in Cote 1993:6) writes "thematic roles

97

are nothing but particular configurations in conceptual structure(s); the names for them are just convenient mnemonics for particularly prominent configurations."

A similar ranking of the Cf-list is proposed by Hudson-D'Zmura 1993 using Lexical Relational Structures (LRS). Hudson-D'Zmura's work will be discussed in Section 4.1. For the time being, we should note that LRS is analogous to LCS and both make use of thematic relations underlyingly.

Consequently, using LCS is akin to using thematic relations to determine the Cf-hierarchy. The difference between LCS/LR and thematic relations is that the former also include event structure as well as thematic structure. They refer overtly to events and states. Cote argues that this is an important contribution because both pronouns and null objects may have event antecedents and that LCS provide a tool for the representation of these anaphoric relations.

To conclude this section, there is evidence for using thematic relations for the Cf-ranking in both Turkish and in English motivated for different reasons. The evidence in the two unrelated languages suggests that factors determining Cf-ranking may in fact be universal rather than language-specific. Future research will refine and elaborate these observations and determine whether thematic relations or more powerful devices as LCS and LRS should be used for Cf-ranking.

4.3.5 Possessive Constructions

Ranking the Cf-list using the thematic hierarchy predicts that an Experiencer in a genitive case-marked NP ranks higher than the Theme. This is indeed the case, as indicated in 33:

33. a.Bu olay$_k$ [Ali'nini kalbini] kırmıştı.
    this event Ali.GEN heart.POSS break.PAST.PAST.
    'This event had broken Ali's heart.'

    b.$\emptyset_i$ Bunu$_k$ hiç unutamıyordu.
    $\emptyset_i$ this.ACC never forget.NEG.ABIL.PROG.PAST.
    '(He) couldn't ever forget this.'

In 33a, Ali is genitive case-marked. Note that the null subject in the subsequent utterance, 33b, is interpreted as Ali, rather than as 'Ali's heart'. The demonstrative pronoun, on the other hand, realizes the subject in a Theme role, 'this event'. Ali also ranks higher than the entity evoked by the whole possessive NP Ali'nin kalbi 'Ali's heart'. Note that in 33a the breaking of Ali's heart is idiomatic. Ali is the Experiencer and since "kalbi kırılmak" (*break heart*) is possibly listed in the lexicon as a complex verb, it can be argued that 'kalp' (*heart*) does not evoke a discourse entity. As a result, it cannot be the Cb in the subsequent utterance.

A similar explanation holds for *niyeti olmak* ('have intention') in 34a. 'Intention' does not evoke a discourse entity and thus, Nesrin, the Experiencer, is the entity predicted to be the Cb of the next utterance:

34. a.Nesrin'in   karaya   çıkmaya   niyeti$_i$ yoktu,
Nesrin.GEN land.DAT go-out.INF.DAT intention.POSS exist.NOT.PAST.
'Nesrin had no intention to land.'

c.∅$_i$ balık tutacaktı   mutlaka.
∅$_i$ fish   catch.FUT.PAST definitely
'(She) would definitely catch some fish.'
(Gülderen Bilgili. 1987. Bir Gece Yolculuğu: 63)

However, possessive NPs may evoke multiple discourse entities. For example, in 35d and 35e, the subjects are inalienable possessive constructions; *Sülo'nun yüzü* 'Sülo's face'; *elleri* 'his hands'; *bacakları* 'his legs', etc. are his body parts. In these NPs, the entity evoked by the genitive-marked Sülo or his in his legs, face, etc. can be referred to anaphorically in the subsequent discourse. In 35f, the null subject is interpreted as Sülo rather than his body parts which is the Cb in 35e.

35. a.Sülo$_i$ kendini   kaybetti.
Sülo self.ACC lose.PAST
'Sülo passed out.'

b.∅$_i$ Ayıldığı zaman, kendini$_i$ bir adamın   kollarında   buldu.
∅$_i$ wake.up when   self.ACC one man.GEN. arms.POSS.DAT find.PAST
'When (he) woke up, (he) found himself in the arms of a man.'

c.Adam onu$_i$ bir yere   götürüyordu.
man   he.ACC one location.DAT take.PROG.PAST
'(The) man was taking him somewhere.'

d. [Yüzünde,   ellerinde,   bacaklarında]$_i$ bir sürü yara   vardı.
face.POSS.LOC hands.POSS.LOC legs.POSS.LOC one many bruise exist.PAST.
'There were many bruises on (his) face, hands and legs.

e.Bir   iki   yeri$_i$ hızla kanıyordu.
one two place.POSS fast bleed.PROG.PAST
'Some parts of his (face, legs, etc.) were bleeding.'

f. ∅$_i$ Kanının   aktığını   görünce   ağlamaya   başladı.
∅$_i$ blood.GEN flow.NOM.ACC see.WHEN cry.INF.DAT start.PAST
Lit: '(He) started to cry when he saw his blood was flowing.'
(Fakir Baykurt. 1983. *Barış Çöreği*: 108)

One might argue against this suggestion stating that the salience of Sülo in 35 is due to its status as an instantiated Cb, rather than any other property of possessive NPs. Continue transitions are preferred, and so speakers may tend to talk about Cbs rather than newly introduced entities. In order to eliminate any effects that may stem from the Cb-status, we must explore examples where both nouns in a possessive NP evoke brand-new entities.

Likewise, in 36a in the possessive object NP, the null genitive is the most salient entity, even though it is not in the subject position. This is because, the Experiencer object ranks higher than

the Theme subject Lumumba Üniversitesi 'Lumumba University'. Note that the null subject in 36b is interpreted as the individual who goes through the state of mind and not as Lumumba University or as his mind:

36. a.[$\emptyset_i$ Aklına]   Lumumba Üniversitesi geldi.

      [$\emptyset_i$ mind.POSS.DAT] Lumumba University   come.PAST.

      'Lit: The Lumuba University came to his mind.'

  b.$\emptyset_i$ Formülü aradı   ceketin   cebinde,

      $\emptyset_i$ formula look.for.PAST jacket.GEN pocket.POSS.DAT.

      '(He) looked for the formula in the jacket's pocket.'

      (Özdemir Başargan, 1979. *Gurbet Sofrası*:217)

To sum up, then, an Experiencer in a possessive NP, or a possessor of inalienable parts ranks higher than the entity evoked by the genitive construction. Note that none of the Experiencers or possessors undergo the Center Promotion Rule in discourses 32-36, but rather they are realized with null subjects in the immediately subsequent utterances. This shows that they are indeed the Cps.

On the other hand, the genitive noun in a possessive construction is not more salient than the entity evoked by the whole NP if the latter has an Agent role. For example, in 37b, the null subject cannot be interpreted as Canan, but is unambiguously used to refer to Canan'in annesi 'Canan's mother':

37. a.[Canan'in$_i$ annesi]k   kek pişirmiş.

      Canan.GEN mother.POSS cake cook.PAST

      'Canan's mother baked (a) cake.'

  b.$\emptyset_{k/*i}$ onu   yemiş.

      $\emptyset_{k/*i}$ it.ACC. eat.PAST

      '(She) ate it.'

Prince and Walker (1993:6) tentatively propose the following assumption for possessive NPs:

The Complex NP Assumption:

In English, when an NP evokes multiple discourse entities, such as an NP with a possessive pronoun, the [Cf] ordering is from left to right within the NP.

Prince and Walker propose that, in an utterance like "[Her$_i$ mother]$_k$ knows Queen Elizabeth", her ranks higher than her mother, (i.e. i > k). The assumption given in Prince and Walker is modified for Turkish as follows:

Possessive NP Hypothesis:

In Turkish, when a possessive NP evokes multiple discourse entities, the Cf-ranking should be from left to right if the genitive noun is

a. the Experiencer (e.g. in his heart was broken, his > his heart)

b. the entity evoked is involved in a cognitive state (e.g. in constructions like Mary came to John's mind , John > Mary > John's mind.)

c. the possessor noun in an inalienable possession.

To sum up the discussion so far, the following ranking is assumed:
AGENT > EXPERIENCER > (Inalienable) Possessor > THEME

4.4   Discourse Point of View and Segmentation

This section discusses other types of elements that rank higher than subjects and constitute exceptions to the Center Promotion Rule. Before the discussion on Cf-ranking, a brief introduction to a concept called Discourse Point of View will be presented. Discourse Point of View is one factor which affects discourse segmentation. Other factors that affect discourse segmentation will be discussed in Section 5.

4.4.1   Subjective and Objective Points of View

An author may intend for the reader to evaluate the utterances from an objective or a subjective point of view. This intention affects the realization of the entities at the attentional state. These two components of discourse structure trigger clues for discourse segmentation. Objective and subjective points of view may occur in different discourse segments or they may be embedded within the same segment in a hierarchically ordered discourse.

Depending on his/her intention, then, an author may narrate a story from an objective point of view or from the subjective point of view of a character. Objective and subjective points of view are represented by objective and subjective sentences, respectively. Objective sentences represent events objectively and independently of any character's consciousness. Subjective sentences present the consciousness of an experiencing character within the story, a character's evaluations, judgments, uncertainties, his/her represented thought, emotion or perception (Banfield 1982, Wiebe and Rappaport 1988, Ehrlich 1987, 1990, Wiebe 1990, 1994). A private state is part of the meaning of a subjective sentence. Objective sentences in a world created by the narrator are immune to truth or falsity judgments. They create a fictional world that is taken to be fictionally true. Subjective sentences, on the other hand, reflect the beliefs, thoughts, and emotions of the characters, which may be true or false. The reader does not assume that those beliefs, thoughts, and emotions presented in subjective sentences are necessarily true (cf. Wiebe 1991, and the references therein).

A subjective sentence about a subjective character is not directed to the hearer. A subjective sentence might be thought of as the reader 'overhearing' the character's thoughts, or the reader perceiving the world through a character's senses (Wiebe 1991:464). These private states are not open to objective observation and verification (Banfield 1982, Wiebe 1994).

Subjective sentences are marked by subjective elements. Some subjective elements are exclamations, which express emotion, epithets such as "idiot", which express the evaluation of the referent, kinship terms such as "daddy", which indicate the relationship of the referent and the character. According to Banfield 1982 (see also Wiebe 1991:479,Fleischman,1991:31ff), the subjectivity expressed is attributed to the 'subject of consciousness' or the 'self'. In a conversation, where the first person singular 'I' would normally be used to refer to the speaker, the self is the speaker, so the subjectivity that appears is attributed to the character. In a subjective sentence, the subjective character is the self, even when s/he is referred to in the third person. In an utterance like "The idiot was standing next to her", the epithet the idiot indicates the subjective nature of the sentence and 'whoever the idiot is' is standing next to the referent of her. This is exemplified by the Turkish discourse below, where a character, Gökmen, is realized with a third person singular pronoun in 38c:

38. a.Dayanılmaz acılar   yaşıyordu   Gökmen$_i$.
    unbearable pain.PLU live.PROG.PAST Gökmen
    'Gökmen was going through unbearable pain.'

   b.Yaşam çok uzundu   işte.
   life   very long.PAST EXCLAMATION.
   'Life was too long.'

   c.Yoo, başka hiç   kimse ilgilendirmiyordu   onu$_i$.
   no,   other none nobody interest.NEG.PROG.PAST he.ACC
   'No, nobody else interested him.'

   d. Ø$_i$ Yeryüzüne Belkıs'ı   yaşamak için gelmişti.
    Ø$_i$ world.DAT Belkis.ACC live.INF for come.PAST.PAST
    '(He) had been born to live (for) Belkis.'
    (Selim Ileri. 1980. *Cehennem Kraliçesi* : 87)

In the example above, 38a introduces a subjective point of view describing Gökmen's suffering, and his judgments and emotions are presented in 38b-38d. Note that the subjective point of view is marked by subjective elements, e.g. the exclamation "işte", which expresses a value judgment in 38b and "yoo" ('no' -informal) in 38c. These subjective elements cannot occur in objective sentences. Furthermore, as has been previously stated, though these utterances represent the character's inner thoughts, i.e. his speech to himself, the pronoun in 38c is in third person singular rather than first person.

A represented thought explicitly mentions only the object of the private state; the attitude of the character is implicit (Wiebe 1994:235). Changes in tense and aspect are context-sensitive markers of subjectivity (Ehrlich 1987,1990). The behavior of pronominal anaphora is another marker to be discussed in the next section. Note that all these markers are linguistic clues of discourse segment boundaries.

4.4.2 Point of View Shifts and Centering Predictions

When there is a switch from an objective to a subjective point of view, a non-subject rather than the subject can be preferred as the next Cb.

Subjective sentences can be introduced with verbs denoting private states. These verbs can be intellectual like believe, wonder, remember, emotive like hate, like or perceptual like see, hear, etc., the consciousness through which the events are projected. For example, 39b indicates a shift from objective to subjective point of view by an intellectual verb remember. We, the readers, now go into the mind of Dr. Wiley and see the world through his eyes. Note that the adverb "apparently" indicates a judgment of the perceiver, which signals the subjective view. The third-person pronoun he in 39c is used unambiguously to refer to Charles, not to the Cp, Dr. Wiley. This is because Charles is now projected through Dr.Wiley's consciousness, and the entity is ranked in his cognition as Dr. Wiley's mind [Cf-list- Charles]:

39. a. "As you wish" said Dr. Wiley$_i$.

   b. He$_i$ remembered Charles$_k$ as a rash but thorough student.

   c. Apparently he$_k$ hadn't changed.

   d. Although Dr. Wiley$_i$ knew that......

(Robin Cook. 1982. *Fever*: 81)

Likewise, In 40a, the perception verb "look at" marks a switch to a subjective point of view, the way in which Charles perceives the man in front of him. Note that once more the Cb in 40b co-specifies with the entity in the object position in 40a, due to the reasons discussed in example 39:

40. a. Charles$_i$ looked at the man$_k$ in front of him$_i$.

   b. He$_k$ was a full head taller than Charles$_i$.

   c. His$_k$ perspiring face was so pudgy that his$_k$ eyes were mere slits.

   d. He$_k$ was dressed like the other men Charles$_i$ had seen.

(Robin Cook. 1982. *Fever*: 112)

The following examples indicate that, in Turkish, as in English, the non-subject rather than the subject is preferred and realized by null subjects when there is a switch from an objective to a subjective point of view. These null subjects should be ambiguous for they can equally co-specify both of the entities in the previous utterance, but they are unambiguously interpreted. Consider 41:

41. a.Dümen başındaki motorcu, Korkut'u$_i$ süzüyordu;

    rudder front.LOC motorist Korkut.ACC examine.closely.PROG.PAST

    'The motorist in front of the (boat's) rudder was looking at (examining) Korkut carefully.'

  b.besbelli,   güneş ve   deniz artık   onu$_i$ ilgilendirmiyordu,

    apparently sun   and sea   any more he.ACC interest.NEG.PROG.PAST

    'Apparently (the) sun and (the) sea did not interest him any more.'

  c.$\emptyset_i$ usanmıştı.

    $\emptyset_i$ be.tired.PAST.PAST

    '(he) was tired.'

  d. Tekne   hantaldı.

    motorboat coarse.COP.PAST.

    '(The) motorboat was coarsely built.'

    (Selim Ileri 1980. *Cehennem Kraliçesi.* 7)

The utterance in 41a presents Korkut's state from the motorist's view, indicated by the perception verb "süzmek" (look at /examine closely). Hence, Korkut is seen from the motorist's perspective, enabling it to be the Cp. As can be seen from the indices, the null subject in 41b realizes the object of 41a.

Likewise, 42 is an example of switch from an objective to subjective point of view:

42. a.Gözlerini   kapadı   Cem$_i$.

    eye.PLU.POSS.ACC close.PAST. Cem

    'Cem closed his eyes.'

  b.$\emptyset_i$ Kerem'i$_k$ düşündü.

    $\emptyset_i$ Kerem.ACC. think.PAST.

    '(He) thought (about) Kerem.'

  c.$\emptyset_k$ Az   konuşurdu.

    $\emptyset_i$ little speak.PRES.PAST.

    '(He) would hardly speak.'

    (Selim Ileri. 1991. *Her Gece Bodrum*: 66)

In 42a-b, Cem is the subject. However, the perception verb "düşünmek" (think) signals a shift in point of view. In this case, once again the reader looks at the world from a character's perspective. Thus, Kerem is the entity salient to Cem, and it can therefore be realized with a null subject in 42c.

Likewise, the perception verb in 43b below *bakmak* 'look' puts the object into perspective, which makes it a salient entity:

43. a.$\emptyset_i$ Jeeplere   bindiler.

   $\emptyset_i$ Jeep.PLU.DAT get.on.PAST.3.PLU.

   '(They) got on the Jeeps.'

   b.Gökmen$_m$ güneşek   baktı.

   Gökmen   sun.DAT. look.PAST

   'Gökmen looked at the sun. '

   c.$\emptyset_k$ Yine göz kamaştırıcıydı.

   $\emptyset_k$ again eye dazzling.COP.PAST.

   ' (It) was still dazzling.'

   d. $\emptyset_k$ ama iyice batıya   kaymıştı.

   $\emptyset_k$ but well west.DAT slide.PAST.PAST.

   'But (it) had pretty much slid to the west.'

   (Selim Ileri. 1980.*Cehennem Kraliçesi*: 149)

We have seen that both in and English and in Turkish, verbs of perception trigger a subjective point of view, which represents entities from an individual's consciousness. As a result, entities are ranked in the order in which they are salient to the subject of consciousness.

(Discourse) Point of View Rule:

If any of the events or actions are presented from the perception or point of view of a subject of consciousness, the entities are ranked through that individual's point of view.

What this rule states is that the salience of an entity depends on the way in which it is perceived by the subject of consciousness. Note that, in the subjective point of view, an object or an individual in the physical environment or in the mind of a subject of consciousness can be salient to him/her as well as the author. Thus, returning to examples 6 and 7 cited in Section 2.2., as Gordon, Grosz, and Gilliom suggest, two entities have equal salience. However, contrary to their suggestion, the sentence-initial position does not contribute to the salience of the entity making it as salient as the subject but rather, in the subjective point of view, both the self and the individual are equally available to the subject of consciousness.

Subjective point of view can create a sub-segment within an objective discourse segment. In these instances, the discontinuous utterances in the objective segments are considered to be adjacent. Consider 44. Utterances from from 44d to 44q form a subjective point of view subsegment introduced by the perceptual verb *bakmak* 'look' in 44c. This is also evident from the subjective elements present, i.e. the epithets *mübarek* 'the sacred thing' in 44h, *veletler* 'brats' and *hınzırlar* 'bastards' in 44l and 44q, respectively, adjectives like *haşarat* 'naughty' in 44l, as well as the rhetorical question in 44m and 44n. Note that discourse segmentation is also indicated in the change in aspect in (d). The character Recep in the subject position in 44a-c can be realized with a null subject with the shift to objective point of view in 44r:

44. a.Recep$_i$ elma ağaçlarına   bakıyor,
     Recep apple tree.PLU.DAT look.PROG.
     'Recep is looking at the apple trees.'

   b.∅$_i$ bir kaç adım yürüyor,
     ∅$_i$ one few step walk.PROG
     '(he) takes a few steps.'

   c.∅$_i$ durup   tekrar bakıyor.
     ∅$_i$ stop.CONJ again look.PROG.
     '(he) stops and looks (at them) again.'

   d. Alt   dallarda   elmalar   iyice seyrekleşmiş.
     lower branch.PLU.DAT apple.PLU very become.rare.PAST
     'The apples in the lower branches have become very rare.'

   e. Yeşil yaprakların   aralarında   tek tük   görünüyor.
     green leave.PLU.GEN between.PL.POSS.LOC one or two see.PASS.PROG.
     'A few apples could be seen in between the green leaves.'

   f. Kırmızı güneş gibi yanıyor   her biri.
     red   sun   like shine.PROG. each one
     'Each of them shines like (a) red sun.'

g. Ağaçların   diplerinde   çürük binlerce   elma.

tree.PLU.GEN beneath.POSS.LOC rotten thousands apple.

'Thousands of rotten apples beneath the trees.'

h. Mübarek   ne   de çok   dökülüyor?

sacred.thing what too much spill.PASS.PROG

'The sacred thing! How many have fallen down.'

i. On elmadan   sekizi   çürüğe çıkıyor.

ten apple.ABL. eight.ACC rotten go.PROG.

'Eight of ten apples go bad.'

j. Çoluk çocuk   da gelip   yerden   alıp   yemiyor

children-mildren too come.CONJ ground.ABL take.CONJ eat.NEG.PROG.

'And the kids don't come pick (them) up from the ground and eat (them).'

k. ∅ gidip   daldan   koparıyor.

$\emptyset_i$ go.CONJ branch.ABL pick.PROG

'(They) go pick (them) up from the trees.'

l. Hepsi haşarat veletlerin.

all   naughty brat.PLU.GEN.

'All of the brats are naughty.'

m. Ne   olur   canım elmalari   toplayıp   yeseniz,

what happen.AOR life.1S apple.PLU.ACC pick.CONJ eat.COND.2.PLU

'For God's sake, why can't you pick up and eat the apples.'

n. sağlamını bıraksanız?

fresh.ACC leave.COND.2PLU

'and leave the fresh ones?'

o. O   da elma bu da elma, farkı   ne?

this too apple that too apple difference what?

'Apples are apples. What is the difference?'

p. Yok, illa   zarar verecekler,

No, surely harm give.FUT.3.PLU

'But, no (they) have to harm things.'

q. Hınzırlar!

'bastards!'

r. $\emptyset_i$ Eğilip   yerden   bir tane aldı.

$\emptyset_i$ bend.CONJ ground.ABL one piece take.PAST

'(He) bent and picked up one from the ground.'

(Kemal Bilbaşar 1972. *Başka Olur Ağaların Düğünü.*)

One question concerning Centering is whether the type of discourse in 45 should be considered as a 'local' discourse segment. 45c and 45r can be said to be two consecutive utterances with

respect to their discourse segment. Or should the null subject in 45r be resolved at the global level? Following Grosz and Sidner 1986, adjacent utterances can be within different discourse segments, and two non-adjacent utterances can be in the same segment. Further research is needed to resolve what a 'local' discourse segment is for Centering Theory.

In this section, discourse segmentation in relation to Cf-ranking has been discussed. It has been suggested that the subjective point of view introduced with verbs of perception requires the entities to be ranked from the point of view of the character. In the following, related work in Centering will be briefly discussed.

4.4.3 Related Work In Centering

Kameyama 1986 proposes that the subjective point of view can potentially be explained as Empathy locus of perception verbs in English. She states that perception verbs like see/hear, look/sound, etc. anchor the speaker's perspective, as do Japanese empathy verbs. However, in subjective point of view contexts, the salient entity is not the empathized entity, but the one that is not empathized.

Hudson-D'Zmura 1993 also deals with the subjective point of view introduced by perceptual verbs. She suggests that the behavior of perception verbs can be explained by lexical event structures, as discussed in Huang 1993 and their interaction with Centering rules.

Huang 1993 argues that a part of the highly organized and constrained structure of thematic relations is predicted from their event structure. Huang represents this by the Lexical Relational Structure (LRS) due to Hale and Keyser 1990. As has been pointed out above, LRS are akin to Jackendoff's Lexical Conceptual Structures, which Cote suggests should be used to determine Cf-templates. LRSs are elements ordered by the thematic hierarchy and event the structure of verbs. LRS also marks whether verbs have pure or complex event structures. Verbs can be decomposed into one or more 'pure' or complex verb meanings, which they share with a large number of verbs, plus idiosyncratic features which distinguish a verb from others. LRSs are composites of two or more basic eventualities: CAUSE, DO, UNDERGO, BE. Hudson-D'Zmura 1993 suggests that, in the following discourse, Dan is more likely to be understood as the person going inside the store following 46a than 45b:

45. a. Dan saw Ben approaching the store.

    b. Dan looked at Ben approaching the store.

    c. He went inside.

According to Hudson-D'Zmura, the interpretation of the ambiguous pronoun in 46c depends on the Lexical Relational Structures (LRS) of the verbs see and look. That is, see is an example of an UNDERGO and look is an example of a DO verb. The latter involves intentionality, which the former does not. That means that one can intentionally look at something, but cannot intentionally see it. See and look are basic pure predicates which combine with another verb as an operator to modify the meanings, as illustrated in 46:

46. a. look [x DO [x look]]

    b. see [x UNDERGO [x see]]

    c. sight [x DO [x CAUSE [UNDERGO [x sight]]]]

In the psychological experiment Hudson-D'Zmura designs, she asks whether the differences between intentionality of the event of the vision verbs is related to the choice. She places twelve vision verbs in identical sentence frames, e.g. Dan verbed Ben approaching the store. These sentences are followed by: He went inside. The subjects are instructed to read the material and then choose the antecedent of the pronoun he. The results suggest that, when the vision verb is intentional, the antecedent of the subject pronoun is the non-Cp, whereas if the vision verb is not intentional, the Cp is preferred.

Future research is needed to determine whether discourse point of view can be explained in more depth with a notion of intentionality, as proposed by Hudson-D'Zmura. Nevertheless, it is interesting to note that Cote 1993, also discussed in this chapter, uses Jackendoff's Lexical Conceptual Structures, which are very similar to the Relational Lexical Structure Hudson-D'Zmura uses to explain the discourse point of view expressed by perception verbs.

4.5 Problems in the Analysis of Naturally-Occurring Data

4.5.1 Intervening Utterances and Segmentation

In this section, some problems encountered in analyzing naturally-occurring data will be discussed in relation to Cf-ranking and Centering analyses. Although certain solutions will be suggested, this section raises more questions than it answers.

Centering Theory predicts that the transitions, i.e. center continuation, retention or shift, are only possible between two adjacent utterances in a discourse segment. This rule requires that every single entity listed in the Cf-list of an utterance Un should be realized in Un. Grosz, Joshi, and Weinstein (1995:11) write "The Cb is strictly local. Cb(Un) cannot be from Cf(Un-2) or other prior sets of forward-looking centers." In their footnote 7, they state that "It may on occasion appear to be from Cf(Un-2) or prior sets of forward-looking centers, but then it is only because it is in Cf(Un-1) also.

Thus, if there is an intervening utterance whose Cf-list does not contain the Cb, it should be reintroduced by a full NP on its next mention. Consider 47:

47. a.Recep Dayı$_i$ bahçe kapısından   girerken

   Recep Uncle garden gate.POSS.ABL enter.When

   'Uncle Recep while entering through the garden gate,'

   az   kaldı Murat'a$_k$ çarpacaktı.

   little left   Murat.DAT hit.FUT.PAST.

   'almost hit Murat.'

   b.∅$_i$ Kenara   çekildi   yol verdi   doktora$_k$.

   ∅$_i$ side.DAT recede.PAST way give.PAST. doctor.DAT

   '(He) drew to the side and gave way to the doctor.'

   c.Murat$_k$ merhaba bile   demeden geçti

   Murat   hi   even say.NEG pass.PAST

   'Murat passed by without even saying 'hi'. '

   d. Ihtiyar$_i$, onun$_k$/delikanlının$_k$ bu   haline   şaştı.

   old   he.GEN/lad.GEN   this state.DAT be.surprise.PAST

   'The old man was shocked by his behavior / the behavior of the young man.'

   (Kemal Bilbaşar 1972. *Başka Olur Ağaların Düğünü*. 101)

In 47a, the most salient entity is Recep Dayı in subject position, and is realized with a null pronoun in 47b. In 47c, it is not clear whether the verb demek 'say' subcategorizes for a dative argument. It may be the case that there is no such entity in the subcategorization frame of the verb. If so, ihtiyar 'the old man' will not be listed in the Cf-list of 47c. Then, the entity has to be reintroduced with a full NP ihtiyar 'the old man' in 47c.

This requirement is violated in 48 and 49, where 48b and 49b do not contain the relevant entity, the Cb of the next utterance, in their Cf-lists. Nevertheless, the intervention of these utterances does not block the realization of that entity with a null subject in 48c and 49c:

48. a.Belkıs$_i$ delikanlıya   Mehmet'i$_k$ anlatacaktı.

   Belkis young-man.DAT Mehmet.ACC tell.FUT.PAST

   'Belkis would tell the young man about Mehmet.'

   b.Mehmet$_k$ yeryüzünün en   karşılıksız aşkıydı.

   Mehmet   world.GEN most unrequited love.COP.PAST

   '(The) Mehmet (affair) was the most unrequited love in the world.'

   c.∅$_i$ onu$_k$ sevmiş,

   ∅$_i$ he.ACC love.PAST

   '(She) loved him.'

   d. ∅$_i$ onunla$_k$ dans ederken   mutlu olmuş,

   ∅$_i$ he.WITH dance do.WHEN happy be.PAST

   '(She) became happy when (she) danced him.'

e. $\emptyset_i$ ama Mehmet'e$_k$ asla ulaşamamıştı.

$\emptyset_i$ but Mehmet.DAT never reach.NEG.ABIL.PAST.PAST

'but (she) could never reach him.'

(Selim Ileri.1980. Cehennem Kraliçesi:320)

49. a.Çeşmeden su almaya giden delikanlılar arasında

fountain.ABL water take.INF.DAT go.Rel lad.PLU among

'Among the young men who go to the fountain to get water,'

bir tek Nalbandın oğlu Ibram'dan$_k$ $\emptyset_i$ hoşlanıyor.

one only blacksmith.GEN son.POSS Ibrahim.ABL $\emptyset_i$ like.PROG.

'(she) likes only the blacksmith's son Ibrahim.'

b.O$_k$ da parasızın biri.

he too moneyless one.

'And (he) is totally broke.'

c.$\emptyset_i$ Onunla$_k$ evlenemez.

$\emptyset_i$ he.WITH marry.ABIL.NEG.PRES.

'(She) can't marry him. '

(Kemal Bilbaşar, 1972. *Başka Olur Ağaların Düğünü*: 22)

However, note that 48b and 49b are subjective sentences as discussed in the previous section. These utterances reflect the subjective point of view of the individuals, their value judgments. In 48b, her unrequited love for Mehmet is presented from Belkis' consciousness. In 49b, likewise, the reader goes through the consciousness of the individual who makes a value judgment about Ibrahim's financial status. In that case, the speaker can return talking about the previous Cb in the objective segment, as in 49b, or continue reflecting the subjective judgments of the character as in 49c. Then the utterances where the null pronouns are interpreted as referring to the same entity are considered to be consecutive with respect to the same discourse segment.

Now, consider 50 where the Cb, Riza Bey, is realized by a null pronoun throughout the discourse. The underlined utterance 50e does not have Riza Bey in its Cf-list. This utterance intervenes between the two utterances that realize this entity, i.e. Riza Bey with null pronouns. The single entity in the Cf list of 50e *bir mektup* 'a letter' does not prevent reference to Rıza Bey in 50f with a null pronoun. On the other hand, *mektup* 'letter' is realized with a full NP in the object position in 50f.

50. a.(Rıza Bey) dairesinin önüne gelince,

    Riza Bey apartment.POSS.GEN front.POSS come.WHEN

    'When Riza Bey came in the front of his apartment,

  b.$\emptyset_i$ anahtarını çıkardı,

    $\emptyset_i$ key.POSS.ACC take.PAST.

    '(he) took out (his) key,

  c.$\emptyset_i$ kapıyı açtı,

    $\emptyset_i$ door.ACC open.PAST.

    'opened the door.'

  d. $\emptyset_i$ ....elektriği yaktı.

    $\emptyset_i$ electricity burn.PAST.

    '(he) turned on the light.'

  e. Kapının iç yanında bir mektup$_k$ duruyordu.

    Door.GEN inside side.POSS one letter stand.PROG.PAST.

    'A letter was lying inside by the door. '

  f. $\emptyset_i$ Eğildi aldı mektubu$_k$.

    $\emptyset_i$ bend.PAST take.PAST letter.ACC.

    '(He) bent and picked up the letter'

  g. ve $\emptyset_i$ dondu kaldı.

    and $\emptyset_i$ freeze.PAST stay.PAST.

    'And he froze in place (with astonishment.)'

    (Çetin Altan. 1985. *Riza Bey'in Polisiye Öyküleri* : 27)

This intervention in this case cannot be explained by subjective point of view. Consider 51, a variant of 50. If 51b were presented from the point of view of the character, one could claim that the intervening utterance constitutes a subsegment, or else the Cf-list of 51e contains the subject of consciousness. This would allow the reference with a null subject in 51d. However, 51c shows that the character did not see the letter, therefore, the event is not presented from his perspective:

51. a.∅$_i$ içeri   girdi.

   ∅$_i$ inside enter.PAST

   '(he) went inside.'

   b. Kapının   iç   yanında   bir mektup$_k$ duruyordu.

   Door.GEN inside side.POSS one letter   stand.PROG.PAST.

   'A letter was lying inside by the door. '

   c.∅$_i$ mektubu$_k$ görmedi.

   ∅$_i$ letter.ACC see.NEG.PAST.

   '(He) didn't see the letter'

   d. ∅$_i$ Televizyonu   açtı.

   ∅$_i$ television.ACC. open.PAST

   '(He) turned on the television.'

In 52, the intervening utterances 52c and 52e do not prevent the realization of the Cb by a null subject in two non-adjacent utterances:

52. a.Temel$_i$ Trabzon'a   dönmek   için tren bileti   alır.

   Temel Trabzon.DAT return.INF for train ticket.POSS buy.AOR.

   'Temel buys a train ticket to go back to Trabzon. '

   b.ve   ∅$_i$ beklemeye   başlar.

   and ∅$_i$ wait.INF.DAT start.AOR.

   'and (he) starts waiting.'

   c.Bir anons   yapılır.

   one announcement make.PASS.PRES.

   'An announcement is made.'

   d. ∅$_i$ gider   bir kompartımana   oturur.   .

   ∅$_i$ go.AOR one compartment.DAT sit.AOR.

   '(He) goes, sits down in one of the cars'

   e. Kompartmanda da bir adam oturuyor.

   car.DAT   too one man sit.PROG.

   'A man is sitting in the train car too.'

   f. ∅$_i$ Başlar   konuşmaya.

   ∅$_i$ start.AOR talk.INF.DAT.

   '(He) starts talking.'

   (from an e-mail message received on 13 December 1991)

In 52, it is obvious that Temel heard the announcement and it is conceivable that this awareness triggers the subjective point of view, licensing a null subject. However, consider 53c where the reference with a null subject between 53b and 53d is felicitous:

53. a.Temel$_i$ Trabzon'a   dönmek   için tren bileti   alır.

   Temel Trabzon.DAT return.INF for   train ticket.POSS buy.AOR.

   'Temel buys a train ticket to go back to Trabzon. '

 b.ve $\emptyset_i$ beklemeye   başlar.

   and $\emptyset_i$ wait.INF.DAT start.AOR.

   'and (he) starts waiting.'

 c.Bir anons   yapılır.

   one announcement make.PASS.PRES.

   'An announcement is made.'

 d. $\emptyset_i$ anonsu   duymaz.   .

   $\emptyset_i$ announcement.ACC hear.NEG.PAST

   '(He) doesn't hear the announcement'

 e. $\emptyset_i$ Gider   çay bahçesinde oturur.

   $\emptyset_i$ go.PRES tea house.LOC sit.AOR.

   '(He) goes and sits in the tea house.'

Below, the relationship between pronominalization and discourse segmentation will be discussed.

4.5.2   Discourse Segmentation and Pronominalization

Since Centering models attentional state within a (local) discourse segment, it is very important to determine what exactly a 'discourse segment' is. We have seen that one type of segmentation is signaled by shifts in the Discourse Point of View, but this is not limited to the distinction between objective and subjective points of view.

Suri and McCoy 1993 suggest that intervening utterances like 48-53 are problematic in Centering Theory, but not in Focusing Theory. The latter, unlike Centering, stacks old information, and hence the speaker has the option of returning to the Potential Foci List to use a pronoun after an intervening utterance. Suri and McCoy (1993:4-5) state:

> ..an explanation of pronoun resolution [in such cases] must rely on either 1) a stacking
> of foci/centers or 2) a claim that [the intervening utterance] constitutes a discourse
> segment unto itself which interrupts the discourse segment containing the previous
> and subsequent sentences, and thus the pronoun resolution must rely on global focus
> and the recognition of a discourse segment boundary. However, it is not clear what [...]
> linguistic information [...] would mark the discourse segmentation needed by a second
> approach. The recognition of discourse segment boundaries and their influence on
> pronoun resolution is still not well-defined. Without a theory of discourse segmentation
> that accounts for [such cases], centering is at a loss for explaining pronoun use...

Walker 1993 also addresses the problem of discourse segmentation for Centering Theory. She surveys positions taken with respect to discourse segmentation in the Centering literature and

points out that the cues for discourse segmentation, i.e. tense/modality, syntactic structure, cue phrases, linear sequence, orthography and prosody and their interaction with segment boundaries, have not been systematically investigated. Moreover, none of these cues are completely reliable.

Walker (1993:2) lists some approaches so far taken in the Centering literature with respect to segmentation:

54.

a. Whenever Centering rules and constraints are violated, there must be a segment boundary.

b. One must find another way to objectively segment a discourse to test hypotheses related to Centering.

c. Any phenomenon occurring across discourse segments is not part of Centering and need not be accounted for.

d. Anaphora distribution can be used to argue for one segmental analysis over another.

Walker states that these claims arise from four possible relationships between Centering and discourse segmentation implicit in the following contradicting hypotheses:

55.

a. Discourse segmentation occurs prior to Centering.

b. Centering is prior to discourse segmentation and constitutes one of the cues for segmentation.

c. Centering and discourse segmentation are interdependent processes.

d. Centering and discourse segmentation are cotemporal and independent processes.

Walker suggests that 55a cannot be right, because pronoun resolution is an on-line process and the intention recognition may not be accomplished until the end of a discourse segment. As Grosz 1977 and Linde 1979 have shown, the use of pronouns is constrained by the discourse segmentation. Thus, it would be implausible to assume that 55d is correct. The hypothesis in 55c, according to Walker, appears to capture the relationship between Centering and discourse segmentation. Since her aim is to test Centering Theory, and since hypothesis 55b works out for the segmentation and the pronoun resolution at the same time, she explores hypothesis 55b limiting her study to discourse initial utterances signaled by the cue phrase now.

Walker 1993 finds that Centering transitions correlate well with other cues to the discourse structure: Continue transitions are rare at discourse segment boundaries, Smooth-Shift and Rough-Shift being the most common transitions. Walker suggests that Rough-Shifts indicate a transition to a new segment with a distinct set of entities.

The underlined utterances discussed in the set of examples in 48-53, then, might indicate a new subsegment within their respective segments. However, since they are embedded, they do

not block the reference between the two utterances that are not linearly adjacent but consecutive with respect to the same discourse segment containing them.

The underlined utterances in 50-53 do not move the narrative forward unlike the other utterances in these discourses. In a narrative, the default case is to present actions to move the narrative ahead. Labov 1972 shows that, in a narrative, clauses are temporally sequenced in the order in which the events occur. Labov (1972:361) calls these temporally ordered clauses narrative clauses. The order of narrative clauses cannot be changed because there is a temporal juncture between these clauses.

Consider 56 and 57 from Labov (1972: 360):

56. a. This boy punched me

    b. and I punched him.

    c. and the teacher came in

    d. and stopped the fight.

Or else, the pluperfect can be used to reverse the order:

57. a. The teacher stopped the fight.

    b. She had just come in.

    c. I had punched this boy.

    d. He had punched me.

Narrative can also be moved backwards by flashbacks (cf. Webber 1988) and yet another option is to interrupt talking about the action by giving descriptions of certain characters or places, in which, stative verbs are chosen. These strategies interrupt the movement of the action in a narrative. Note that in 50-53, all the utterances except the underlined ones are narrative clauses, while the intervening utterances are not. Thus, intervening utterances may form a subsegment properly included in narrative segments not blocking the coreference between the preceding and following narrative clauses. These preliminary suggestions should be tested in future research.

To sum up, this Section addressed some problems encountered in Centering analysis of naturally-occurring data as intervening utterances and determining discourse segmentation. The data discussed suggest that pronominalization and Centering rules can shed some light on understanding discourse segment boundaries.

In the following Chapters, in Centering analyses, a discourse segment is taken to be a sequence of utterances with one common Discourse segment Purpose.

4.6   Conclusions

This chapter has investigated ranking Cf-lists in Turkish discourse. we have seen that the general rule is subjects rank higher than any other entity. The two exceptions to this general rule are: Experiencer objects of psychological verbs that rank higher than Theme subjects, and the subjective point of view that triggers the salience of objects as well as the character experiencing

the subjective event. We have also seen that an entity evoked by a possessor noun ranks higher than the one evoked by a possessive construction provided that the entity is an Experiencer, or the NP is an inalienable possessive construction.

Some problems in analyzing naturally-occurring data have also been addressed, i.e. intervening utterances and discourse segmentation. Though possible solutions have been proposed, further research is needed to understand the interaction between segmentation and pronominalization in narratives and other genres of discourse.

Chapter 5

THE FUNCTIONS OF SUBJECTS IN TURKISH DISCOURSE

The purpose of this chapter is to investigate the differing discourse functions of null vs. overt pronouns vs. full NPs in the subject position in Turkish. We discuss the correlation of these different referential expressions with the speakers' attentional state, as expressed by Centering transitions. It will be shown that the choice of an expression is not arbitrary, but rather structurally constrained, when Centering transitions are taken into account. Moreover, the data suggest that the choice of an expression specifies constraints on the discourse structure, and the discourse structure, in turn, constrains the speaker's center of attention as discussed by Grosz and Sidner 1986.

The chapter is organized as follows. Section 1 presents a description of the data included and excluded in the analysis. Section 2 discusses the general tendencies observed in the choice of third-person pronouns or full NPs in the subject position. Section 3 addresses the functions of subjects in Continue transitions; null subjects, overt pronouns, and full NPs in Continue transitions are discussed in Sections 3.1, 3.2., and 3.3., respectively. Section 4 is devoted to the functions of full NPs in Retain transitions and in Section 4.2., the use of impersonal pronouns in these transitions are given. Section 5 is concerned with shifting the center of attention. Section 5.1. is concerned with the functions of full NPs in Rough-Shift transitions. Section 5.2. argues that there must be two types of Smooth-Shift based on the facts revealed by the analyzed data. Sections 5.3., 5.4., and 5.5. present the functions of subjects in these two types of Smooth-Shifts. Finally, Section 6 presents the conclusions.

5.1   The Data

The data in this study include selected discourse samples from published narratives. Two narratives from e-mail messages are also included. A total of 2501 tokens are analyzed, of which 39

involve impersonal pronouns; 15 tokens are excluded because they are expressed from the subjective point of view. The following considerations are taken into account in the analysis and the selection of the data.

If an NP in the subject position did not contribute to the Cf-list, the next available entity ranked in the Cf-list is treated as the Cp. For example, in 1a, subject *yazık* 'pity-shame' is incorporated into the verb to form an idiomatic expression; it loses its independent status and cannot be talked about anaphorically. Selim, the object, thus, is the Cp as the single entity in the Cf-list in 1a, and the transition to 1b is thus a Retain. Note that 1b contains an impersonal pro subject:

1. a. Yazık oldu   Selim'e$_i$.
      pity   happen.PAST Selim.DAT
      'It was a shame about Selim.'

   b. Üçüncü kez   Ø$_i$ ameliyat etmek zorunda kalıyorlar.
      third   time   operation make   obliged   stay.Prog.PLU.
      'They had to operate on him for the third time.'

   c. Ø$_i$ Kurtulamıyor.
        save.PASS.NEG.PROG.
      '(He) couldn't be saved.'

Impersonal pro, as in 1b and 2b, is listed in the Cf-list as the Cp. The reason is that the speaker has an option of continuing the impersonal pro, as in 2c. Even though the impersonal pro, as a subject and Agent, is listed as the Cp as a working hypothesis in the analysis, the results show that it does not appear to be the entity under discussion in the next utterance. The discourse becomes infelicitous if the speaker intends the impersonal pro to be the entity under discussion. This is exemplified in 2d, where the infelicity indicates that 'the doctors who operated on Selim' cannot be at the center of attention. The difference between 2c and 2d is that in the former, but not the latter, the patient, Selim, is realized by a null genitive subject in the NP *beyninden* 'from (his) brain' rather than the doctors, and this is the entity the utterance in 2c is about:

2. a. Yazık oldu   Selim'e$_i$.

   pity   happen.PAST Selim.DAT

   'It was a shame about Selim.'

   b. Üçüncü kez $\emptyset_i$ ameliyat etmek zorunda kalıyorlar.

   third   time   operation make obliged stay.Prog.PLU.

   'They had to operate on him for the third time.'

   c. pro Beyninden$_i$ ur   alıyorlar.

   pro brain.POSS.ABL tumor take.PROG.PLU.

   '(They) took out a tumor from his brain.'

   d. #pro Çok iyi   doktorlar.

   #pro very good doctor.3.PLU.

   '(They) are very qualified doctors.'

Further discussion on impersonal pro and impersonal insan 'human' corresponding to one in English is presented in Section 4.1.

As stated in Chapter 2, not all types of null subjects can alternate with overt pronouns. It was shown that an overt pronoun can only be used when both the pronoun and its corresponding entity have the same referent, otherwise a null pronoun should be used. For example, in 3a, *öğretmenler odası* "teacher's room' is within the scope of the quantified NP, *her okul* 'every school', and does not denote a particular teacher's room as a referent. Thus, the anaphoric link between the null subject in 3b and its antecedent is not that of a coreference: they do not realize the same referent. The subject in 3b has to be null; it cannot alternate with an overt pronoun, although the definite pronoun it in English is allowed in the same position, as can be seen in the translation. In these cases, the transition from 3a to 3b is not taken into account in the analysis. On the other hand, the transition from 3b to 3c is included because they realize the identical entity and the null subject can alternate with an overt pronoun:

3. a. Her   okulda   [öğretmenler odası] ilk   katta olur.

   every school.LOC. teacher.PLU room first floor be.AOR.

   'In every school, the teacher's room is located in the first floor.'

   b. Ama $\emptyset_i$/#o burada   ikinci   katta.

   but $\emptyset$/#it here.LOC second floor.

   'But, here it is in the second floor.'

   c. O   yüzden $\emptyset_i$/o çok sıcak oluyor.

   That reason it   very hot   be.PROG.

   'That's why it is so hot.'

Likewise, the anaphoric link between the null subject in 4b and *kahve* 'coffee', a nonreferential expression, in 4a, is not considered and the transition not analyzed. This is because the indefinite null subject cannot alternate with an overt pronoun in 4b (see Chapter 2 for details):

4. a. Markette   kahve kalmamış.

   Market.LOC coffee remain.NEG.PAST.

   'There was no coffee left in the market.'

   b. ∅ Yarın   gelecekmiş.

   tomorrow come.FUT.EVID.

   '[They said] it will come tomorrow.'

In the selection of data, sequences of utterances that contain inferrable entities, inferentially related to another entity, are not counted and not analyzed. For example, in 5, the speaker introduces a woman, Nuriye Bacı, and then her family members: her husband, e.g. enişte 'brother-in-law' in 5d, which is not marked by possessive suffix, thus there is no overt Cb-link unlike in the case of other entities, i.e. büyük oğlu '(her) older son', küçük oğlu '(her) younger son', in 5e and 5f, respectively, which are marked with possessive morphemes. The possessive morpheme or the null genitive subject in these cases can be considered to be the Cb. Note that these entities are interpreted as Nuriye's sons, an entity that is not realized in the immediately preceding utterance. The speaker, then, talks about all the members of the family in 5g. The data where reference is made to such set-poset relationships are excluded in the analysis because the order in which these inferrable entities are ranked in the Cf-list is not obvious. For example, in 5c, the Cb(Un) realized by a third-person plural is interpreted as functionally dependent to the Cb (Un-1), Nuriye, and her family. Thus, one can claim that these two entities are about the same referent and that the center of attention is still on Nuriye, thus, the transition from 5b to 5c can be analyzed as a Continue transition. A competing suggestion is that even though the entity in 5c includes Nuriye, it is not about her any more and that the center of attention has been shifted. Alternative explanations along these lines can be presented to account for the transitions in 5d-g. As a result, the analysis of reference between inferrable entities is left for a future study, and discourses as in 5 are not used in this analysis:

5. a. Köylüm   bu   Nuriye Bacı$_i$.
      Fellow-villager this Nuriye Baci.
      'Nuriye Baci is a fellow-villager.'

   b. Biraz   uzaktan $\emptyset_i$ hısım   da olur.
      somewhat distant   relative too be.AOR
      'She is also a distant relative.'

   c. Şimdi kasabada   oturuyorlar.
      now   town.LOC live.PROG.PLU.
      'Now they live in the town.'

   d. enişte hastanede çalışıyor.
      brother-in-law   hospital.LOC work.PROG
      'The brother-in-law works at the hospital.'

   e. büyük oğlu   şoför.
      older   son.POSS chauffer.
      'her older son is a chauffer.'

   f. küçük oğlu   da tornacılık   öğreniyor.
      little   son.POSS too lathe.profession learn.PROG.
      'her younger son learns how to use lathes.'

   g. $\emptyset$ Iyiymişler,
      $\emptyset$ fine.hearsay.PLU
      '(they) are all doing fine.'
      (Talip Apaydın. 1972. *Öte Yakadaki Cennet*: 6)

Some problems encountered in the analysis of naturally-occurring data were discussed in Chapter 4. These will be briefly summarized here. It was pointed out that there are no objective criteria to determine the local discourse segment, which is taken to be the domain where Centering rules apply. Following Grosz and Sidner 1986, intentional structure is assumed to determine segments, and thus, a segment is taken to be a sequence of utterances that intuitively represent a single Discourse Segment Purpose (DSP). The transitions between strictly adjacent utterances are analyzed, and sequences that consist any intervening utterances where the reference is between the entities of Un and Un-2 are not analyzed (see Chapter 4, for examples).

5.2   A Preliminary Overview of the Functions of Subjects

In this section, some general observations on the behavior of third-person subjects in centering are discussed.

Table 1 presents the distribution of third-person subjects with regard to the Centering Transitions. The distribution of third-person singular subjects is presented in Tables 2, and third-person plural subjects in Table 3.

Table 1: The Distribution of the Third-person Subjects

SUBJECT	CONTINUE	RETAIN	SMOOTH SHIFT	ROUGH-SHIFT
Null pronoun	1552 95	7 3%	152 53%	0 0
Overt pronoun	26 2%	1 0.5%	29 10%	1 0.5%
Full NP	51 3%	213 96%	105 37%	319 99%
TOTAL	1629	221	286	320

Table 1 shows that the distribution of referential expressions pattern neatly when Centering transitions are analyzed. The least explicit expression, null subject, is used to encode Continue transitions 95% of the time. On the other hand, no null subject is used to encode Rough-Shift, a transition where the most explicit expression, the full NP is favored 99% of the time. Thus, it appears that Continue and Rough-Shift appear to behave like a mirror image, as predicted by Centering Theory: the former is the easiest to process and the latter is the most complex. It is conceivable that the least and the most explicit expressions signal varying degrees of complexity in processing referential expressions. However, a Retain is predicted to follow a Continue in terms of the ease of processing, and yet in both a Retain and a Rough-Shift, a full NP encodes the transitions, 96% and 99% of the time, respectively. Smooth-Shifts, on the other hand, are encoded by a null subject 52% of the time, but does not appear to favor any form of expression as strongly as other transitions. However, a closer look at Smooth-Shift transitions suggest that the choice of expressions also pattern depending on whether the shift is to the Cp or to the non-Cp. Each of these observations will be discussed later.

Tables 2 and 3 show that third-person singular and plural subjects behave alike when analyzed on the basis of Centering transitions and that the discussion above is valid for both third-person singular and plural subjects:

Table 2: The Distribution of Third-person Singular Subjects.

SUBJECT	CONTINUE	RETAIN	SMOOTH SHIFT	ROUGH-SHIFT
null pronoun	1411 96%	7 4%	134 53%	0 0
overt pronoun	22 1%	0 0	21 8%	1 1%
full NP	39 3%	155 96%	98 39%	302 99%
TOTAL	1427	162	253	303

Table 3: The Distribution of Third-person Plural Subjects

SUBJECT	CONTINUE		RETAIN		SMOOTH SHIFT		ROUGH-SHIFT	
Null pronoun	141	90%	0	0	18	55%	0	0
Overt pronoun	4	2%	1	2%	8	24%	0	0
Full NP	12	8%	58	98%	7	21%	17	100%
TOTAL	157		59		33		17	

Note that in general, a null subject encodes a Continue transition both as singular and plural third-person pronouns, 96% and 90%, respectively. On the other hand, a third-person singular full NP encodes a Rough-Shift 99% and a third-person plural NP, 100% of the time. Likewise, along the lines of the discussion presented above, Retains are also encoded by full NP singular and plural subjects, 96% and 98% of the time, respectively. A Smooth-Shift is encoded by null subjects more than 50% of the time.

The similarity between a Retain and a Rough-Shift also shows up in the use of impersonal pronouns. There are a total number of 39 impersonal pronouns in the data, 30 of which are used to encode Retains, and 9 to encode Rough-Shifts.

5.3   Subjects in a Continue Transition

Continue is considered to be the least complex transition to process. In a Continue transition, the center in the two successive utterances are the same and the Cb in the current utterance is also the Cp. By keeping the same Cb as the highest ranked entity, the speaker signals to the hearer that the center of attention is on that particular entity being talked about.

5.3.1   The Functions of Null Subjects in a Continue Transition

The data analyzed in this study show that null subjects function as the default referential expressions for all personal pronouns to encode a Continue transition, as in 6 below. In 6, the speaker cannot replace any one of the null subjects with a more explicit expression without disturbing the coherence of the discourse[1]:

---

[1] Note that otobüs 'bus' and dolmuş 'minibus' do not contribute to the Cf-lists in 6b-c, respectively.

6. a. Taksim alanından   yıldırım   gibi geçti   Naile$_i$.

   Taksim square.ABL thunderstorm like pass.PAST Naile.

   'Naile passed through Taksim square like thunderstorm.'

   Cb=?

   Cf= [Naile, Taksim Square]

   b. ∅$_i$ Otobüs bekleyemezdi.

      bus   wait.ABIL.NEG.PAST.

   'She couldn't wait for a bus.'

   Cb=Naile

   Cf= [Naile]

   c.∅$_i$ Dolmuş bile   bekleyemezdi.

      minibus even wait.ABIL.NEG.PAST.

   'She couldn't even wait for a mini-bus.'

   Cb=Naile

   Cf= [Naile]

   Cb = Cp, Continue

   d.∅$_i$ Bir taksi tutmalıydı.   Elli   Lira!

      one taxi rent.MUST.PAST. Fifty Liras!

   'She should catch a taxi. Fifty Liras!'

   Cb=Naile

   Cf= [Naile]

   Cb=Cp, Continue

Given the distribution of the data, and exemplified as above, as a first approximation, the function of null subjects can be summarized as follows:

Null subjects encode Continue transitions in the default case.

This can be stated, in Centering terms, as follows:

If Cb(Un-1) = Cb(Un) and if Cb(Un) = Cp(Un), a null subject is used.

This appears to be a universal rule as will be discussed in Chapter 6. However, although null subjects encode Continue transitions in the default case, certain factors concerning stress focus and discourse segment boundaries may require a more explicit expression in Turkish.

5.3.2 Overt Pronouns in a Continue Transition

The tokens of overt pronouns in Continue transitions in the data all represent phonetically prominent entities, i.e. stressed pronouns. Stressed pronouns receive focus[2], which is defined as a

---

[2]As pointed out in Chapter 3, linguistic focus is a distinct notion from the one in Focusing Theory.

linguistic device that either imposes phonetic prominence on an entity or updates the information structure of discourse, i.e. marks the new information (see the references in Chapter 3). In some of these cases overt pronouns are used in spite of the fact that there is no other competing entity. This is because the focused information cannot be null, otherwise, a violation of a set of discourse well-formedness rules render the discourse incoherent (Kuno 1982, 1989). As discussed in Chapter 3, according to Kuno 1982, 1989, any constituent can be null in languages as in Japanese and Turkish in yes/no questions and parallel constructions, so long as the focused, i.e. stressed, information is retained.

Focus is also defined as a variable in an open proposition, in which the background knowledge is presupposed (Prince 1981b, 1986) or entailed (Wilson and Sperber 1979). The focus of an utterance is an instantiation of the variable and constitutes the new information of the open proposition (Prince 1981b, 1984, 1986). According to Prague school linguists (cf. Hajicová 1993) and Vallduví 1992, focus represents new information. According to Chafe 1976, on the other hand, the focused entity does not have to represent the new information and has little relevance to the distinction between given and new information.

Moser 1992 distinguishes two types of focus: 'stress-focus' and 'information-focus'. Stress-focus marks a constituent by relative phonetic prominence. Information-focus, on the other hand, involves the constituent which conveys new information or makes the point of utterance.

Overt pronouns in Continue transitions do not represent the new information, but they function as Cbs which represent salient Discourse-old entities and they map onto existing file cards. What is new in the discourse, though, is the relationship of the Cb with respect to the rest of the proposition (Kuno 1972a, Prince 1986).

Stressed pronouns receive stress-focus and have a listing reading as defined by Kuno 1972a. They derive a set of alternatives, members of a set, in contextually relevant ways (Moser 1992). Namely, among "Z, X and only X is Y. When Z, the range from which X is chosen, is not specified in the context of such a sentence, Z is taken to be all members of the [set], of which X is one" (Kuno 1972a:274).

This set can be derived explicitly or implicitly. Consider example 7:

7. a. Nevin nişanlısını merak ediyor.
  Nevin fiance.POSS.ACC curious do/make.PROG.
  'Nevin is curious about her fiance.'

 b. $\emptyset_i$ görüşe gelemezmiş.
   visit.DAT come.ABIL.NEG.EVID.
  '[she says] (he) couldn't come for a visit.'

 c. o$_i$ da kafesteymiş bizim gibi.
  he too cage.LOC.EVID we.GEN like.
  '(He) too is in prison like we are.'
  (Çiçekoğlu, 1991. *Uçurtmayı Vurmasınlar*: 17)

In 7, there is a set of members who are in the prison, Nevin's fiance and the referents of

126

the first-person pronoun in 7c: The overt pronoun, which cooccurs with the focus particle de 'too/also', elicits an explicit listing reading (cf. Hoffman 1994). Hoffman (1994:73) writes "the predicate of the sentence is true for all members of the set that the de-marked entity belongs to" . In 7c, 'being in the prison' is true for the members, Nevin's fiance and a set of people including the speaker. Now consider 8:

8. [Münire comes to visit Cavide. Soon, however, she starts living in Cavide's house permanently. She interferes with every household affair.]

a. $\emptyset_i$ kilerin   anahtarını   beline   takmış,
     cellar.GEN key.POSS.ACC waist.POSS.DAT attach.PAST.
'She had attached the cellar key to her belt.'

b. $\emptyset_i$ evin   idaresini   eline   almıştı.
     house.GEN management.POSS.ACC hand.DAT take.PAST.PAST.
     'She had taken the control of housekeeping.'

c. Hizmetçileri o_i değiştiriyor,
   servant.PLU.ACC she change.PROG.
   'She is the one who changes the servants.'

e. Her   şeyin   yerini o_i biliyor,
   every thing.GEN place.POSS.ACC she know.PROG.
   'She is the one who knows where everything is located.'

f. bakkalın çakkalın   hesabını o_i biliyor.
   grocer.GEN-mrocer billing.POSS she know.PROG.
   'She is the one who knows about the grocer's-mrocer's bills.'
   (Memduh Esendal. 1984. *Hava Parası*: 30)

Utterances 8c-f derive implicit members of a set: there must be one or more candidates to fulfill housekeeping chores. Among these candidates of the list, Münire, is in an element-set relation: she is not only one of the members of this set potentially responsible for the chores, but also the one who is the least qualified, and contrary-to-expectation one because as a guest, she is not supposed to be involved in all these household chores. Although null subjects can felicitously occur in 8c-8f, this contrary-to-expectation reading will not be available unless overt pronouns are used.

In utterances 8c-f, the overt pronouns are in the preverbal position, which marks focus in Turkish (Erguvanlı 1984, Erkü 1983, Hoffman In prep.). In the data analyzed in this study, all of the overt pronouns in Continue transitions occur in the preverbal focus position, and some cooccur with focus particles as 'de' and 'only'.

Based on the discussion, we can now revise the functions of subjects in Continue transitions as follows:

The Function of Subjects in CONTINUEs:

Null subjects are used to encode a Continue transition when the Cb is not a stressed

pronoun, i.e. phonetically prominent.

Overt pronoun subjects can be used in a Continue transition if the Cb receives phonetic prominence.

5.3.3   The Functions of Full NPs in a Continue Transition

Table 1 shows that 3% of the Continue transitions are encoded by full NPs. In the data analyzed in this study, full NPs appear to have two functions when they encode a Continue transition. One is to provide new additional information about an entity at the center of attention; and the second is to mark a discourse segment boundary.

In 9a, the discourse entity Necla is a Discourse-new entity, introduced with a full NP and then instantiated as a Cb in 9b by a stressed overt pronoun, the associate of the focus particle de 'too'. The transitions to 9b and 9c are Continues, where the Cb and Cf in the previous and current utterances are maintained. Note that the full complex NP in 9c conveys additional information about its referent, that 'she was more chic in nature' than the other women in competition with her to marry the doctor. Note that 9c also seems to be a discourse segment boundary signaled by the change in aspect system and sgift from Necla's action to her attitude. A null subject may render a slightly less coherent discourse in the same position:

9. [The doctor is an eligible bachelor who is very popular among young women, who try to marry him]

a. Necla ortaya   çıktı.
   Necla surroundings appear.PAST.
   'Necla came into the picture.'

b. Birkaç haftadır   o   da kendisi   denedi.   .
   A few week.FOR she too self.ACC. try.PAST.
   'She also tried her chances for a few weeks.'

c.Yaradılışı   daha şık olan   bu kız
   nature.POSS more chic be.S.P this girl
   'This girl who was more chic by nature,'

   sanıyordu   ki   kadınlar   isterlerse.
   think.PROG.PAST COMP woman.PLU want.AOR.PLU.COND
   'thought that if women wanted to,'

   erkeklerin   baştan   çıkmayanı   olmaz.
   man.PLU.GEN head.ABL leave.NEG.S.P.ACC be.NEG.AOR.
   'there were no men who couldn't be seduced.'
   (Memduh Esendal, 1980. *Hava Parasi*: 18?)

Another full NP occurs in 10e and it signals a discourse segment boundary which is also marked by the shift in tense/aspect system. In 10a-d events are narrated in progressive and in 10e-f Pigmalyon's personality is described in simple present tense. The intention of the speaker

shifts from narrating events in 10a-d, to describing Pigmalyon's personality in 10e-f. Thus, change in intention (Discourse Segment Purpose) divides the discourse into segments. Also note that the comparison of the personality traits of Pigmalyon and Freda triggers a list reading and the subject receives phonetic prominence. A null subject in 10e renders the discourse incoherent:

10. a. Bir kaç hafta geçince   Pigmalyon$_i$ da   Murat Ali'ye$_k$ alıştı.

     one few week pass.WHEN Pigmalyon   too M.Ali.DAT   get.used.to.PAST.

     'A few weeks later Pigmalyon became friendly with Murat Ali as well.'

     b. $\emptyset_i$ Geceleri   onun$_k$ odasına   geliyor,

       night.PLU. his   room.POSS.DAT come.PROG.

     '(She) would come to his room at nights,

     c.$\emptyset_i$ saatlerce oturup   konuşuyor,

       hours.for sit.CONJ talk.PROG.

     '(she) would sit and talk for hours.'

     d.$\emptyset_i$ dertleşiyordu.

       problem.RECIP.PROG.PAST.

     '(she) would talk about her problems.'

     e. #$\emptyset_i$/Pigmalyon$_i$, Freda gibi değil.

      #$\emptyset_i$/Pigmalyon   Freda like not.

      'Pigmalyon is not like Freda.'

     f. $\emptyset_i$ Gülüyor,   kızarıyor,   utanıyor.

       smile.PROG. blush.PROG. embarrass.PROG.

     '(She) smiles, blushes and becomes shy/embarrassed.'

     (Memduh Esendal. 1980. Hava Parası: 26)

Discourse anaphora is known to be sensitive to discourse segment boundaries. Grosz 1977 shows that in English task-oriented dialogs, whose structure closely corresponds to the task being performed, the center of attention is influenced by the task structure and that the pronominal anaphora do not cross sub-task boundaries. Walker 1993 proposes that the use of a full NP in a Continue transition in English, in her corpus, may also be due to the sensitivity to the discourse segment boundary. We have seen that this also appears to be the case in Turkish discourse. However, segmentation includes many complex factors, none of which is reliable on its own. For example, consider 11e and 11e' as variants of 10e, again a discourse segment boundary. Note that although the transition from 11d to 11e is a Continue, both null and overt pronouns in 11e are infelicitous. However, this infelicity can be eliminated when a conjunction as ama 'but' is is used, as in 11e'. Thus, other complex factors of discourse coherence appear to interact with pronominalization in discourse segment boundaries:

11.   d.$\emptyset_i$ dertleşiyordu.

$\emptyset_i$ problem.RECIP.PROG.PAST.

'(she) would talk about her problems.'

e. #$\emptyset_i$/o$_i$, Freda gibi değil.

#$\emptyset_i$/she Freda like not.

'(she) is not like Freda.'

e'. Ama   o$_i$,   Freda gibi değil.

but she Freda like   not

' But she is not like Freda.'

Likewise, in 12c, which is arguably a discourse segment boundary, both overt and null pronouns are infelicitous unless an adverb as bugün 'today' or a conjunction as ama 'but' or both are used. This is an indication that pronouns may fail to link utterances in discourse segment boundaries and additional links might be required:

12. a. Ali$_i$ Adana'ya   gitti.

Ali Adana.DAT go.PAST.

'Ali has gone to Adana.'

b. $\emptyset_i$ Burada   değil.

here.LOC not.

'(He) isn't here.'

c.#Ali$_i$/#$\emptyset_i$/#o$_i$ gelecek.   / Bugün $\emptyset_i$ gelecek.

#He   come.FUT. / Today   come.FUT.

'#He will come/He will come today.'

As a result, then, the form of referential expressions can be an indicator of discourse segment boundaries and the distribution of discourse anaphora can be argued for an analysis of one segmentation to another, and yet the interaction of other coherence factors such as tense, aspect, modality, cue words, conjunctions, etc. must also be considered.

With this mind, we now turn to functions of full NPs in Continue transitions: Possible Functions of full NPs in Continue transitions are as in the following:

Full NPs can be used in a Continue transition to:

i. represent new information about an entity

ii. to mark discourse segment boundaries.

In the first case, the full NP is a signal to the hearer to add new information to the corresponding file card at the center of attention. In the second case, it signals the hearer that a possible shift occurs in intentional structure of discourse.

The use of full NPs to encode Continue transitions appears to be more widespread in journalistic genre than narratives. This strategy may stem from the motivation to present as much

information as possible in limited space. A research project comparing the use of full NPs in Continues in journalistic writings and narratives may provide valuable insight on our understanding of the functions of discourse anaphora, presentation of information, and discourse segmentation.

5.4   Retaining the Center

In the Retain transition, as in Continue, the Cb is the same as in the previous utterance. However, the current Cb is not the highest ranked entity, since another entity is introduced in the highest ranked subject position: Cb(Un-1) = Cb(Un), Cb ≠ Cp.

It has been suggested that Retain is a smooth way of preparing for a Shift to a new entity by demoting the Cb to a less salient position (Brennan, Friedman, and Pollard 1987). Even though it is conceivable that a Retain prepares the hearer for a Smooth-Shift, this is not its single function.

Linson 1993 reports that, in his English data, a Retain is followed by a Continue 50% of the time and by a Shift only 15% of the time.[3] In a Retain, the speaker thus may intend to continue the Cb, but, if the Cb is not the performer of an action, but rather its undergoer, recipient, or benefaciary, etc., it necessarily has to appear in object position when another entity is introduced in subject position as Agent. Except in passive constructions, Agents must project as subjects, in accordance with the Uniformity of Theta Hypothesis (UTAH) proposed by Baker 1988, which states that the hierarchy of thematic relations is uniformly projected in the hierarchy of grammatical relations (see also Jackendoff 1990, Grimshaw 1990, and Pesetsky 1995).

5.4.1   The Functions of Full NP Subjects in Retain Transitions

Table 1 shows that a Retain occurs with a full NP subject 96% of the time and a Rough-Shift 99% of the time. In a Retain, since the Cb is not the Cp, it is not the subject. Since every sentence has a subject, some other constituent must fill that position.

Turan 1994b reports that a Retain transition occurs with an overt object 78% of the time

---

[3]In the Turkish data, a Retain is followed by a Continue 32% of the time. This proportion would be higher if the possessor were not ranked higher than the possessive NP, as previously discussed. For example, in example 8 repeated below, the NP kafası '(his) head', 'his' ranked higher than '(his) head'. As a result, the null subject of the possessive NP is considered as the Cp, thus the transition from a to b is a Continue. If the null subject of the possessive NP were not considered as the Cp in b, then the transition from a to b would be a Retain. Hence, depending on the ranking, the transition from b to c, can be considered as a Retain followed by Continue, or a Continue followed by a Continue:

    a. $\emptyset_i$ Içeri   girdi.
        inside enter.PAST
     '(he) went in.'
    b. Kafası$_i$ karmakarışıktı,
       head.POSS confused.COP.PAST.
     'His mind was confused'
    c.$\emptyset_i$ yazı   odasına   doğru   yürüdü,
       writing room.DAT towards walk.PAST.
     '(he) walked through the study.'
The choice in ranking in this study decreased the proportion of Continues followed by a Retain.

and with a null object only 22% of the time in a corpus of naturally- occurring narratives. This 22% includes instances when the subject is either impersonal or nonreferential, as kimse 'nobody'. Since the Cb in a Retain is realized by an overt pronoun most of the time, it cannot compete with a null subject in the same utterance for Cb-status, unless the latter is an impersonal pro. The subject in a retained utterance cannot be an overt pronoun of the same number and person because utterances with multiple overt pronouns with the same Phi-features are very difficult to process in Turkish.[4]

Multiple overt pronouns in the same utterance are not considered to be good style in written and spoken language; utterances as in 13b may confuse the hearer who may be forced to ask for a clarification question: 'Who didn't see whom?'. The reason is that, in 13b, the Cb position is already filled with an overt object (the highest ranked entity of the previous utterance) and this excludes the possibility of using another pronoun for a less salient entity of the previous utterance:

13. a. $\emptyset_i$ Sait'in$_k$ yanından   geçti.

Sait.GEN next.POSS pass.PAST.

'She passed next to Sait.'

    b. Ama #o$_k$/Sait onu$_i$ tanımadı   bile,

but   #he/Sait she.ACC recognize.NEG.PAST even.

'But Sait didn't even recognize her.'

To obtain the reading intended in 13b, the subject should be a full NP in accordance with the first part of the Center Promotion Rule discussed in Chapter 4, repeated below:

Center Promotion Rule for Turkish (CPR) - to be revised

i. Given an entity e evoked in a non-subject position in Un-1 where e is not the instantiated Cb(Un-1): if e is realized in Un, it must be realized by a full NP subject.

These observations in Turkish discourse support Centering Rule 1 that there must be at most one Cb per utterance. In addition, it accounts for why full NPs rather than less explicit expressions occur as subjects in Retain transitions.

There are a few possibilities for how a subject may be introduced in a Retain:

14.

---

[4]However, note that null subjects and objects cooccur in answers to yes/no questions, and also when the subject continues to be the Cb. The following sequence of utterances is felicitous with multiple null expressions. However, note that the subject is the Cb throughout. These null objects may turn out to be pseudo-zero-pronouns as discussed by Kuno 1989 (see Chapter 3):

a. $\emptyset_i$ Almanya'daki arkadaşına   bir mektup yazdı.
    Germany.LOC friend.POSS.DAT one letter   write.PAST
    '(He) wrote a letter to his friend in Germany.'

b. $\emptyset_i$ $\emptyset_k$ Zarfa   koydu.
        envelope.DAT put.PAST.
    '(He) put (it) in an envelope.'

c.$\emptyset_i$ $\emptyset_k$ kapattı,   pulladı.
        close.PAST stamp.PAST.
    '(He) closed and stamped (it).'
    (Özdemir Başargan. 1979. *Gurbet Sofrası*: 13)

- It can be an entity among the Cf(Un-1) or inferrable from one of them.

- It can be an entity that was previously discussed but not in the attentional state because of the newly introduced entities in the intervening utterances.

- It can be a Hearer-old, Discourse-new entity.

- It can be a Brand-new entity.

- It can be a dummy-like subject (impersonal pro).

All of the options in 14a-d will be discussed below and impersonal pronouns will be discussed in the next section.

Let us assume that 14a is the case, i.e. the new subject is one of the entities in the Cf-(Un-1). Then it must not be the Cb(Un-1) since the singleton Cb(Un-1) is retained in Un. The new subject must also not be the Cp(Un-1), since, otherwise, a Smooth-Shift would obtain, as in 15c:

15. a. $\emptyset_i$ parkta   yürüyordu.

      park.LOC walk.PROG.PAST.

   '(She) was walking in the park.'

  b. Sait$_k$ onun$_i$ yanından geçti.

    Sait.GEN she.GEN next.POSS pass.PAST.

    'Sait passed by her.'

   Cb=Sevim, Cb(Un-1) = Cb(Un)

   Cf= [Sait,Sevim], Cb $\neq$ Cp, Retain

  c. Ama $\emptyset_k$ onu$_i$ tanımadı   bile,

    but   Sait she.ACC recognize.NEG.PAST even.

    'But (he) didn't even recognize her.'

   Cb=Sait, Cb(Un-1) $\neq$ Cb(Un)

   Cf= [Sait, Sevim], Cb = Cp, Smooth Shift

Under these circumstances, any non-Cp, non-Cb of Cf (Un-1) must undergo the Center Promotion Rule.

Bearing this in mind, we can now consider 16, where 16b is a Retain. The entity vali '(the) mayor' is in the Cf-list of 16a. As a non-Cp, non-Cb, if it is realized in 16b as a subject, it has to be realized by a full NP in accordance with the CPR:

16. a. Valiyle   görüşmesi   öğleden   sonraya   kaldı.

    mayor.WITH meeting.POSS3S noon.ABL after.DAT remain.PAST.

    '(His) meeting with the mayor was postponed until the afternoon.'

Cb= his

Cf= [his, meeting, mayor]

    b. Vali   onu   saat üçe   doğru çağırdı.

        Mayor he.ACC. hour three.DAT towards   call.PAST.

        'The mayor called him close to three o'clock.'

        (Yaşar Kemal, 1980. *Demirciler Çarşısı Cinayeti*. 1971)

Cb= his, Cb(Un) = Cb(Un-1)

Cf= [mayor, him], Cb ≠ Cp, Retain

Similarly, the non-Cp, non-Cb object of the postposition in 17b has to be realized by a full NP if realized in the subject position in accordance with the CPR, while the Cb is retained in 17c:

    17. a. Sevim$_i$, bir acele giyinip   sokağa fırladı.

         Sevim   one hurry dressed.CONJ street   run.PAST.

         'Sevim quickly dressed and ran out.'

      b. $\emptyset_i$ Sait'in$_k$ yanından   geçti.

          Sait.GEN next.POSS pass.PAST

        'She passed by Sait.'

Cb=she=Sevim

Cf= [she,Sait], Cb = Cp, Continue

      c. Ama Sait onu$_i$ tanımadı   bile,

        but   Sait she.ACC recognize.NEG.PAST even.

        'But Sait didn't even recognize her.'

Cb=her=Sevim, Cb(Un-1) =Cb(Un)

Cf= [Sait, Sevim], Cb ≠ Cp, Retain

      d.çünkü   gözleri   seçmiyordu.

        because eye.PLU.POSS.3SG distinguish.NEG.PROG.PAST.

        Lit: 'because his eyes couldn't distinguish things.'

        'because he couldn't see very well.'   (Aziz Nesin. 1958. *Gol Kralı*: 61)

Note that the requirement of a full NP subject in a Retain transition is a consequence of the interaction of the rules and constraints of Centering Theory presented in 18:

    18.

- If any entity of Cf(Un) is realized by a pronoun, then the Cb(Un) is.

- There is at most one Cb per utterance.

- The Center Promotion Rule (CPR).

Given that there is a single Cb per utterance, and given that the Cp is the expected Cb of the next utterance, any instantiated Cb = Cp(Un-1) cannot be realized by a full NP in object position. For example,Sevim, the null subject Cb in 19a cannot be in a full NP in object position in 19b, it must be represented with a less explicit expression. Since null objects are constrained

in Turkish discourse (cf. Turan 1994b), it has to be realized by an overt object pronoun. As predicted, full NP object in 19b is incoherent, while the overt pronoun object is felicitous:

19. a. $\emptyset_i$ Sait'in$_k$ yanından geçti.

Sait.GEN next.POSS pass.PAST

'She passed by Sait.'

b. Ama Sait #Sevim'i/onu$_i$ tanımadı bile,

but Sait she.ACC recognize.NEG.PAST even.

'But Sait didn't even recognize her.'

Likewise, Grosz, Joshi, and Weinstein 1986, 1995 show that in English the instantiated Cb(Un-1) cannot be realized with a more explicit expression in Un. Example 20 is cited in Grosz, Joshi, and Weinstein (1995:11-12):

20. a. Susan$_i$ gave Betsy$_k$ a pet hamster.

b. She$_i$ reminded her$_k$ that such hamsters were quite shy.

c. #She$_k$ told Susan$_i$ that she really liked the gift.

Utterance 20c is infelicitous because Susan, an instantiated Cb in 20b, is realized by a full NP. This example suggests that there is at most one Cb per utterance, and that speakers cannot use more explicit expressions once the Cb is instantiated, unless the full NP has special functions, as discussed in Section 3.3.

The discussion of the Turkish data has implications for the possible universal relevance of Centering Theory. We suggest that the CPR applies cross-linguistically, depending on the available distinguishing expressions, in the sense of Dale 1989. Support for this claim is provided in Brennan's 1993 English data, as discussed in Chapter 4.

However, in a language like English which makes use of gender distinctions in pronouns, it is predicted that the CPR will apply in a more limited set of contexts than in Turkish, i.e. only where the two expressions are of the same gender, person and number. On the other hand, Turkish, a language without gender distinctions, has to use distinguishing expressions to resolve ambiguity among the members of the Cf-list of the same person and number. Thus, the most salient entity will be represented with a null subject, or a null/overt object, while less salient entities will be realized by NPs with more distinguishing power. Full NPs typically have more descriptive and distinguishing power than pronouns, and thus the CPR follows. Various expressions may be distinguishing relative to the other set of expressions in the same Cf-list. For example, the NP *the young woman* after the sentence *Mary and Nancy met* can be distinguishing if one of the women is younger, but the NP *the woman* fails to distinguish the entities assuming both are adult females. Pronouns can also have distinguishing power; for example, 21 is a coherent discourse because Mary and John can be distinguished by the pronouns she and he, respectively. In Turkish, on the other hand, pronouns cannot mark such a distinction, and the utterance corresponding to 21c with two overt pronouns is very difficult to process. As a result, Turkish has to make use of the distinguishing power of referential expressions:

21. a. Mary$_i$ quickly got dressed and ran outside.

    b. She$_i$ passed by John$_k$.

    c. But he$_k$ didn't even recognize her$_i$.

    d. Because his$_k$ eyesight is so poor.

Compare 21 with 22, where 22c, which is as infelicitous as its Turkish counterpart. Note that 22c is a violation of the CPR:

22. a. Mary$_i$ quickly got dressed and ran outside.

    b. She$_i$ passed by Sue$_k$.

    c. #But she$_k$ didn't even recognize her$_i$.

    d. Because her$_k$ eyesight is so poor.

The coherent version where Sue is realized by a full NP obeys the CPR. 23c is like the situation in Turkish in general because it contains entities that are not distinguished by the English gender system:

23. a. Mary$_i$ quickly got dressed and ran outside.

    b. She$_i$ passed by Sue$_k$.

    c. But Sue$_k$ didn't even recognize her$_i$.

    d. Because her$_k$ eyesight is so poor.

Thus it is predicted that the CPR will be a less common strategy in English than in Turkish and that the proportion of subject pronouns in Retain transitions will be higher in English. Although Turkish does not make use of gender, other Phi-features as number and person are marked and can therefore make pronouns distinguishing expressions. Thus, as expected, a null subject can indeed encode a Retain transition, as in 24b:

24. a. Sen Filiz'i$_i$ tanımazsın.

    you Filiz.ACC know.NEG.AOR.2SG.

    'You don't know Filiz.'

    b. $\emptyset_i$ Sizin   koğuşa   yeni geldi.

      you.GEN2PL ward.DAT new come.PAST.

    'She's new in your ward.'

    (Çiçekoglu, 1991. *Uçurtmayı Vurmasınlar* : 28)

Now we return to the other functions of full NP subjects. As was stated in 14b, an entity that has left attentional state may occur as the subject of a Retain. Since speakers have a limited center of attention (Chafe 1976, Grosz and Sidner 1986, Hajicova 1993), previously centered entities disappear from attentional state with time as new entities are introduced and the discourse no longer involved the previous entitites. For example, of the two entities introduced in 25a, only one is realized in 25b and since Sevim is absent from the Cf-list of 25b, the entity has to be reintroduced as a full NP in 25c:

25. a. Sait$_i$ saygıyla   Sevim'i$_k$ götürdü.

     Sait   respect.WITH Sevim.ACC. bring.PAST.

     'Sait took Sevim to her seat respectfully.'

   b. Ø$_i$ Şimdi ne   yapması   gerektiğini   bilmiyordu.

      now   what do.INF.3SG need.POSS.ACC know.NEG.PROG.PAST.

     'He didn't know what he should do next.'

  c.Sevim onu$_i$ boş   bir   masaya götürdü.

     Sevim he.ACC empty one table.DAT   take.PAST.

     'Sevim took him to an empty table.'

     (Aziz Nesin. 1958. *Gol Kralı*: 104)

Furthermore, again as suggested in 14c-d, speakers may introduce Discourse-new and even Hearer-new entities into the discourse model while retaining a Discourse-old entity. In the default case, a full NP is used to introduce such new entities into the discourse. This is because it has the most descriptive power compared to null and overt subjects. Third-person pronouns have little descriptive power: they make animacy, gender, person and number distinctions in English, and person and number distinctions in Turkish. Void of any further content, a new entity cannot be introduced with a pronoun. In the case of a Hearer-old entity, the hearer knows about the entity but it is not in his/her attentional state, and so it must be brought into the discourse model by the use of a full NP. On the other hand, the hearer does yet not have any file card for a Hearer-new entity, which thus has to be evoked by a full NP. Inferrables are also introduced with full NPs in the default case.

Due to these reasons, in 26, where the son of the laundry woman is at the center of attention, the evoked entity *komşular* 'the neighbors' has to be represented by a full NP while the Cb of 26a is retained by an overt pronoun:

26. a. Ø$_i$ Bir kimsesiz   çamaşırcı kadının   öksüzü   idi.

       one anyone.without launderer woman.GEN orphan.POSS. COP.PAST

     'He was the orphan son of a laundry woman with no family.'

   b. Komşular   ona$_i$ acıyıp,   barındırmışlardı.

     neighbor.PLU. he.DAT. feel.pity.CONJ. take.care.of.PLU.PAST

     'The neighbors felt sorry for him and took care of him.'

     (Memduh Esendal, 1984. *Hava Parası*: 11)

The functions of Full NP Subjects in Retain Transitions in Turkish can be summarized as follows:

Full NP subjects are used in Retain transitions in the default case.

This is due to the following facts:

i. The subject of the current utterance is crucially not the Cb in Retain transitions; otherwise a Continue or a Smooth-Shift would obtain. Since null and overt subjects are reserved for the Cbs, the non-Cb subject will tend not to be represented by these Cb-encoding forms.

ii. The subject in the retained utterance:

a. may possibly be realized in the previous utterance but not in subject position, in which case it must undergo the CPR, while the Cb(Un) must be realized by a pronoun in (Un-1) if it is realized in that utterance[5]:

He met John.

John greeted him. RETAIN

b. Otherwise, a Discourse-old entity may possibly not be realized in the Cf-list of the previous utterance, and this entity has to be introduced in to the discourse with a full NP:

He met John.

He also met Sandy.

John told him...... RETAIN

Alternatively, it may possibly be introduced into the discourse for the first time, as a Discourse-new entity, in which case it must be represented by a full NP:

He was at a movie.

A guy saw him. RETAIN

However, full NPs are not the only type of subjects in Retain transitions. Table 1 above shows that Retains in the corpus have null subjects 3% of the time. One example is presented in 27e:

27. a. Çocuk$_i$ öne   doğru   bir adım attı.

    child   front.DAT towards one step take.PAST.

    '(The) child took a step forward.'

  b. $\emptyset_i$ Bu şık kıyafetli   amcadan$_k$ korkmuş   olmalıydı.

    this chic outfit.WITH uncle.DAT scared.EVID. be.MUST.PAST.

    '(He) must have been intimidated by this man with an elegant outfit.'

  c.Cevdet Bey$_k$ onu$_i$ en   son altı yıl   önce görmüştü.

    Cevdet Bey he.ACC most last six year ago see.PAST.PAST.

    'Cevdet bey had last seen him six years ago.'

Cb= the child, Cb(Un-1) = Cb(Un)

Cf= [C.Bey, child], Cb(Un) ≠ Cp(Un), Retain

  d.$\emptyset_i$ O zaman üç   dört yaşında   gözüküyordu.

    that time   three four year.LOC seem.PROG.PAST

    '(He) seemed to be three or four years old at that time.'

---

[5]Consider the following example where John undergoes the CPR in utterance (b). Since utterance (a) is assumed to be in discourse initial position, it does not have any Cb, the transition from (a) to (b) is not analyzed. In utterance (b), the Cb is instantiated:

  a. Sam$_i$ met John$_k$.

  b. John$_k$ greeted him$_i$.

Cb= the child, Cb(Un-1) = Cb(Un)

Cf= [child], Cb(Un) = Cp(Un), Continue

   e. $\emptyset_k$ Yanağını   okşadı.

       cheek.POSS.ACC caress.PAST.

    '(He) caressed (his) cheek.'

    (Orhan Pamuk. 1983. *Cevdet Bey ve Oğulları*: 33)

Cb = the child, Cb(Un-1) =Cb(Un)

Cf=[C.Bey,child], Cb(Un) ≠ Cp(Un), Retain

The reason why 27e is analyzed as a Retain is because even though the null subject representing Cevdet Bey is not represented in the Cf-list of 27d with a null or overt pronoun, 27d is an utterance representing Cevdet Bey's inner thought about the child. Thus, Cevdet Bey is the subject of consciousness, and both his SELF and the child are equally available to him from his subjective point of view. For this reason, Cevdet Bey can be realized with a null subject in 27e which is a Retain.

5.4.2   The Functions of Impersonal Subjects in Retain Transitions

As previously mentioned, a total number of 39 tokens of impersonal subjects are attested in the data, of which 30 occur in Retain transitions and 9 in Rough-Shifts. In other words, of 251 Retain transitions, 12% have an impersonal pronoun. These impersonal subjects and their functions in Retain will now be discussed.

Turkish has an impersonal null pronoun which is a pure pronominal [+pronominal, -anaphor], with only a [+human] reading, with features third-person plural verbal agreement in a tensed clause. It is always represented by a null subject, the overt subject with the corresponding Phi-features, i.e. third-person plural, never having an impersonal interpretation. In a non-impersonal reading with a null third-person plural, the subject is understood to involve more than one individual, but this property is absent in the impersonal reading, where one or more individuals are involved.

In addition, Turkish has another impersonal subject *insan* 'human' corresponding to one in English. Some differences between impersonal pro and insan 'one' are presented below.

Impersonal pronouns in Turkish, as in other pro-drop languages like Italian and Spanish, do not appear as subjects of a passive construction (cf. Belletti 1982, Suner 1983):

28. Dün $\emptyset$/*pro tedavi   edildiler.

    Yesterday   therapy make/do.PASS.PAST.PLU.

    'They were treated yesterday.'

Likewise, they cannot appear as subjects of ergative constructions:

29. $\emptyset$/*pro Burada   iyi   çalışırlar.

        here.LOC well work.AOR.PLU.

    'They work well here.'

30. Ø/*pro Kışın   tatile   gitmezler.
         winter holiday go.NEG.AOR.PLU.
    'They don't go for a vacation in winter.'

The use of impersonal pro, then, is confined to active, transitive tensed clauses. In contrast, *insan* 'human', with an impersonal interpretation can occur in these constructions, with third-person singular agreement morphology, as in 31 and 32:

31. Insan   burada iyi   çalışır.
    human here   well work.AOR.
    'One works well here.'

32. Insan   kışın   tatile   gitmez.
    human winter holiday.DAT go.NEG.AOR.
    'One doesn't go for a vacation in winter.'

'Impersonal' means denoting any one or more members of a set whose referential identity is irrelevant, since either the speaker does not know who the referent is or else s/he simply is not really talking about the referent, but rather about another entity. In fact, no Continue transition occurs in the data with impersonal subjects. Thus, it seems that the use of an impersonal pronoun does not prepare the hearer to shift to the newly introduced Cp, the impersonal subject, the identity of the referent being irrelevant.

Impersonal insan, like impersonal pro, does not represent any entity for the speaker or the hearer. One distinction between impersonal pro and insan concerns the interpretation of the subject. Like in Spanish (Suner 1983, Jaeggli 1986), Turkish impersonal pro excludes the speaker from the action denoted by the verb, while this is not the case for insan 'human', where the speaker may be included in the interpretation.

We can now examine instances of impersonal pro in the data. The impersonal pro in utterance 33c does not introduce a discourse entity and 33c is still about mürekkepçi '(the) ink seller' who undergoes the action of being buried. The center of attention is not shifted to the impersonal pro in the subject position:

33. a. Günün   birinde   mürekkepçi$_i$ on beş gün hasta yattı.
       Day.GEN one.POSS.LOC ink-seller   ten five day sick   lay.PAST.
       'The ink seller was sick for fifteen days.

    b. ve   Ø$_i$ öldü.
       and   die.PAST.
       'and one day (he) died.'

    c. pro Onu$_i$ mahalle camiinin   bir köşesine   gömdüler.
          he.ACC district mosque.GEN. one side.POSS.DAT bury.PAST.3.PLU.
       '(They) buried him on one side of the district mosque.'
       (Memduh Esendal, 1980. *Hava Parası*: 17)

Utterance in 34b also has an impersonal pro subject where the Cb is the overt object. Note that the transition from 34b to 34c continues the previous Cb and the null subject in 34c is not

interpreted as impersonal pro, but as the Cb onu 'him' of the previous utterance:

34. a. $\emptyset_i$ Evin   küçüğüydü.

       house.GEN. young.POSS.

     'He was the youngest in the house.'

   b. pro Sayrıl Babayla   başbasa   bırakıvermişlerdi   onu$_i$.

     pro Sayril father.WITH head-to-head leave.PAST.PLU.PAST. he.ACC.

     '(They) left him alone with Father Sayril.'

   c.$\emptyset_i$ Babayla   ilgilenmek   zorundaydı.   (Fuat Altınsoy 1982. Hendekler : 33)

     father.WITH interest.INF. obliged.COP.PAST.

     'He had to take care of the father.'

These facts show that impersonal pro is not salient, and it neither interacts nor competes with the overt object for Cb-status. As we see in 35e, insan, like impersonal pro, appears to have a very low ranking in the Cf-hierarchy, no doubt for the same reasons. Indeed, in 35f, the speaker goes on talking about Korkut rather than insan. Furthermore, 35f' shows that the null subject is understood as Korkut and not as insan. This suggests that an entity lowered to object position by the introduction of an impersonal subject has still not left the center of attention :

35. a. $\emptyset_i$ Apollan'a   benzemiyordu.

       Apollon.DAT look.like.NEG.PROG.

     '(He) didn't look like Apollon'

   b. $\emptyset_i$ Hermes'e   benzemiyordu.

       Hermes.DAT look.like.NEG.PROG.

     '(He) didn't look like Hermes.'

   c.$\emptyset_i$ Korkut'tu $\emptyset_i$ öyleydi.

     Korkut.COP.PAST.   like that.COP.PAST.

    '(He) was Korkut, (he) was like that'

   d. ve $\emptyset_i$ hep   öyle   kalacaktı.

     and   always like.that stay.FUT.PAST.

     'and (he) would always be like that.'

   e. Gelgelelim yardim edemiyordu   insan   ona$_i$.

     however   help   do/make.NEG.PROG.PAST human he.DAT.

     'However, one couldn't help him.'

   f. Sevgisi$_i$ bir yara   gibiydi.

     love.POSS. one wound like.COP.PAST.

     'His love was like a pain.'

   f'. $\emptyset_i$ Sürekli üzülüyordu.

       always feel.bad.PROG.PAST.

     '(He) was always sad.'

     (Selim Ileri. 1980. *Cehennem Kraliçesi* : 10)

141

Thus, we have seen that neither impersonal pro nor insan prepare the hearer for a possible Shift, since these do not become Cps. Rather, they indicate that the Cb, although no longer the subject, has not necessarily left the center of attention. If a speaker intends to shift the Cb, we do not find these impersonal pronouns, but rather a new discourse entity.

The Functions of impersonal pro and insan in Turkish are as follows:

Impersonal pro and insan may be used as subjects in a Retain when the Cb is influenced by an action performed by [+human] Agent whose identity is irrelevant.

Consequently, then, impersonal subjects must be ranked very low in the Cf-list, or they can be considered analogous to nonreferential expressions which are not listed in the Cf-list.

5.5   Shifting the Center

Shifting from one Cb to another is a signal to the hearer that the attentional state has changed from the previously instantiated Cb to a new discourse entity. In both Smooth-Shifts and Rough-Shifts, the Cbs of the two adjacent utterances are not the same. The difference between a Smooth-Shift and a Rough-Shift is that the Cb is necessarily the subject in the former and not the subject in the latter. A Smooth-Shift is an indication that the speaker wishes to talk about the newly introduced entity by assigning it the highest salience in the current utterance. In a Rough-Shift, on the other hand, the speaker has no such desire to continue to talk about the entity (Walker, Iida, and Cote 1994).

In a Smooth-Shift, the Cb and the Cp of the current utterance is necessarily the same. On the other hand, in a Rough-Shift the Cb is not the Cp in the current utterance. The following example from (Brennan,Friedman, and Pollard 1987:157) shows how a Smooth and a Rough-Shift differ in the last utterance with multiple ambiguous pronouns.

36. a. Brennan drives an Alfa Romeo.

    Cb= ?, Cf= [Brennan, Alfa Romeo]

  b. She drives too fast.

    Cb= she = Brennan, Cf= [Brennan]

  c. Friedman races her on weekends.

    Cb = her = Brennan, Cf= [Friedman, Brennan], Retain

  d. She often beats her.

    Cb= She= Friedman, Cf= [Friedman, Brennan], S.Shift

  or Cb = her = Friedman, Cf= [Friedman, Brennan], R. Shift

Utterance 36d in this example has to be a Shift, since the Cb of the current utterance is the highest ranked element of the previous utterance that is realized in the current utterance. In an earlier formulation of Centering Theory (Grosz, Joshi, and Weinstein 1986), there is no distinction between the two types of Shifts: a Shift would occur whenever the Cbs of the two

utterances are not the same, and the definition of Shift does not include whether the Cb(Un) is also the Cp(Un). Brennan, Friedman, and Pollard 1987 argue that the Cp status in the current utterance is important in the case of Shift as well as in Continue and Retain.

5.5.1 The Functions of Full NP Subjects in Rough-Shift Transitions

Two types of Rough-Shifts are considered in this study. One type involves those utterances with a set of new entities and therefore with no Cb at all. For example, the transition from 37b to 37c is a Rough-Shift since none of the entities introduced in 37a-b are realized in 37c:

37. a. Ertesi sabah   [evin   kapısı]$_i$ çalındı.

     Next   morning house.GEN. door.POSS knock.PASS.PAST.

     'The next morning the door of the house was knocked.'

  b. Ø Ø$_i$ Açtım.

      open.PAST.1SG.

   '(I) opened (the door).'

  c. Sinemadan   bir adam geldi.

    cinema.ABL one man   come.PAST.

    'A man from the cinema came.'

    (Ülkü Tamer, cited in Özdemir 1983:44)

The other Rough-Shift involves transitions with a Cb, as in 38b. The Cb in 38a, the null subject, is not the Cb of 38b. In 38b, kapıyı 'the door' is the Cb, an entity from the Cf-list of 38a, but is not the Cp, thus a Rough-Shift obtains:

38. a. Ø Kapıyı   vurdu,   bekledi.

     door.ACC. knock.PAST. wait.PAST.

    '(He) knocked at the door, and waited.'

  b. Kapıyı   Zeynep Hanım açtı.

    door.ACC. Zeynep Hanim open.PAST.

    'Zeynep Hanim opened the door.'

    (Orhan Pamuk. 1983. *Cevdet Bey ve Oğulları*: 31)

The reason why full NP subjects encode Rough-Shift transitions is exactly the same as why they encode Retain transitions. In both a Retain and a Rough-Shift, the Cbs cannot be the subject. The difference is that in a Retain, the Cb(Un) is the same of the Cb(Un-1), while in Rough-Shift, the Cb of the previous utterance should not be the Cb of the current utterance. Since the Cb (if there is one) is not the subject in a Rough-Shift, either a new entity is introduced into the discourse model, or else one that has left the attentional state is reintroduced. Again, as in Retains, impersonal pronouns can occur in Rough-Shift transitions for the same reasons.

5.5.2   Two Types of Smooth-Shifts

It will be shown below that speakers choose distinct forms of subjects depending on whether they shift to the previous subject or to the object in Smooth-Shift transitions. The data suggest that null subjects encode Shift-to-the-subject (Shift-subj) while overt pronouns and full NPs encode Shift-to-the-object of the previous utterance (Shift-obj). The results are shown in Table 4 below. Null subjects are used in Shift-subj transitions 98% of the time, whereas overt pronouns are used only 2% of the time. On the other hand, shift-obj disfavors null subjects, as will be discussed below.

Utterance in 39c is a Shift-subj, while the one in 40c is a Shift-obj. Note that in both 39c and 40c, the Cbs Zeliha Hanım and Temel, respectively, are not the same Cbs in 39b and 40b and the Cbs of 39c and 40c are the Cps. As a result, both transitions are Smooth-Shifts. The difference, however, is that 39c shifts to the subject of 39b, while 40c shifts to the object of 40b:

39. a. $\emptyset_i$ yine   merdivenleri her zamanki   alışkanlığıyla   gürültüyle   indi.
       again stairs.ACC   all time.CONJ habit.POSS.WITH noise.WITH go.down.PAST
   'He went down the stairs noisily, which has been his usual habit'

   b. Zeliha Hanımk onu$_i$ gülümseyerek kaşıladı.
   Zeliha Hanim   he.ACC smilingly   meet.PAST.
   ' Zeliha Hanim met him smilingly.'

   c.$\emptyset_k$ Kahvaltının   hazır olduğunu   söyledi.
       breakfast.GEN ready be.NOM.ACC say.PAST.
   'She said the breakfast was ready.'
   (Orhan Pamuk. 1983. *Cevdet Bey ve Oğulları*: 6)

40. [Temel is traveling from one city to another on a bus. However, he sits in the wrong seat, and another guy tries to convince him to change his seat.]

   a. $\emptyset_i$ gider.
       go.PRES.
    'he goes.'

   b. $\emptyset_i$ Temel'in$_k$ kulağına   bir şeyler   söyler.
       Temel.GEN. ear.POSS.DAT one thing.PLU say.PRES.
    'he whispers something into Temel's ears.'

   c.Temel$_k$ hemen   kalkar.
    Temel immediately stand.up.PRES.
    'Temel immediately stands up.'

   d. ve $\emptyset_k$ gider biletteki   numaraya   oturur.
      and   goes ticket.LOC. number.DAT. sit.PRES.
      'and he goes sits in the seat numbered on his ticket.'
      (from an e-mail message received on 13 December 1991)

144

Shift-obj, exemplified in 40c, can be further divided into two types.[6] Shift-obj:1 disfavors null subjects (2% of the time) and favors a more explicit expression, overt pronouns (21%) or full NPs (77%). Shift-obj:1 represents instances where the entities in the Cf-list cannot be distinguished from one another by the use of a null subject; shift-obj:2 is for the remaining cases.

Consider 41. In 41a, the two entities in the Cf-list, the null subject and the object, have both third-person singular features. The Shift transition (shift-obj:1) in 41b must be encoded either by a full NP or an overt pronoun; the null subject is infelicitous because it will be interpreted as the Cp of 41a. A null subject in Turkish is reserved to realize the Cp of the previous utterance or to encode a Continue transition. On the other hand, more explicit subjects, the overt pronoun and the full NP realize less salient entities, non-subjects and non-Cbs.

41. a. $\emptyset_i$ Ali'yi$_k$ aradı.

      Ali.ACC. call.PAST.

    '(He) called Ali.'

  b. Ama Ali$_k$/o$_k$/#$\emptyset_k$ evde   değildi.

    but   he   home.LOC not.COP.PAST.

    'But he was not at home.'

Nevertheless, as Table 4 shows, the data suggest that null subjects can be used to encode a Shift-obj depending on the distinguishing power of the NPs in the same Cf-list. Phi-features such as number and person have distinguishing power in Turkish; hence, when the entities in the Cf-list are of different number and person, Shift-obj is encoded by a null subject 94% of the time, as can be observed in the table.

Table 4: 3rd-person Singular and Plural Subjects in Smooth-Shift Transitions.

Subjects	Shift-subj	Shift-obj:1	Shift-obj:2
3rd Person Singular:			
null	86 98%	3 2%	48 94%
overt	2 2%	27 21%	2 4%
Plural NP	0 0	102 77%	1 2%
TOTAL	88	132	51

In Tables 5 and 6, the distribution of the third-person singular and plural subjects are presented, respectively. Note that third-person plural subjects are rare. Nevertheless, both third-person singular and plural subjects show the tendencies discussed above. Null subjects are used nearly 100% of the time to encode a Shift-subj, while more explicit expressions are preferred for Shift-obj:1. In these cases, null subjects are used only 3% of the time in third-person singular, and no null subject is attested in the third-person plural subjects. The percentages of null subjects increases when the entities in the Cf-list are marked for a different number or person. In that case, null third-person subjects encode Shift-obj 94% of the time.

Table 5: Third-person Singular Subjects in Smooth-Shift Transitions

---

[6]A total number of 15 tokens of null subjects were excluded because even though they appear to be shift-to-the-object at first sight, they are ranked from the point of view of a subject of consciousness as discussed in Chapter 4.

Subjects	Shift-to-subject	Shift-to-object	Shift-to-object:2
null	71 96%	3 3%	45 94%
overt	2 4%	19 16%	2 4%
full NP	0 0	95 81%	1 2%
TOTAL	73	117	48

Table 6: Third-person Plural Subjects in Smooth-Shift Transitions

Subjects	Shift-to-subject	Shift-to-object	Shift-to-object:2
null	15 10%	0 0	3 100%
overt	0 0	8 53%	0 0
full NP	0 0	7 47%	0 0
TOTAL	15	15	3

5.5.3   Null Subjects in Shift-subject

Shift-subj is encoded by a null subject in the bulk of the data. Thus, we can conclude that this is a general tendency, suggesting that the null subject is used to realize the Cp of the previous utterance.

Smooth-Shift-subj is analogous to Continue in that both favor null subjects. Why should this be? It is true that in both Continue and Shift-subj, the Cps and the Cbs are the same in the current utterance, i.e. Cb(Un)=Cp(Un). But this is also the case in Shift-obj. Thus, this is not a distinctive feature of Continue and Shift-subj. transitions. What is distinctive of these transitions is the following: the Cb(Un) has to realize the Cb(Un-1), the most salient entity, which is exempt from the Center Promotion Rule in both continues and shift-subjs. The generalization is:

> A null subject is used when its corresponding entity in the Cf-list of the (Un-1) is exempt from the CPR.

We can now add this observation to the functions of null subjects previously discussed:

> **The function of null subjects in Turkish:**
>
> Null subjects are used to encode Continue and Smooth-Shift-subj transitions, i.e. they pick up the entities that are exempt from the CPR, i.e. null subjects pick up either Cps or Cbs.

5.5.4   Full NPs and Overt Pronouns in Shift-obj

The second type of Smooth-Shift involves Shift-obj, as exemplified in 43b. The Centering analysis of the transition from 42a to 43b is a Smooth-Shift because the Cb, the null subject in 43a, is not the same Cb in 43b, kapı '(the) door'. The Cb of 43b is the Cp at the same time. The shift is to the object of 43a.

146

43. a. $\emptyset_k$ Meliha'nın   kapısını$_i$ çekiyor.
         Meliha.GEN. door.POSS.ACC. pull.PROG.
      '(He) pulls Meliha's door.'

   b. Kapı$_i$ kapanıyor.
      door   close.PROG.
      'The door closes.'

   c.Meliha yattı.
      Meliha lie.PAST
      'Meliha lay down.'
      (Selim Ileri. 1973. *Destan Gönüller*. 72)

The reason why full NPs encode these transitions is clear when the CPR is considered. Note that the proportion of the full NPs that encode such transitions are high, 77% of the time.

Shift-obj are also encoded by an overt pronoun 21% of the time, as seen in Table 6. These are exemplified in 44b and 45b. In neither utterance can the subjects be represented by a null pronoun, because a null subject would unambiguously pick up the Cp of the previous utterances, obtaining a Continue instead of a shift to a different Cb.

44. a. $\emptyset_i$ Bağışlanmayı   dilemeliydi   Ekrem'den$_k$.
           pardon.PASS.INF.ACC. ask.MUST.PAST Ekrem.ABL.
      'He should ask Ekrem for apologies (lit: to be pardoned).'

   b. O$_k$ aldırışsız görünerek
      he careless   seem.ADV
      'Seeming careless, he [Ekrem]'

      satranç oynamaya   devam   ediyordu.
      chess   play.INF.DAT continue do.PROG.PAST.
      'was continuing to play chess.'
      (Selim Ileri, 1980. *Bir Akşam Alacası*: 49)

45. a. $\emptyset_i$ Çocuklarını$_k$ çitlerin   dibine
   child.PLU.POSS.ACC fence.PLU.GEN bottom.POSS.DAT
  '[They laid] their children down by the fence'

battaniyelerin üstüne   yatırmışlar.
blanket.PLU.GEN on.POSS.DAT lay.PAST.PLU.
'on the blankets, they laid.'

 b. $\emptyset_i$ Ağızlarına$_k$ yalancı emzikleri vermişler.
   mouth.PLU.POSS.DAT. pacifier.PL.ACC give.PAST.3.PLU.
  'They put pacifiers in their mouths.'

c.#$\emptyset_k$/Onlar$_k$ da düşürmüşler emziği,
 they   too drop.PAST.PLU. pacifier.ACC.
'They [the children] dropped the pacifiers'

d.$\emptyset_k$ ağlıyorlar.
 cry.PROG.3.PLU.
'They are crying.'

(Fakir Baykurt. 1983. *Barış Çöreği*: 41)

One might wonder why the entity in 45b is not realized with a full NP, in accordance with the CPR. There are three reasons for this. First of all, although the CPR is a very common strategy in Turkish discourse as has been discussed so far, it is merely a tendency rather than an absolute rule. The second reason is that there is no other overt pronoun in the same utterance that is competing for Cb-status. The third reason is that *Ekrem'den* 'from Ekrem' is in sentence-final position, a place where only Discourse-old entities are allowed (Erguvanlı 1984, Erkü 1983, Hoffman 1993). This postposing indicates that the entity is not evoked into the discourse model for the first time, but has been in the discourse although not as the most salient entity. The CPR might apply to the entities evoked into the discourse for the first time.

To sum up, we have seen that Shift-obj should be treated separately from Shift-subject. This is motivated by the correlation observed between the choice of expression and the type of transition. We have seen that Shift-obj is encoded by a full NP in accordance with the CPR, or by an overt pronoun subject when there is no pronoun competing for Cb-status in the same utterance. For Shift-Subjs, the (iii) part of the CPR can be extended to include overt subject pronouns as follows:

Center Promotion Rule for Turkish (CPR) [revised]

i. If an entity e is evoked in a non-subject position and is not an instantiated Cb(Un-1), e must be realized by a full NP subject in Un.

ii. Entity e should be expressed by a full NP in Un, before it can be talked anaphorically in Un+1.

iii. Entity e, can be realized by an overt pronoun only if there is no other overt pronoun in the utterance that is competing for Cb-status.

The discourse functions of full NP and overt pronoun subjects in Shift-obj transitions is summarized below:

The Discourse Functions of full NPs in Shift-to-the-object Transitions:

A full NP subject occurs in a Shift-obj if it is evoked as a non-Cp(Un-1).

An overt pronoun subject occurs in a Shift-obj if there is no other pronoun in (Un) competing for the Cb-status, and if it is Discourse-old in Un-1.

5.5.5   Null Subjects in Shift-Obj

Smooth-shift-obj is encoded by a null subject 94% of the time as shown in Table 6.[7] In these cases, the person and number Phi-features distinguish the entities in the Cf-list of the utterance, as in 46. In 46a, the Cf-list contains a first-person singular and a third-person singular entity. Since the entity in object position has a distinguishing power relative to the subject, it can be realized with a null subject in 46b:

46. a. $\emptyset$ Çocukluk aşkları   unutulmaz   asıl   diyorum   Meliha'ya$_i$.

       childhood love.PLU. forget.PASS.NEG.AOR in fact say.PROG.1SG Meliha.DAT.

    '(I) tell Meliha that childhood loves can't in fact be forgotten.'

  b. $\emptyset_i$ Inanmıyor.

     believe.NEG.PROG.

   '(She) doesn't believe it/me.'

  c. $\emptyset_i$ Pek çok duygularıma   inanmıyor.

     many   feelings.POSS.1SG.DAT believe.NEG.PROG.

   '(She) doesn't believe many of my feelings.'

   (Selim Ileri.1973. *Destan Gönüller*.65)

First and second-person pronouns are indeed different from third-person pronouns in that they are situationally evoked, and their values are assigned depending on the speaker and the addressee. To be more precise, first and second-person pronouns do not need antecedents within the discourse model to be interpreted the way third-person pronouns do.

An utterance is not produced in a vacuum but in a particular location at a particular time. According to Kaplan 1977, an utterance is uttered at a particular time t, in a particular context c. The context includes a specification of the speaker of the utterance, the audience, the time, and the place of the utterance: U{s, a, t, p}. The interpretation of the first-person I and we and the second-person you depends on the context of utterance. Thus, it makes sense to treat the context of an utterance separately, and to suggest that these indexical elements do not interact with the ranking of textually evoked third-person pronouns or full NPs. Furthermore, it seems

---

[7]In the data, 15 tokens involved entities that are ranked from the subjective point of view of a subject of consciousness, as discussed in Chapter 4. They are not represented in any of the Tables. These entities do not undergo the CPR because the entity in object position is the Cp from the point of view of the individual in the subject of consciousness, and Cps are exempt from the CPR.

that due to these separate levels of ranking, first and second-person pronouns in subject position do not block the next highest ranked entity from being realized as a null subject in the subsequent utterance. Perhaps they are elements of global discourse and not be listed in the Cf-list at all, as suggested by Walker 1993.

However, first and second-pronouns interact with third-person pronouns when both are stressed, as in 47. Note that the first-person singular pronoun ben 'I' in 47c cannot be null because the speaker compares himself to individuals who have a property of believing in fake virtue:

47. a. Bilirim   [bu sözlere   sinirlenecek
        Know.PRES.1SG this word.PLU.DAT be.angry.REL.FUT

    sayısız   insan] çıkacaktır.
    number.less human appear.FUT.
    '(I) know, many people will be upset by these words.'

    b. Çünkü   onlar, yalanlı, dolanlı
        Because they   lie.With deceit.With

    sahte namuslara   inanırlar.
    fake   virtue.PLU.DAT believe.PRES.3.PLU.
    'Because they believe in fake virtues full of lies and deceit.'

    c.#∅/Ben iktisadı   yönüyle
       I   economy side.With

    duygusal yönüyle   samiyetteki   namusa   inanırım.
    emotional side.With sincerity.LOC virtue.DAT believe.PRES.1SG.
    'I believe in the sincerity of virtue with its economic and emotional sides.'

If there were no interaction between the situationally evoked first and second-person-pronouns and textually evoked third-person pronouns, the pronoun in 47c could be null. Further research is needed to determine how first and second-person pronouns shoule be treated in the global discourse.

Nevertheless, the data suggest that the distinguishing power of Phi-features has an important effect on the choice of expression in the case of Shift-obj. Not only are first and second-person pronouns distinct from the third-person subjects in number and person, but also third-person pronouns can often be distinguished from one another by number. As a result, the third-person plural in 48b is distinct from the third-person singular and therefore does not have to undergo the CPR. In such cases, a Shift-obj can be encoded by a null or an overt subject as in 48c:

48. a. Ali$_k$ bütün gün yemek yaptı.

     Ali   all   day food   cook.PAST

     'Ali cooked all day.'

  b. ∅$_k$ [Filiz'le   Ayhan'ı]$_i$ yemeğe   çağırdı.

     Filiz.WITH Ayhan   dinner.DAT. invite.PAST

    '(He) invited Filiz and Ayhan to dinner.'

  c.∅$_i$/Onlar$_i$ Çok meşguldüler.

   they   very busy.COP.3.PLU.

   '(They) were very busy.'

  d.∅$_i$ Ofiste   çalıştılar,   yemeğe   gidemediler

     office.LOC work.PAST.PLU dinner.DAT go.NEG.ABIL.PAST.PLU.

   '(They) worked in the office; (they) couldn't go to the dinner.'

In 49b, the overt pronoun is more coherent than a null subject, however, a null subject is also possible:

49. a. ∅$_i$ Tarık'la   Murat'ı$_k$ oldukça pahalı,

     Tarik.with Murat.ACC rather   expensive,

    '[(he) invited] Tarik and Murat to a rather expensive,'

ama beğenisiz bir lokantaya   çağırdıı.

but tasteless one restaurant.DAT. invite.PAST.

'but tacky restaurant, he invited.'

  b. ∅$_k$/Onlar$_k$ gitmek istemediler.

   They   go.INF want.NEG.PAST.3.PLU.

   'They didn't want to go.'

  c.∅$_k$ Haklıydılar.

     right.COP.PAST.3PLU.

   'They were right.'

  (Selim Ileri. 1991.*Her Gece Bodrum* : 36-7)

As was stated in Chapter 1, the third-person plural mopheme is optionally marked in Turkish. If it is not present as in 50b, a variant of 49b, then the null subject is not allowed; an overt pronoun must be used. This is because in 50b, the agreement features cannot distinguish the entities in 50a:

50. a. ∅$_i$ Tarık'la   Murat'ı$_k$ oldukça pahalı,

     Tarik.with Murat.ACC rather   expensive,

    '[(he) invited] Tarik and Murat to a rather expensive,'

ama beğenisiz bir lokantaya   çağırdıı.

but tasteless one restaurant.DAT. invite.PAST.PAST.

'but tacky restaurant, he invited.'

    b. $*\emptyset_k$/Onlar$_k$ gitmek istemedi.

       they   go.INF. want.NEG.PAST.

       'They didn't want to go.'

By the same token, a null subject in 51b renders the discourse incoherent because the third-person singular entities cannot be distinguished by the third-person singular verb morphology. This is so even when world knowledge can resolve the ambiguity; in this case, where we assume that the person who did not want to go must be the one who was invited rather than the one who did the inviting:

51. a. $\emptyset_i$ Tarık'la   Murat'ı$_k$ oldukça pahalı,

        Tarik.with Murat.ACC rather   expensive,

       '[(he) invited] Tarik and Murat to a rather expensive,'

ama beğenisiz bir lokantaya   çağırdıı.

but tasteless one restaurant.DAT. invite.PAST.PAST.

'but tacky restaurant, he invited.'

    b. $\emptyset_k$ gitmek istememişti.

      they go.INF want.NEG.PAST.PAST.

      '(He) didn't want to go.'

Dale 1989 suggests that pronominalization is driven by two Gricean-type conversation maxims: a Principle of Adequacy, which requires that a referential expression identify the corresponding entity and provide sufficient information for the reference, and a Principle of Efficiency which pulls in the opposite direction and requires that the referential expression should not contain more information than required. Note that these principles presume a notion of distinguishing power such as Phi-features.

In order to distinguish a set of entities relative to one another, the Phi-features must be represented in the Cf-list. These features can be gender, number, and person, as well as grammaticized topics, honorifics, etc., depending on the language. In Turkish only number and person features distinguish entities. The facts observed here suggest that Phi-features may be listed in the Cf-list as follows:

    Cf = [x[NUMB;1, PERS:SG], y[NUMB:3, PERS:PLU]]

The CPR given above is revised to include the Phi-features number and person as distinguishing an entity from others. As has been alluded to various times in this chapter, the CPR will apply to those entities that are not distinguished by Phi-features. The first part of the CPR is revised as follows.

Center Promotion Rule for Turkish (CPR) revised

i. If an entity e is evoked in a non-subject position and is not an instantiated Cb(Un-1), where e is not distinguishable from the Cp in the Cf-list, e must be realized by a full NP subject in Un.

A null subject cannot be used if it cannot be distinguished from other entities on the Cf list, particularly the Cp which is the preferred center for the next utterance. Thus, a full NP subject must be used when the conditions listed above hold. Moreover, if a less salient entity can be distinguished from the Cp, it can be realized by a null subject.

5.5.6 More Evidence for two types of Smooth-Shift

It has been argued that there should be two types of Smooth-Shifts based on the distribution of subjects. Baldwin (In prep.) proposes that Centering transitions should be reordered as follows: Continue > Smooth-Shift > Retain. The original ranking proposed by Grosz, Joshi, and Weinstein 1986, 1995 is: Continue > Retain > Smooth-Shift. Baldwin argues that the order of frequency in Linson's 1993 results should be taken as correlating with the order of preference of the transitions:

40% Continue

30% Smooth-Shift

20% Rough-Shift (No Cb)

10% Retain

In what follows, it will be argued that Baldwin's observation makes both the right and the wrong predictions and that we must instead recognize that there are two types of Smooth-Shift which behave in different ways. For example, consider 52. The transition from 52a to 52b is a Smooth-Shift In 52a, Sevim is an instantiated Cb realized by a null subject. The infelicity of 52b can be accounted for by the following predictions of Centering theory, following Grosz, Joshi, and Weinstein 1986, 1995 and the discussions above. The instantiated Cb and the Cp in 52a, the null subject, is realized by a full NP in 52b while the non-Cb is realized with a full NP. This is a violation of Rule 1, which states that if any entity is pronominalized, the Cb must. Furthermore, the non-subject of 52a fails to obey the CPR. As a result, 52b, which is a Smooth-Shift-obj, is infelicitous.

52. a. $\emptyset_i$ Sait'in   yanından   geçti.
         Sait.GEN. next.POSS. pass.PAST.
       'She passed by Sait.'

   b. #Ama o Sevim'i$_i$ tanımadı bile.
      but   he Sevim.ACC recognize even.
      'but (he) didn't even recognize Sevim.'

The coherent discourse must be as in 53, where the transition from 53a to 53b is a Retain. In 53b, the CPR is obeyed and the Cb is realized with a pronoun:

153

53. a. $\emptyset_i$ Sait'in   yanından   geçti.

        Sait.GEN. next.POSS. pass.PAST.

    'She passed by Sait.'

   b. Ama Sait onu$_i$ tanımadı bile.

     but   Sait she.ACC recognize even.

     'but Sait didn't even recognize her.'

The ranking proposed in the original formulation of Centering Theory, therefore, correctly predicts that retaining is preferred to shifting, when both options are available. This state of affairs suggest that Baldwin's proposal does not hold, at least for Turkish.

On the other hand, 54 seems to support Baldwin's proposal. The transition from 54a to 54b is a Retain, and the one from 54b to 54c is a Smooth-Shift-subj. Note that both of the entities in 54b are realized in 54c: Ömer is represented with a null subject, while Nazlı , the Cb of 54b, is represented with a full NP. If Retain were preferred in 54c, Ömer would be realized with a more explicit expression while Nazlı would still be the Cb. Therefore, 54c suggests that Shift-subj is preferred to Retain:

54. a. $\emptyset_k$ hafif   kızarmıştı.

       slightly blush.PAST.PAST

    '(She) blushed slightly.'

   b. Ömer$_i$ ona$_k$ bakmaktan   çekindi.

    Ömer she.DAt. look.at.ABL. hesitate.PAST.

    'Ömer hesitated to look at her.'

   c. [Nazlı'ya$_k$ çekinmeden   baktığı   için]

    Nazli.DAT hesitate.NEG.ABL look.NOM.ACC for

    'For looking at Nazlı without hesitation,'

   $\emptyset_i$ teyzesine   kızdı.

    aunt.POSS.DAT. get.angry.PAST.

   '(He) got angry at (her) aunt'

   (Orhan Pamuk. 1983. *Cevdet Bey ve Oğulları*: 169)

As a result, the comparison of 52 and 54 suggest that they must indeed be two different types of Smooth-Shift: Shift-subj and Shift-obj., respectively.

5.6   Conclusion

This chapter has examined the discourse functions of subjects in Turkish and has proposed a set of discourse-level well-formedness conditions on their use.

Null subjects encode a Continue or Shift-subj transitions, i.e. they realize the previous Cp or Cb. The Cb in a Continue transition is always realized by a null pronoun in Turkish, unless it is a stressed/focused pronoun or the speaker wants to communicate some other information

such as the start of a new discourse segment. An overt pronoun subject occurs in a Continue if and only if the entity is phonetically prominent, the focus of the utterance. In most cases, overt pronoun subjects occur in Shift-obj transitions. A small number of full NP subjects are used in the analyzed data to encode a Continue transition; their function is to add new information about the entity represented or to signal a new discourse segment.

Full NP subjects are used to encode a Retain or Rough-Shift transition, because either a Brand-new entity is introduced into the discourse, or some other entity in Cf(Un-1), a nonsubject, is promoted into the center of attention in subject position in the current utterance. This latter case is described by the following Center Promotion Rule for Turkish.

Center Promotion Rule for Turkish (CPR)

i. Given an entity e evoked in a non-subject position in Un-1 where e is not an instantiated Cb(Un-1) and is not distinguishable (by Phi-features) from the Cp in the Cf-list: If e is realized in Un, it must be realized by a full NP subject.

ii. Entity e should be expressed by a full NP in Un, before it can be talked anaphorically in Un+1.

iii. Entity e, can be realized by an overt pronoun only if there is no other overt pronoun in the utterance that is competing for Cb-status.

In the next chapter, it will be argued that the generalizations discussed for Turkish subjects can be extended for the facts in other languages.

Chapter 6

A CROSSLINGUISTIC STUDY OF CENTERING RULES

6.1 Introduction

Centering Theory provides a formal means to cross-linguistically investigate the use of pronouns: in English (Grosz, Joshi, and Weinstein 1983, 1986, Brennan, Friedman, and Pollard 1987, Cote 1992, Gordon, Grosz, and Gilliom 1993, Gundel 1993, Prince and Walker 1993), in Japanese (Kameyama 1985, 1986, 1988, Walker, Iida, and Cote 1990, 1994, Nakatani 1993), Italian (Di Eugenio 1990, 1994), German (Rambow 1993), Yiddish (Prince 1994), and Turkish (Hoffman 1993, and this study). The purpose of this chapter is to review the studies that have investigated Centering in other languages and to explore the universal properties of Centering suggested in these studies and elaborated in the present study.

It will be argued that Centering rules are universal and that parameters are set depending on language-specific properties. In what follows, a set of universal Centering rules will be proposed, and they will be compared to the data provided in previous research. These are as follows:

1. The Center Promotion Rule proposed in this dissertation is a universal rule which is parameterized according to the distinguishing power made available through Phi-features (number, gender, and person), topic marker, Empathy locus, and/or honorific features depending on the language.

2. The Discourse Point of View Rule proposed in this dissertation is a universal rule.

3. Continue transitions are encoded by the least explicit pronouns (null subjects in pro-drop languages and unstressed pronouns in others).

6.2 The Center Promotion Rule across Languages

It is suggested that the Center Promotion Rule proposed in this study is a universal rule. As was discussed in Chapters 4 and 5, this is an extensive strategy used in Turkish discourse. The rule states that if an entity is evoked in a non-Cb object position then it cannot be referred to with the most salient anaphor subject (e.g. a null subject in Turkish) in the next utterance. We have also seen that Brennan's 1993 findings in English provide support for this rule. Brennan has found, as mentioned in Chapter 4, that the entity in nonsubject position is repeated as a full NP verbatim in subject position in the next utterance before being referred to anaphorically, as shown in the following example from Brennan 1993:

1. Rice with the ball in the middle, over to Joubert.

   Joubert with a nice move, basket's off, shot's off.

Furthermore, Grosz, Joshi, and Weinstein 1986 show that subjects in English are so salient that failure to choose a subject as the antecedent of a pronoun leads to infelicity. For example, the choice of the subject pronoun in 2e to realize the object in 2d renders the discourse incoherent although one would expect that the world knowledge would disambiguate it. That is, a speaker can deduce via world knowledge that a person who calls someone should be awake and also that the person that is called can be sleeping at that particular time. Thus, world knowledge facts might force a reading where Tony is the antecedent for the pronoun rather than Terry. However, the discourse is infelicitous. A more natural and coherent sequence instead is obtained by a full NP, Tony. The infelicity of 2e can be accounted for by the Center Promotion Rule as follows: the object in 2d is realized with a pronoun that is not the Cb (the subject pronoun is the Cb); the less salient entity, the object undergoes the Center Promotion Rule:

2. a. Terry$_i$ really goofs sometimes.

   b. Yesterday was a beautiful day and he$_i$ was excited about trying his$_i$ new sailboat.

   c. He$_i$ wanted Tony$_k$ to join him on a sailing expedition.

   d. He$_i$ called him$_k$ at 6 a.m.

   e. #He$_k$/Tony$_k$ was sick and furious at being woken up so early.

Example 2 demonstrates that world knowledge is not sufficient for pronoun resolution and that salience plays an important role in constraining the choice of antecedent for a pronoun. Therefore, there are linguistic well-formedness conditions on pronouns that cannot be overridden by inferencing.

However, a pronoun in exactly the same discourse in 3e is felicitous when gender distinguishes the two entities:

3. a. Terry$_i$ really goofs sometimes.

   b. Yesterday was a beautiful day and he$_i$ was excited about trying his$_i$ new sailboat.

   c. He$_i$ wanted Lee$_k$ to join him on a sailing expedition.

   d. He$_i$ called her$_k$ at 6 a.m.

   e. She$_k$ was sick and furious at being woken up so early.

This study proposes that the factors that determine Cf-ranking are universal and that the subject is the Cp. However, languages differ in that they have different linguistic devices for distinguishing between entities. English is a language that makes gender distinctions on pronouns, e.g. him and her which distinguish Terry [MASC] from Lee [FEM] in 3c-e. A set of entities distinguished as such can be realized by less explicit referential expressions. These facts will be captured if the Phi-features are represented in the Cf-list.

Let us now consider the Italian pronominal system in search of further support for the suggestions made so far. Di Eugenio 1990 presents an account of the discourse functions of null and overt subjects in Italian within the framework of Centering Theory. Italian has a set of weak and strong pronouns. The weak pronouns are cliticized to the verb in object position and are null in subject position. Since there is no neuter gender in Italian, nouns that are used to refer to inanimate objects are either masculine or feminine. A strong pronoun for an inanimate entity has to be represented with a paraphrase or deictic.

Di Eugenio 1990 hypothesizes that null and overt subjects in Italian have the following functions when Centering transitions are taken into account:

Center continuation is typically encoded with a null subject in Italian.

Center retention and shift are encoded with overt pronouns.

These hypotheses are tested in Di Eugenio 1994 by studying naturally-occurring discourses. Di Eugenio finds that Continues are encoded by null subjects in naturally-occurring texts. She also reports that Retains rarely are encoded with null and overt pronouns; (note that this is also the case in Turkish, as discussed in Chapter 5). However, overt pronouns are not always used to encode Shifts. Di Eugenio 1994 states that the significant difference between null and overt pronouns in the case of Continues following a Continue and Shift disappears if the Continue follows a Retain. She questions whether the null subject tends to realize the Cp of the previous utterance rather than its Cb, but she leaves this for future research. We shall return to this later in the chapter.

The second hypothesis suggested in Di Eugenio 1990, 1994 is as follows:

A null pronoun can encode a Retain or Shift if the agreement and tense morphology and syntactic features are sufficient to disambiguate it.

Consider the following Italian example from Di Eugenio 1990, 1993:

4. a. Maria$_i$ voleva andare al mare.

   'Maria wanted to go to the seaside.'

  b. $\emptyset_i$ Telefono' a Giovanni$_k$.

   '(She) called Giovanni up.'

  c. $\emptyset_i$ Si arrabbio' perche' $\emptyset_i$ non lo trovo a casa.

  '(She) got angry because she not him found at home.'

  [Cf: Maria, Giovanni], [Cb: Maria], Continue

  c'. Lui$_k$ si arabbio' perche' $\emptyset_k$ stava dormendo.

  He got angry because he was sleeping.

  [Cf: Giovanni], [Cb: Giovanni], Smooth-Shift

  c". $\emptyset_k$ si arrabbiato' perche' $\emptyset_k$ stava dormendo.

  He got angry because he was sleeping.

  [Cf: Giovanni], [Cb: Giovanni], Smooth-Shift

In 4b and 4c, Continue transitions are encoded by null subjects. In 4c', a Smooth-Shift is encoded by an overt pronoun coreferential with the object of the previous utterance, Giovanni. The use of strong pronouns to encode Smooth- Shift-obj has also been observed in the Turkish discourse. Contrast 4b with 4c". The null subject in 4c" should realize the subject in 4b. However, the null subject realizes Giovanni. This is due to the fact that in 4c" the verbal morphology forces the null subject to be Giovanni and not Maria, since it is masculine.

The following are other Italian examples from Di Eugenio 1990:

5. a. Ieri Carlo$_i$ ha incontrato Mario$_k$.

   Yesterday Carlo has met Mario.

  b. $\emptyset_{i/*k}$ Non gli$_k$ ha nemmeno detto "ciao"

  He not to-him has even said "hi".

6. a. Ieri Carlo$_i$ ha incontrato Maria$_k$.

   Yesterday Carlo has met Maria.

  b. $\emptyset_{*i/k}$ Non gli$_i$ ha nemmeno detto "ciao".

   He not to-him has even said "hi".

These discourses are exactly the same, except that the referents of the objects Mario in 5a and Maria in 6a are of different sexes, male and female, respectively. The null subject in 5b cannot realize the previous object, while in 6b it can. The reason is that during the processing of 6b, the possibility of the null subject realizing Carlo is ruled out when the masculine clitic gli is encountered. Gli has to be used to refer to Carlo; given that it is not reflexive, it cannot realize the subject; therefore, the null subject is interpreted as Maria. This disambiguation is not possible in 5b since the referents of the potential antecedents are both male and a strong pronoun has to be used to obtain a Shift-obj.

The Italian facts as presented by Di Eugenio support the proposal made in this study that

Phi-features should be represented in the Cf-list. As discussed in Chapter 5, Phi-features also play an important role in the use of null subjects in a Shift-object in Turkish. For example, in 7, the entities are distinguished by the number feature: the subject in 7a is third-person plural. After this distinguishing feature is checked at the Cf-list, the object can be represented with a null subject in 7b, being redeemed from the Center Promotion Rule.

7. a. Çocukluk aşkları   unutulmaz   asıl   diyorlar   Meliha'ya$_i$.
   childhood love.affair.PLU.ACC forget.PASS.NEG in fact say.PROG.3.PLU Meliha.DAT.
   'They tell Meliha that the childhood love affairs are in fact unforgettable.'

     b. $\emptyset_i$ Inanmıyor.
        believe.NEG.PROG.
   '(She) doesn't believe.'

On the contrary, in the Cf-list of 8a, Phi-features cannot distinguish the two entities; therefore, the object has to undergo the Center Promotion Rule, i.e. has to be realized with a full NP in the subsequent utterance in subject position:

8. a. Çocukluk aşkları   unutulmaz   asıl   diyor   Meliha'ya$_i$.
   childhood love.affair.PLU.ACC forget.PASS.NEG in fact say.PROG Meliha.DAT.
   'S/he tells Meliha that the childhood love affairs are in fact unforgettable.'

     b. #$\emptyset_i$/Meliha$_i$ Inanmıyor.
            believe.NEG.PROG.
   '(She) doesn't believe.'

These facts in English, Italian and Turkish support our suggestion that the Center Promotion Rule applies cross-linguistically, and that Phi-features with distinguishing features play an important role in pronominalization and must be represented and checked in the Cf-list.

6.3 The Discourse Point of View as a Universal rule

Another rule that may apply crosslinguistically is the Point of View Rule. This affects the ranking of the Cf-list by determining whether the ranking is objective or from the point of view of a subject of consciousness.

Consider 9, where the third-person pronoun is supposed to be ambiguous:

9. a. Charles$_i$ looked at the mank in front of him$_i$.

     b. He$_k$ was a full head taller than Charles$_i$.

     c. His$_k$ perspiring face was so pudgy that his$_k$ eyes were mere slits.

     d. He$_k$ was dressed like the other men Charles$_i$ had seen.

     (Robin Cook. 1982. Fever: 112)

Utterance 9c is from Charles's perspective. The pronoun in 9c is not ambiguous, contrary to one might expect, but realizes the object in the previous utterance rather than the Cb subject. This has also been discussed by Hudson-D'Zmura 1993, as reviewed in Chapter 5.

In Turkish, as well as in English, we have observed that perception verbs increase the salience of the nonsubject :

10. a. Gözlerini   kapadı   Cem$_i$.

     eye.PLU.POSS.ACC close.PAST Cem.

     'Cem closed his eyes.'

   b. $\emptyset_i$ Kerem'i$_k$ düşündü.

      Kerem.ACC think.PAST.

    '(He) thought (about) Kerem.'

   c. $\emptyset_k$ Az   konuşurdu.

      little speak.PRES.PAST.

    '(He) would hardly speak.'

    (Selim Ileri. 1991. Her Gece Bodrum: 66)

In 10b, Cem is the Cb and the Cp. However, the verb *düşünmek* 'think' signals Cem's inner thoughts, his subjective point of view. The object entity is thus ranked from his consciousness and can be realized by a null subject in 10c without the expected ambiguity.

6.4   The Functions of Subjects across Languages

This section argues that null and unstressed subjects are used to encode Continue and Shift-subj transitions cross-linguistically.

Hudson-D'Zmura 1989 designs a set of experiments to discover the discourse constraints on anaphora in English, in particular, on the difference between pronouns and nouns. She argues that pronouns indicate how sentences are related to another in a discourse segment. Hence, they affect local coherence. Nouns, on the other hand, change the global focus of attention and affect the global coherence of the discourse. Note that in the Turkish data discussed in Chapter 5, it was shown that full NP subjects in Continue transitions signal a discourse segment shift and it was also noted that full NPs are observed in Rough-Shift transitions which may be considered as a shift in discourse segment also.

Hudson-D'Zmura reports that the Continued Cb is processed in a shorter time and more easily when it is a pronoun than when it is a noun; and that garden paths occur when the Cb of the current utterance is not the Cp of the previous utterance. This finding supports the claim that a pronoun is favored when the entity is in subject position in the previous sentence.

Null subjects in pro-drop languages correspond to unstressed pronouns in English cf. Kameyama, 1985 1986, Kerslake 1987, Walker, Iida, and Cote, 1990, 1994, Di Eugenio 1990, 1994, among others). Kameyama 1985, 1986, Walker, Iida and Cote 1990, 1994 show that Continue transitions are encoded by null subjects in Japanese. In the following example from Japanese cited in Kameyama (1985: 101-2), 11c has a reading of Max invited Rosa to dinner. Kameyama states an overt pronoun or a full NP in 11c to realize the previous Cb, would be incoherent:

161

11. a. Max$_i$ wa   dare o   matte-iru no.
       Max TOP who OBJ is-waiting Quest.
       'Who is Max waiting for?'

    b. $\emptyset_i$ Rosa o   matte-iru n-da yo.
              OBJ is-waiting
       '(He) is waiting for Rosa.'

    c. $\emptyset_i$ Rosa/kanozyo/$\emptyset$ o   yuusyoku ni sasotta n-da.
       Rosa/her   OBJ supper   to invited.
       '(He) invited Rosa to dinner.'

Likewise, Di Eugenio 1994, as has been previously mentioned, shows that null subjects are used to encode Continues in Italian. She reports that the number of Retains is very low for both null and overt pronouns in her corpus. This is the case in Turkish as well as discussed in Chapter 5. This is because a full NP is required if a Brand-new entity is evoked into the discourse, or an entity that has left the center of attention is reintroduced.

Di Eugenio's other findings suggest that null subjects in Italian are analogous to those in Turkish, i.e. they may encode Shift-subj. Di Eugenio reports that overt pronouns are not always used to encode Shift transitions, contrary to her predictions. This may be because the null subject realizes the Cp of the previous utterance.

In Yiddish, speakers also tend to use a null subject when the Cb is continued. Prince 1994 shows that subject pro-drop in Yiddish is syntactically more restricted than in many other languages. Unlike Italian, Japanese, and Turkish, Yiddish disallows null subjects following a filled complementizer and in non-sentence initial positions. Thus, null subjects are allowed only in matrix clause-initial preverbal position. Prince explores the discourse functions of null versus overt subject pronouns in those environments where there is an option, noting that even when the syntactic constraints are met, a great number of subject pronouns are not dropped. This contrasts with Japanese, Italian, and Turkish in which null subjects are very frequent.

Prince reports that, in all instances of null subject clauses in her corpus where the null pronoun would be realized by a first or third-person pronoun or by a second-person plural, the null pronoun is the Cb and the transition is a Continue. However, when the null pronoun would be the second-person singular pronoun, this is not the case: the null subject is not necessarily the Cb, and even when it is, the transition type is not necessarily a Continue. Thus, Prince's results show that if null subjects are sensitive to salience then they are used to encode Continues in Yiddish.

6.5   Property-sharing Constraint and Zero Topic Assignment in Japanese

Kameyama 1985, 1986 proposes a property-sharing constraint on Centering, which requires that two pronominal entities realizing the same Cb in adjacent utterances should share a certain

grammatical property, e.g. subject or non-subject. This constraint states that two unstressed pronouns that represent the same Cb in adjacent utterances should share one of the subject or non-subject properties. Kameyama claims that this constraint can account for the cases of ambiguous multi-pronouns, as in 12:

12. a. Max is waiting for Fred.

    b. He invited him to dinner.

According to Kameyama, the discourse is more coherent when the subject and object in the subsequent utterance are the same as the subject of and object of the previous utterance. For the same reason, the property-sharing constraint will also explain why the non-subject him in 13b realizes the non-subject Tom in 13a in the cases of explicit parallelism, as in 13:

13. a. Carl is talking to Tom in the Lab.

    b. Terry wants to talk to him, too.

Kameyama points out that this constraint can be overridden by Empathy considerations in Japanese.

Walker, Iida, and Cote 1990, 1994 suggest that Kameyama's property-sharing constraint is inadequate. They argue that using Centering to the fullest extent will suffice to account for the facts of Japanese and that additional mechanisms as property-sharing constraint are redundant.

Japanese is a language that differs from Turkish, Italian, Yiddish, and English in that the Japanese verbs do not have agreement morphology that locally identifies null subjects. In addition, Japanese, unlike the others, has an additional grammaticized topic marked with wa and a prevailing Empathy-locus.

Consider the Japanese example 14 from Walker, Iida, and Cote 1990, where 14c is ambiguous with multiple zero pronouns:

14. a. Taroo$_i$ wa   kooen o sanpo-siteita.

          TOPIC park   walk around.

    'Taroo was walking around the park.'

  b. Hanako ga $\emptyset_i$ yatto mituketa.

         SUBJ   finally found.

    'Hanako finally found (him).'

  c. $\emptyset_{i/k}$ $\emptyset_{i/k}$ yotei o   setumeisita.

    SUBJ OBJ schedule explained.

    '(He) explained the schedule to (her).'

    '(She) explained the schedule to (him).'

To account for the ambiguity of pronouns in such cases, Walker, Iida, and Cote 1990, 1994 stipulate an optional assignment of topic to null pronouns by means of a Zero Topic Assignment Rule. They conjecture that the optional grammaticized topic marker wa, which can be attached only to a Discourse-old entity, is represented with a null pronoun in object position. While topics are usually subjects, subjects and grammaticized topics need not coincide (Walker, Iida and Cote

1994). Since Kameyama and Walker, Iida, and Cote have argued that topics in Japanese rank higher than subjects in the Cf-list, a Smooth-Shift can have a null subject realizing this null topic marked Cp by Zero Topic Assignment as follows:

Zero Topic Assignment (ZTA):

When no Continuation transition is available, and a zero pronoun in Un represents an entity that was the Cb (Un-1) and if no other entity in Un is overtly marked as topic, that zero may be interpreted as the topic of Un.

According to Walker, Iida, and Cote, the ambiguity in 14c with two null pronouns in the subject and object positions can be resolved by ZTA Rule. The ambiguity is resolved depending on whether the null object in 14b is assigned a zero topic or not. If the null object is assigned a zero topic, it will be the most salient entity, allowing a Continue with the Taroo explained reading. If it is not, then the null subject in 14c will realize the subject in 14b, resulting in a Smooth-Shift with the Hanako explained reading. Hence, 14b has two Cf-lists according to Walker, Iida and Cote as represented in the example.

The grammaticized topic wa can function in Japanese in a special way, enabling speakers to entertain two Cf-lists as in 14 above. It is conjectured in this study that topic marker has a distinguishing power like person, number, and gender features in other languages. Further distinguishing descriptions in Japanese discourse may be honorifics. This suggestion has to be tested in further research.

6.6 Summary

Universal generalizations can be made regarding the use of referential expressions based on Centering analyses. The Center Promotion Rule appears to be a universal rule. Subjects tend to rank higher than nonsubjects across languages. Furthermore, languages tend to make use of various devices of distinguishing expressions such as gender, person, and number or the grammaticized topic in Japanese as well as honorifics. Future research is needed to elaborate more on these preliminary observations.

Chapter 7

SUMMARY AND CONCLUSIONS

This study has concentrated on three aspects of discourse anaphora in subject position in Turkish.

First, the question of which NPs contribute to the Cf-list is investigated in Chapter 2. It is shown that, while only referential expressions are available for subsequent definite reference, nonreferential expressions can also serve as antecedents for nonspecific indefinite null pronouns. In these cases, overt pronouns can never be used interchangeably with null pronouns. It is shown that overt pronouns in Turkish must be strictly coreferential with their corresponding entities. As a result, overt pronouns cannot function as bound variables or pronouns of laziness. In contrast, null pronouns are not constrained in this way. One of their uses is to function as nonspecific indefinite anaphora with nonreferential antecedents. However, if the utterance in which such anaphora is used asserts the existence of an entity, these indefinite null pronouns can evoke a discourse entity for subsequent reference by definite pronouns. It is further pointed out that, in referentially opaque contexts, definite null subjects can alternate with overt pronouns.

The second question investigated in this study concerns the factors that determine the most salient entity, i.e. the plausible antecedent for definite anaphoric reference in the next utterance. Chapter 4 concentrates on the factors that determine ranking the Cf-list in Turkish. It is argued that subjecthood is an important factor for determining the Cp the entity that is predicted to be the center of attention in the next utterance. On the other hand, Experiencer objects of psychological verbs rank higher than their Theme subjects. This fact can be captured if thematic roles are used for ranking, or if Experiencer objects are treated as underlying (D-Structure) subjects and Themes as D-Structure objects. It is also observed that the intentional structure of discourse determines the subjective and objective points of view. It is argued that salience may be ranked from the subjective point of view of an individual; a subjective point of view can be triggered by the use of perception verbs and verbs of cognition, or there may be subtler cues.

Finally, the third question in this study is to determine the discourse functions of null vs. overt pronouns vs. full NPs in subject position in Turkish. Chapter 5 discusses the discourse functions of null vs. overt pronouns vs. full NPs and the way in which they pattern in Centering transitions. It is shown that there are discourse-level well-formedness rules, e.g. the Center

Promotion Rule, which is conjectured to be a universal rule. It is argued that the distinguishing power of Phi-features is significant and that they should be taken into account in Centering analyses. In addition, the Turkish pronominalization system provides evidence for the Centering claim that there is at most one Cb per utterance. Finally, it is argued that an overt object cannot compete with an overt subject pronoun for Cb-status, and thus the subject must either be null, indicating that it is the Cb, or else it must be realized with a full NP, signaling that it is not the Cb. As a result, multiple overt pronouns with the same person and number features are infelicitous in Turkish discourse. Chapter 6 surveys some of the cross linguistic research done within the Centering framework, and discusses the universal features of pronoun systems and their interaction with Centering transitions.

An interesting project for future research is to analyze intrasentential pronominalization rules in Centering terms and to investigate to what extent embedded clauses can be considered as separate utterances. Clearly, a unified account of sentence-level and discourse-level pronominalization would be desirable if possible. In addition, future research will concentrate on the Centering analysis of null vs. overt *objects* in comparison to this study on Turkish subjects in order to complete our understanding of Turkish anaphora in discourse.

BIBLIOGRAPHY

0in

Allerton, D.J. 1975. "Deletion and Proform Reduction" in Journal of Linguistics. 11.

Appelt, Douglas, E. 1985. "Some Pragmatic Issues in the Planning of Definite and Indefinite Noun Phrases" in Association for Computational Linguistics : 198.

Ariel, Mira. 1988. "Referring and Accessibility" in Journal of Linguistics. 24.

Baker, Mark 1988. Incorporation: A Theory of Grammatical Function Changing. Chicago: Chicago University Press.

Baldwin, Breck. 1995. Cogniac: A Discourse Processing Engine. University of Pennsylvania: Ph.D. Dissertation.

Banfield, Ann. 1982. Unspeakable Sentences. London: Routledge and Paul.

Barwise, Jon and John Perry .1983. Situations and Attitudes Cambridge Massachusetts: Bradford Books.

Belletti, Adriana and Luigi Rizzi. 1988. "Psych Verbs and Theta Theory" In Natural Language and Linguistic Theory. 6.

Belletti, Adriana. 1982. "Morphological Passive and pro-drop: the Impersonal Construction in Italian". Journal of Linguistic Research 2.

Bosch, Peter .1983. Agreement and Anaphora : A Study of the Role of Pronouns in Syntax and Discourse. New York: Academic press.

Brennan, Susan E. 1993. "Centering Attention in Discourse". [to appear] in Language and Cognitive Processes.

Brennan, Susan, Marilyn Walker Friedman, and Carl Pollard . 1987. "A Centering Approach to Pronouns" in Proceedings of the 25th Annual Meeting Of ACL, Stanford.

Campos, Hector 1986. "Indefinite Object Drop". Linguistic Inquiry 17:2.

Chafe, Wallace 1976. "Givenness, Contrastiveness, Definiteness, Subjects, Topics and Point of View" in Charles .N. Li (ed.). Subject and Topic. New York: Academic Press.

Chomsky, Noam. 1972. Deep Structure, Surface Structure and Semantic Interpretation. In D. Steinberg and Jocobovits (eds.) Semantics Cambridge: Cambridge University Press.

Chomsky, Noam. 1981. Lectures on Government and Binding. Dordrecht:Foris Publications.

Chomsky, Noam. 1982. Some Concepts and Consequences of the Theory of Government and Binding. Cambridge Massachusetts: The MIT Press.

Cornish, Francis. 1986. Anaphoric Relations in English and French. London: Croom Helm.

Cote, Sharon. 1992. "Discourse Functions of Two Types of Null Objects in English" paper presented at the 66th Annual Meeting of the Linguistic Society of America, January 9-12.

Cote, Sharon. 1993. "Ranking Forward-looking Centers" paper presented at the Workshop on Centering Theory in Naturally-occurring Discourse, Institute for Research in Cognitive Science, University of Pennsylvania.

Cote, Sharon. 1994. "The Representation of Unexpressed Objects in English". Unpublished manuscript.

Dale, Robert 1989. "Cooking up Referring Expressions" in Association of Computational Linguistics 27.

Dede, Müşerref. 1986. "Definiteness and Referentiality in Turkish Verbal Sentences" in D. Slobin and K. Zimmer eds. Studies in Turkish Linguistics. Amsterdam: John Benjamins.

Di Eugenio, Barbara 1990. "Centering Theory and the Italian Pronominal System". In COLING '90: Proc. 13th International Conference on Computational Linguistics, Helsinki, Finland.

Di Eugenio, Barbara. 1994. "Centering in Italian". [to appear] in E.Prince, A. Joshi, and M. Walker (eds.) Centering in Discourse. Oxford University Press.

Donnellan, Keith S. 1966. "Reference and Definite Descriptions" in Philosophical Review 75.

Ehrlich, Susan. 1987. "Aspect, Foregrounding and point of View". Text .7:4.

Ehrlich, Susan. 1990. Point of View: A Linguistic Analysis of Literary Style.

Enç, Mürvet . 1986. "Topic Switching and Pronominal Subjects in Turkish" in D. Slobin and K. Zimmer eds. Studies in Turkish Linguistics. Amsterdam: John Benjamins.

Enç, Marvel. 1991. "The Semantics of Specificity". Linguistic Inquiry 22.

Erguvanlı, Eser. 1984. The Function of Word Order in Turkish. Los Angeles: University of California Press.

Erguvanlı-Taylan, Eser.1986. "Pronominal versus Zero Representation of Anaphora in Turkish" in D. Slobin and K. Zimmer eds. Studies in Turkish Linguistics. Amsterdam: John Benjamins.

Erkü, Feride. 1983. Discourse pragmatics and word order in Turkish. University of Minnesota: Ph.D. Dissertation,

Evans, Gareth 1980. "Pronouns" in Linguistic Inquiry 11.

Farrell, Patrick. 1990. "Null Objects in Brazilian Portuguese" Natural Language and Linguistic Theory 8.

Fleischman, Suzanne. 1991. "Verb Tense and Point of View in Narrative" in S. Fleischman, and L. Waugh (eds.) Discourse Pragmatics and the Verb. New York: Routledge

Fox, Barbara. 1987. Discourse Structure and Anaphora. Cambridge: Cambridge University Press.

Geach, Paul 1968 .Reference and generality. Ithaca, New York: Cornell University Press.

George Leland, M. and Jaklin Kornfilt. 1981. "Finiteness and Boundedness in Turkish" in Binding and Filtering London: Croom Helm Ltd.

Givon, Talmy. 1983a. "Topic Continuity in Spoken English" in T. Givn (ed.) Topic Continuity in Discourse: A Quantitative Cross-Language Study. Philadelphia: John Benjamins Publishing Company.

Givon. 1983b."Topic Continuity in Discourse: The Functional Domain of Switch Reference" in

John Haiman and Pamela Munro (eds.). Switch-Reference and Universal Grammar. Philadelphia: John Benjamins Publishing Company.

Gordon Peter C., Barbara Grosz and Laura Gilliom 1993 "Pronouns, Names and the Centering of Attention in Discourse. Cognitive Science

Grimshaw, Jane. 1990. Argument Structure. Cambridge, MA: The MIT Press.

Grosz Barbara and Candace Sidner 1986 "Attentions, Intentions and the Structure of Discourse" Computational Linguistics 12.

Grosz, Barbara 1977. The Representation and Use of Focus in Dialogue Understanding Technical Report 151, SRI International, 333 Ravenswood Ave., Menlo Park, CA. 94025. USA.

Grosz, Barbara, Aravind Joshi and Scott Weinstein .1983. Providing a Unified Account of Definite Noun Phrases in Discourse" In Proc. 21st Annual Meeting of ACL, Association of Computational Linguistics.

Grosz, Barbara, Aravind Joshi and Scott Weinstein. 1986. "Towards a Computational Theory of Discourse Interpretation" Unpublished manuscript.

Grosz, Barbara, Aravind Joshi and Scott Weinstein. 1995. "Centering: A Framework for Modeling the Local Coherence of Discourse" Computational Linguistics

Hajicova, Eva. (1993) Issues of Sentence Structure and Discourse Patterns. Prague: Institute of Theoretical and Computational Linguistics. Charles University.

Heim, Irene 1982. The Semantics of Definite and iIndefinite Noun Phrases. University of Massachusetts: Ph.D. Dissertation.

Heim, Irene 1983. "File Change Semantics and the Familiarity Theory of Definiteness" in R. Buerle, C. Schwarze and A von Stechow (eds.) Meaning, Use and Interpretation of Language. Berlin: Walter de Gruyter.

Hobbs, Jerry. 1986. "Resolving Pronoun References" in B. Grosz. K. Sparck ' Jones, and B. Webber (eds.) Readings in Natural Language Processing. California: Morgan Kaufman Publishers Inc.

Hockey, Beth Ann. In prep. The Interpretation and Realization of Focus. University of Pennsylvania: Ph.D. Dissertation.

Hoffman, Beryl 1993 " Word Order, Information Structure, and Centering in Turkish" ms. [To appear] in E.Prince, A. Joshi and M.Walker eds. Centering in Discourse Oxford University Press.

Hoffman, Beryl and mit D. Turan 1993. "Word Order and Centering in Turkish" paper presented in Workshop on Centering Theoryin Naturally-occuring Discourse, Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia, PA, May 8-10.

Hoffman, Beryl. 1991. "Definiteness in Turkish" Unpublished manuscript.

Hoffman, Beryl. 1994. "Marking Set-Membership in Turkish" The Penn Review of Linguistics. 18.

Hoffman, Beryl. In prep. The Computational Analysis of the Syntax and Discourse Use of

"Free" Word Order in Turkish. University of Pennsylvania: Ph.D. dissertation.

Huang, C.T. James. 1984b. "On the Distribution and Reference of Empty Pronouns". Linguistic Inquiry, 15:4:531-574.

Huang, James. 1993. "On Lexical structure and Syntactic Projection" Unpublished manuscript.

Hudson-D'Zmura, Susan. 1989. The Structure of Discourse and Anaphor Resolution: The Discourse Center and the roles of Nouns and Pronouns. University of Rochester: Ph.D. Dissertation.

Hudson-D'Zmura and Michael Tannenhaus 1993. "Discourse Constraints on Anaphoric Processing" paper presented at the Workshop on Centering Theory in Naturally-occurring Discourse, Institute for Research in Cognitive Science, University of Pennsylvania.

Hudson-D'Zmura Susan 1993 "Control and Event Structure through the Mind': The View from Center" [To appear] in E.Prince, A. Joshi and M.Walker (eds.)Centering in Discourse Oxford University Press.

Iatridou, Sabine and David Embick. 1994. "Apropos pro " [To appear] in Linguistic Inquiry

Jackendoff, Ray 1990. Semantic structures. Cambridge, Massachusetts: The MIT press.

Jaeggli, Osvaldo. 1982. Topics in Romance Syntax. Dordrecht: Foris Publications.

Jaeggli, Osvaldo. 1986." Arbitrary Plural Pronominals" In Natural Language and Linguistic Theory 4.

Joshi, Aravind and Steve Kuhn. 1979. "Centered Logic: The Role of Entity Centered Sentence Representation in Natural Language Inferencing" Proceedings of the Sixth International Joint Conference on Artificial Intelligence, Tokyo.

Joshi, Aravind and Scott Weinstein. 1981. "Control of Inference: Role of some Aspects of Discourse Structure-Centering" Proceedings of the Seventh International Joint Conference on Artificial Intelligence, British Columbia.

Kameyama, Megumi 1985. Zero anaphora: the case of Japanese. Stanford University: Ph.D. dissertation.

Kameyama, Megumi. 1986. "A Property-sharing Constraint in Centering" Proceedings of the 24th Annual Meeting of ACL.

Kamp, Hans. 1981. "A Theory of Truth and Semantic Representation in Truth Interpretation and Information" in Groenendijk, et.al. eds Formal methods in the study of language, Amsterdam.

Kaplan, David.1977.[1989] "Demonstratives" in J.Almog, J.Perry, and H. Wettstein (eds.) Themes from Kaplan. New York Oxford University Press.

Karttunen, Lauri 1976. "Discourse referents" in J. McCawley ed Syntax and Semantics, Vol. 7.

Karttunen, Lauri. 1969 "Pronouns and Variables" CLS Papers from the Fifth Regional Meeting of the Chicago Linguistic Society.

Kerslake, Celia 1987 "Noun Phrase Deletion and Pronominalization in Turkish" In H.E. Boeschoten and L.T. Verhoeven eds. Studies on Modern Turkish. Tilburg University Press.

Knecht, Laura. 1986. Subject and object in Turkish. Massachusetts Institute of Technology: Ph.D.Dissertation.

Kornfilt, Jaklin 1984. Case marking, agreement and empty categories in Turkish. Harvard University: Ph.D. dissertation.

Kornfilt, Jaklin 1991. "Issues in Syntax" in H. Boeschoten and L.Verhoeven (eds.) Turkish Linguistics Today. New York: E.J. Brill.

Kuno, Susumu and Etsuko Kaburaki 1975 "Empathy and syntax" in Linguistic Inquiry 3.

Kuno, Susumu. 1970. "Some properties of non-referential noun phrases" in R. Jacobson and S. Kawamoto eds. Studies in General and Oriental Linguistics.

Kuno, Susumu. 1972a. "Functional Sentence Perspective: A Case Study from Japanese and English" in Linguistic Inquiry 3.

Kuno, Susumu. 1972b. "Pronominalization, Reflexivization, and Direct Discourse" in Linguistic Inquiry. 3.

Kuno, Susumu. 1982. "Principles of Discourse Deletion – Case Studies From English, Russian and Japanese" in Journal of Semantics, 1

Kuno, Susumu. 1989. "Identification of Zero Pronominal Reference in Japanese" Unpublished ms.

Kuno, Susumu.1987. Functional Syntax Chicago: Chicago University Press.

Kural, Murat. 1994. "Yantümcelerde Çekim Ekleri" [Inflectional Suffixes in Subordinate Clauses] in K. Imer, A. Kocaman, and S. Özsoy (eds.) Dilbilim Araştırmaları [Linguistic Research]. Ankara: Hacettepe Üniversitesi Yayınları.

Kuribayashi, Yuu 1990a. "Sözdizimsel Sözcük birleşmesi" [Syntactic Word Compounding] in IV. Dilbilim Sempozyumu Bildirileri. [Proceedings of the IVth Linguistics Symposium] .

Kuribayashi, Yuu. 1990b. "Syntactic Compounding in Turkish" in G.Durmuşoğlu, K. Imer, A.Kocaman, and S.Özsoy (eds.) . Dilbilim Araştırmaları [Linguistic Research]

Labov, William. 1972. Language in the Inner City: Studies in the Black English Vernacular. Philadelphia: University of Pennsylvania Press.

Liejiong, Xu. 1986. "Free Empty Category" Linguistic Inquiry. 17.

Linde, Charlotte. 1979. "Focus of Attention and the Choice of Pronouns in Discourse" in T. Givon. (ed.) Discourse and Syntax. New York. Academic Press.

Linson, Brian. 1993. "A Distributional Analysis of Discourse Transitions" paper presented at the Workshop on Centering Theory in Naturally- occurring Discourse, Institute for Research in Cognitive Science, University of Pennsylvania.

McKeown, R. Kathleen. 1985. "Focusing in Discourse" in Text Generation London: Cambridge University Press.

Montalbetti, Mario 1984. After binding: on the interpretation of pronouns. Massachusetts Institute of Technology: Ph.D. Dissertation.

Moser, Megan G. 1992. "Focus Particles: Their Definition and Relational Structure" CLS 28. Chicago LInguistic Society.

Nakatani, Christine 1993 "Global and Local Functions of Topic-marking in Japanese" paper presented paper presented in Workshop on centering theory in naturally-occurring discourse, Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia, PA, May 8-10.

Nilsson, Birgit. 1984. "Object incorporation in Turkish" In Proceedings of the Turkish Linguistics Conference August 9-10.

Nilsson, Birgit. 1991. "Turkish semantics revisited" in H. Boeschoten and L. Verhoven eds. Turkish linguistics today Leiden: E.J. Brill.

Oakhill, Jane, Alan Garham and Wietske Vonk 1989. "The on-line construction of discourse models" in Language and cognitive processes. 4.

Pesetsky, David. 1995 Zero syntax: Experiencers and cascades. Cambridge, Massachusetts: The MIT Press.

Polanyi, Livia. 1988. "A formal model of the structure of discourse" in Journal of Pragmatics 12.

Porterfield, Leslie and Veneeta Srivastav 1988." Indefiniteness in the absence of articles: Evidence from Hindi and Indonesian" in Proceedings of the 7th West Coast conference on formal linguistics:.

Prince, Ellen F. 1978. "On the Function of Existential Presupposition in Discourse" In D.Farkas W.Jacobsen and K.Todrys (eds.) CLS 14 Chicago Linguistic Society

Prince, Ellen F. 1981a. "Toward a Taxonomy of Given /New Information" in P.Cole ed. Radical Pragmatics. New York: Academic Press.

Prince, Ellen F. 1981b. "Topicalization, Focus Movement and Yiddish Movement: A Pragmatic Differentiation" in D.Alford, et.al. eds. BLS 7 Berkeley Linguistic Society

Prince, Ellen F. 1986. "On the Syntactic Marking of Open Proposition" In CLS 86 Chicago Linguistic Society

Prince, Ellen F. 1988. "Discourse Analysis: A Part of the Study of Linguistic Competence" in F. J. Newmeyer ed. Linguistics: The Cambridge Survey Vol. 2.

Prince, Ellen F. 1994. "Subject-Prodrop in Yiddish" paper presented at the Focus Conference, Schloss Wolfsbrunnen, Germany, 12-15 June 1994.

Rambow, Owen 1993 "Pragmatic aspects of scrambling and Topicalization in German" paper presented at the Workshop on Centering Theory in Naturally-occurring Discourse, Institute for Research in Cognitive Science, University of Pennsylvania.

Reinhart, Tanya 1982. "Pragmatics and Linguistics. An Analysis of Sentence Topics. in Philosophica. 27 1.

Rigau, Gemma 1986. "Some Remarks on the Nature of Strong Pronouns in Null-subject Languages" in I. Bordelois, H. Contreras and K. Zagona eds. Generative studies in Spanish

syntax. Dordrecht: Foris Publications.

Rizzi, Luigi. 1986. "Null Objects in Italian and the theory of pro " Linguistic Inquiry 17:3

Roberts, Craige 1989. "Modal subordination and pronominal anaphora in discourse" in Linguistics and Philosophy 12.

Roberts, Craige 1993. "Centering and Anaphora Resolution in DRT" paper presented in Workshop on Centering Theoryin naturally-occurring discourse, Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia.

Ruhi, Şükriye 1992. "Zero NP Anaphora versus Full NP Anaphora in Turkish" paper presented at the 6th International Turkish Linguistics Conference. Anadolu University, Eskişehir.

Sidner, Candace. 1979. Towards a Computational Theory of Definite Anaphora Comprehension in English Discourse. Technical Report 537, Artificial Intelligence Laboratory. Cambridge: Massachusetts Institute of Technology.

Sidner, Candace. 1981. "Focusing for Interpretation of Pronouns" Computational Linguistics 7.

Suner, Margarita. 1983. "Pro-arb". Linguistic Inquiry 14.

Suri, Linda and Kathleen McCoy. 1993. "Comparing Local Focusing and Centering" paper presented in Workshop on Centering Theory in naturally-occurring discourse, Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia,

Suri, Linda. 1992. Using Local Focus to Correct Illegal NP Omissions University of Delaware, Technical Report.

Tın, Erkan and Varol Akman 1992. "Anaphora in Turkish: A Computational Framework" paper presented at the 6th International Turkish Linguistics Conference. Anadolu University, Eskişehir.

Tura, Sabahat S. 1986. "Definiteness and Referentiality in Turkish Nonverbal Sentences" in D. Slobin and K. Zimmer eds. Studies in Turkish Linguistics. Amsterdam: John Benjamins.

Turan, Ümit D. 1994a "Zero Object Arguments and Referentiality in Turkish" paper presented at the Seventh International Conference on Turkish Linguistics. The Institute of Oriental Studies, Turkology. Johannes Gutenberg University, Mainz.

Turan, Ümit D. 1994b "The Functions of Objects in Turkish Discourse" . Unpublished manuscript.

Vallduví, Enric. 1992. The Informational Component. New York: Garland.

Vallduví, Enric. 1994. "Detachment in Catalan and Information Packaging" in Journal of Pragmatics. 22

Walker, M. 1989. Evaluating Discourse Processing Algorithms. In Proceedings. of 27th Annual Meeting of the Association of Computational Linguistics.

Walker, Marilyn, Masayo Iida and Sharon Cote. 1990. "Centering in Japanese Discourse". InCOLING Proc. of the 13th International Conference on Computational Linguistics, Helsinki.

Walker, Marilyn, Masayo Iida and Sharon Cote. 1994. "Japanese Discourse and the Process

of Centering" in Computational Linguistics, 20-2

Walker, Marilyn. 1993. "Initial Contexts and Shifting Centers" paper presented in Workshop on Centering Theory in naturally-occuring discourse, Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia, PA, May 8-10.

Webber, Bonnie, L. 1979. A Formal approach to discourse anaphora, New York: Garland.

Webber, Bonnie L. 1983. "So what can we talk about now?" in M. Brady and R.C. Berwick eds Computational Models of Discourse. Cambridge Mass.: MIT Press.

Webber, Bonnie L. 1988. "Tense as Discourse Anaphor" in Computational Linguistics, 14.

Webber, Bonnie L. 1991 "Structure and Ostension in the Interpretation of Discourse Deixis" in Language and Cognitive Processes 6 2

Wiebe, J. and William Rappaport. 1988. " A Computational Theory of Perspective and Reference in Narrative" in ACL.

Wiebe, Janyce M. 1990 "Identifying Subjective Characters in Narrative" in COLING, Helsinki.

Wiebe, Janyce M. 1991 "References in Narrative Text" in Nos 25: 457-486.

Wiebe, Janyce M. 1994 "Tracking Point of View in Narrative" in ACL Association for Computational Linguistics. 20.

Wilson, Deirdre and Dan Sperber. 1979. Ordered Entailments: An Alternative to Presuppositional Theories" in C.K. Oh and D. Dineen (eds.) Syntax and Semantics II. New York: Academic Press.

Zribi-Hertz, Anne 1989 "Anaphor binding and narrative point of view: English reflexive pronouns in sentence and discourse" in Language 65:4.