CONCEPTUAL REFERENCE POINTS: A COGNITIVE GRAMMAR ACCOUNT OF PRONOMINAL ANAPHORA CONSTRAINTS

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This paper presents an analysis of the constraints on pronominal anaphora in English within the framework of Cognitive Grammar in terms of semantic distinctions between pronouns and full noun phrases. Semantic notions of prominence and conceptual interconnection are used to develop a model of conceptual reference points which defines the contexts within which coreference is acceptable or unacceptable. The analysis provides a conceptual-semantic account of the ‘core’ anaphora facts which have previously been explained in terms of structural notions such as c-command, as well as certain data which have long been problematic for structural accounts.*

1. INTRODUCTION. In this paper I develop a cognitive-semantic explanation of constraints on pronominal coreferences within the framework of Cognitive Grammar. The analysis covers the ‘core’ data involving restrictions on coreference between pronouns and full noun phrases, as well as certain additional facts not explained by structural accounts such as Reinhart’s (1976, 1981, 1983, 1986) c-command condition. The basic problem to be addressed is illustrated by the data in 1 (from Lakoff 1976). Underlining is used to indicate coreference.

(1) a. *He loves John’s mother.
   b. His mother loves John.
   c. Near him, Dan saw a snake.
   d. *Near Dan, he saw a snake.

The data in 1 illustrate the well-known fact that the relative order of the pronoun and full noun phrase in the linear string does not determine the possibilities for coreference; rather some more subtle principle or set of principles must be involved.

Within the generative tradition, the most widely-accepted proposals have formulated the constraints in terms of geometric configurations on syntactic tree structures. The most successful of these analyses is Reinhart’s c-command model. The c-command condition essentially states that, if the first branching node dominating the pronoun within the syntactic tree also dominates the full noun phrase, coreference is ruled out.¹ The c-command condition has since been incorporated into the Binding Conditions which are at the core of Government and Binding (GB) theory (cf. Chomsky 1981, 1986).²

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¹ The full definition of c-command is somewhat more complex and has been revised by various researchers for different purposes; Reinhart (1983:41) states ‘A node A c-commands node B if the branching node α1 most immediately dominating A either dominates B or is dominated by a node α2 which dominates B, and α2 is the of the same category type as α1’.

² Reinhart (1983) revised her formulation of the c-command constraint so that it is now a constraint on bound anaphora only; the coreference constraint was recast as a pragmatic condition

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The c-command model has been successful in accounting for a wide range of data, but has left a number of problems and issues unresolved. In some cases questionable modifications of tree structures are necessary to account for the data. In 2a–b, the pronoun in each case does not c-command the full noun phrase unless we assume that the PP node dominating is somehow ‘transparent’ and does not count as the first branching node (cf. Reinhart 1983:54).

(2) a. *I spoke to him about finances in Ben’s office.
   b. *John gave a book to her for Sally’s birthday.

The c-command model also gives no account of linear order effects (cf. Carden 1982, Solan 1983), as exemplified by the data in 3. The ungrammaticality of 3c–d is not attributable to a c-command violation, as the pronoun in each case does not c-command the full noun phrase.

(3) a. Peter went home, and then he took a nap.
   b. Sally visited Peter and reassured him.
   c. *He went home, and then Peter took a nap.
   d. *Sally visited him and reassured Peter.

Reinhart (1983:54–55) explicitly excludes considerations of linear word order from the c-command model. She instead proposes that these data be accounted for in terms of a principle of discourse-level coreference, which is that referents are normally introduced first with a full noun phrase and are subsequently referred to via a pronoun. Reinhart points out that essentially the same facts hold at the cross-sentential level, as in 4b, where coreference seems equally unacceptable. The # symbol is used to indicate that the sentence is infelicitous in the discourse context.

(4) a. John went into the study. He picked up the phone.
   b. He went into the study. #John picked up the phone.

Under Reinhart’s proposal, the sentences in 3 would not be ruled out by syntactic principles, but would be considered anomalous at the discourse level, for the same reason that coreference is anomalous in 4b. Reinhart does not develop this discourse principle in any detail, and so it is unclear, for example, why sentences such as 1b–c would not similarly be judged unacceptable at the discourse level.

These specific examples point to a much more general issue which has not been resolved within the anaphora literature: the relationship between syntactic constraints and pragmatic or discourse principles. It has largely been assumed that these constitute separate classes of principles, but there are no clearly established criteria for differentiating syntactic phenomena from discourse phenomena. Principles that apply across sentences may also apply within a single

(external to the syntax) by which disjoint reference is assumed in configurations where, if the positions of the pronoun and putative antecedent were reversed, bound anaphora would be possible. This reinterpretation of the role of c-command does not affect the empirical predictions made by the model.

Reinhart’s claim that linear order is relevant only at the level of discourse (and not within the syntax) is controversial; cf. Carden (1982), Solan (1983), and Lust (1986:26).
sentence, as in Reinhart’s analysis of 3 above. Although it appears that violations of discourse principles produce less robust judgments of unacceptability than syntactic violations (cf. Lasnik 1989), this is not a reliable guide; many speakers judge the sentences in 3c–d and 4b, for example, to be fully unacceptable.

The relationship between syntactic and discourse-level anaphora principles has been highlighted by a number of papers which address the effects of ‘point of view’ or ‘empathy’, which may apply both within and across sentences. In many cases the point-of-view effects are difficult (if not impossible) to capture via structural conditions. This is exemplified by the contrasts in 5, in which the pronouns in the unacceptable sentences do not c-command the full noun phrases.

(5) a. John’s fear is that he might have cancer.
   b. *His fear is that John might have cancer.
   c. Sally’s wish is that her daughter will become a physicist.
   d. *Her wish is that Sally’s daughter will become a physicist.

While point-of-view effects have been addressed by a number of researchers (Kuno 1987, Zribi-Hertz 1989, Pollard & Sag 1992), these analyses have assumed that the principles responsible for these effects are entirely separate from the syntactic principles that account for the ‘core’ anaphora data.

The model developed here, within the framework of Cognitive Grammar, differs significantly from structural analyses such as the c-command model. Rather than appeal to autonomous-syntactic tree structures and syntactic constraints, it explains the observed patterns as the outcome of semantic interaction between nominals and the contexts in which they are embedded. The same semantic factors operate both within and across sentences, so that syntactic and discourse-level constraints are expressed as a single set of principles.

2. Theoretical Foundations. Cognitive Grammar (CG) posits that grammatical structure is fully describable by means of three kinds of units: semantic, phonological, and symbolic units (Langacker 1987a, 1991). A symbolic unit consists of a semantic unit paired with a phonological unit (similar to a Saussurean sign), and may be of any size, from a single morpheme to an entire sentence. Syntax, in this model, is characterized as a system of conventional symbolization: through exposure to actually occurring expressions, speakers master the conventional patterns by which phonological units are used to represent meanings. These conventional patterns are captured as schemas, templates that speakers extract from specific expressions and that are used in constructing and evaluating new expressions. The established phrase structure patterns of a language are described in terms of these schematic patterns, rather than in terms of a separate set of syntactic rules. CG does not assume an autonomous syntactic component.

In keeping with the fundamental principles of CG, the model of anaphora developed here appeals only to principles of semantic organization. Judgments of ungrammaticality or obligatory disjoint reference are treated as instances of
semantic incongruity between a nominal and the context in which it is embedded. The model draws on the theory of accessibility, which holds that distinct nominal categories (pronouns, reflexives, full noun phrases, etc.) are used to signal differences in the accessibility or retrievability of their referents within a given context ( Ariel 1988, 1990, Givón 1989, Ward et al. 1991, Gundel et al. 1993).

Ariel, Givón, and Gundel et al. each propose fine-grained hierarchies of accessibility, differentiating over a dozen nominal categories. For the purposes of this paper, the relevant observation is that full noun phrases (names and descriptive phrases) are used when a referent is not highly accessible within the immediate context. Pronouns, in contrast, are used when a referent is easily retrievable within the immediate context—either because the referent is currently under discussion in the discourse, or because the person or thing referred to is physically present and perceptible to both speaker and addressee.

Accessibility theory suggests that a simple principle is at work in cases of obligatory noncoreference such as those in 1: the use of a full noun phrase is anomalous if its referent is readily accessible within the immediate context. The data in 1 indicate that linear word order alone is not adequate as a central organizing principle: the first nominal in the phonological string does not always set up the context in which subsequent nominals are interpreted.

The context will be defined here in terms of conceptual reference points. Reference points are, intuitively speaking, local topics—elements which the conceptualizer (the speaker or addressee) uses to contextualize other elements. The analysis rests on the notion that a conceptualizer makes mental contact with an entity (mental contact is defined as ‘singling an entity out for individual conscious awareness: Langacker 1991:97) against the background provided by other elements in the conception. Reference points are elements which are prominent within the discourse and so serve to set up the contexts within which the conceptualizer makes mental contact with other entities. The dominion of a reference point consists of the elements that are conceptually located relative to the reference point, whose construal is shaped by their association with the reference point.  

4 Langacker 1991 introduced the notions ‘reference point’ and ‘dominion’ in his analyses of possessive constructions, discourse topics, and English aspectual marking; Langacker 1993 discusses further applications of these notions. Reference point theory is applied to clausal conceptual structure in van Hoek 1992.

5 Reference points are similar to Chafe’s (1976, 1991, 1992) and MacWhinney’s (1977) notion of ‘starting points’: elements within a sentence or discourse which establish the contexts relative to which other elements are construed. The analysis presented here is entirely compatible with their claims, but focuses on the syntactic role of reference points, specifying the sentence-internal and phrase-internal principles of reference point organization which are not developed by either MacWhinney or Chafe.

6 This usage of the term ‘dominion’ differs slightly from that in Langacker 1991; Langacker 1993 proposes the term ‘regime’ to cover this meaning. I will continue to use the term ‘dominion’ in this paper, as the distinction is not significant for this analysis.
The constraint on coreference involving full noun phrases is stated in 6.

(6) A full noun phrase (i.e. a name or descriptive phrase) cannot appear in the dominion of a corresponding (i.e. coreferential) reference point, as this would conflict with the specification of a full noun phrase as a low accessibility marker.

Although the principles determining the selection of reference points have not yet been discussed, for the moment we can assume that the subject pronoun *he* in examples such as 1a and 1d functions as a reference point in relationship to the other nominals within the clause. The full noun phrase in each example is therefore situated in a context in which its referent is in fact highly accessible. This conflicts with the specification of the full noun phrase as a low accessibility marker; a judgment of semantic anomaly results.

The organization of reference points is determined primarily by prominence and semantic connectivity; linear word order and ‘point of view’ are involved to a lesser extent. The theory of Cognitive Grammar provides a theoretical vocabulary for defining these semantic notions; the necessary constructs are briefly introduced below.

2.1. Introduction to Cognitive Grammar. According to Langacker (1987a, 1991), a speaker’s knowledge of a language is characterized as a structured inventory of conventional units, including words, phrases, and schemas (intuitively speaking, ‘templates’), which specify the patterns for the creation of novel phrases and sentences. Speakers acquire schemas through exposure to actually occurring expressions; a schema becomes entrenched (that is, well-established and readily activated) through repeated activation.

Schemas are used in both constructing and evaluating novel expressions; an expression is judged well formed to the extent that it conforms with a schema or schemas. The appearance of a full noun phrase activates a schema representing the conventional configuration for use of a full noun phrase (i.e., a context in which its referent is of low accessibility); if the expression in question conflicts with the specifications of that schema—if the referent is in fact highly accessible—the expression is judged anomalous. The principles of schema selection or activation need not be discussed further for purposes of explaining restrictions on full noun phrase coreference. In §5.4, which treats the distribution of reflexive pronouns, the mechanism by which schemas are selected is discussed in somewhat greater detail.

CG assumes a conceptual, rather than truth-conditional, semantics: the meaning of an expression is equated with the conceptions it activates in a speaker’s mind. Meaning may involve the activation of various knowledge systems, sets of beliefs, visual images, etc. An important facet of meaning is construal, which is the way that facets of the conceived situation are portrayed: which elements are conceived as prominent; the schematicity or specificity of various subparts of the conception, and so forth. Reference point organization is determined largely by semantic prominence. Two kinds of prominence have been established as central within CG: profiling and figure/ground asymmetry (Langacker 1987a). Profiling is central to the CG definitions of core grammatical
constructs such as syntactic categories (nouns, verbs, etc.), as well as the notions head, complement, and modifier; figure/ground asymmetry is the basis for the CG definitions of grammatical relations.

2.1.1. Profile and base. The semantic pole of an expression is described in terms of a profile and a base (Langacker 1987a:183–89). The base of an expression is the conceptual structures which that expression invokes and which are crucial to its characterization; for example, the expression knuckle invokes as its base the conception of a finger, while the expression roof invokes as its base the conception of the canonical structure of a house. The profile of the expression is the particular subpart of the conception that the expression designates; it is hypothesized to be more prominent or more highly activated than the base (Langacker 1987a:187), and is represented in CG notation with bold lines (see Figure 1). The expressions knuckle and roof profile specific subparts of the conceptions of a finger and of a house, respectively. The expressions parent and Thursday profile more abstract conceptions, the former characterized with respect to the conception of a kinship network, the latter characterized with respect to the conception of the structure of a week.\(^7\)

The various grammatical categories (noun, verb, adjective, etc.) are defined by the nature of their profiles. Nouns profile things, defined abstractly enough to encompass both prototypical things—solid objects such as those described by the nouns brick and ball—and more abstract notions, such as those designated by the expressions hiatus, explosion, or intuition. Verbs, adjectives and prepositions profile different kinds of relations, defined as ‘interconnections between entities’ (Langacker 1987a:214–17; entity refers to any kind of conception). Within the category of relations, verbs are considered a special class, termed processes; they are distinguished from other relations primarily by their temporal properties, as they profile relations which extend through conceived time. The verb explode and the noun explosion may be used to describe the same event (they invoke the same content), but they differ in the precise quality of the profile imposed on the base—the verb involves dynamic temporal se-

\(^7\) The use of iconic notation is intended only as a heuristic and does not entail any theoretical claim. In particular, it should not be construed as a claim that semantic representations consist solely of visual images.
quencing, while the noun imposes a static profile. There are additional semantic properties differentiating these categories (Langacker 1987a, 1987b).

In CG notation, things (the profiles of nouns) are represented as circles; relations are represented by lines interconnecting things or other relations (see Figure 2). Processes are represented as relations extending through conceived time, represented by the arrow labeled \( t \). Note that relations profile not only the interconnections between entities, but also the interconnected entities. Conceiving of a relation necessarily includes conceiving of the interconnected participants, which are therefore included within the profile.

![Figure 2. Grammatical categories.](image)

2.1.2. Figure/Ground Alignment. Relational predications involve an additional prominence asymmetry characterized in terms of figure/ground alignment. One of the entities involved in the relation stands out as the figure within the relation (Langacker 1987a:217–18). The organization of figure and ground is not automatically determined by the objective properties of the situation being described, but is rather a matter of the construal imposed on the conceived situation. For example, the prepositions *above* and *below* may be used to describe the same configuration (two objects located in vertical space, one higher than the other), but reflect opposite choices of figure and ground: for *above*, the higher object is the figure, and for *below*, the lower object is the figure (see Figure 3). The technical term for ‘figure within a profiled relation’ is TRAJECTOR, abbreviated as \( tr \) in CG diagrams.\(^8\) The less prominent entity in the relation is termed the LANDMARK, abbreviated \( lm \).

![Figure 3. Figure/ground asymmetry.](image)

\(^8\) The choice of the term ‘trajector’ is motivated by the fact that, for verbs of motion, the thing most easily picked out as figure on perceptual grounds—the thing which moves along a trajectory—is typically selected as the subject (Langacker 1987a:217).
The grammatical relation **subject** is defined in CG as ‘trajector of a profiled process’ (Langacker 1987a:231). The subject is therefore the nominal that functions as the figure within the processual relation profiled by the verb. Langacker (1987a:233–34) cites independent evidence supporting the equation of the subject with the notion ‘figure within a process.’ Where there is a clear perceptual motivation for picking out one entity as the figure within a scene, there is a strong tendency for that entity to be coded as the subject of the active-voice verb. Verbs of motion, for example, almost invariably take as their subject (in the active or unmarked voice) the element that moves, rather than the stationary background; the moving entity is more naturally perceived as figure than the background. The subject’s status as figure within the clausal conception also offers a basis for explaining a number of well-known observations about the role of the subject in discourse, such as its tendency to correlate with the discourse topic (Givón 1979a, 1983, 1989, Chafe 1987, 1991, Tomlin 1983).

### 2.1.3. Assembly of Complex Expressions

Complex expressions (words and phrases consisting of more than one morpheme) are created by integrating elements at both the semantic and phonological poles. Figure 4 shows (in abbreviated fashion) the assembly of the semantic and phonological poles of the expression *on the table*. Focusing first on the semantic composition (the left-hand side of the diagram), we see that the preposition *on*, in its prototypical meaning, profiles a relationship between two things which are arranged in vertically oriented space, with contact between the two. The dotted line connecting the landmark of the relation and the profile of *table* indicates correspondence between the two, which is to say that the profile of *table* and the landmark of *on* are construed as two views of the same entity. The crosshatching and arrow indicate that the schematic conception of the landmark included as part of the meaning of *on* is **elaborated** (intuitively speaking, ‘filled in’) by the semantic contribution of *table*. At the next level of conceptual organization, represented

![Figure 4. Assembly of a phrase.](image-url)
by the top box, the corresponding elements are conceptually superimposed, producing the composite conception ON THE TABLE (the diagram is simplified by omission of any indication of definiteness, though that could be included as well; cf. Langacker 1991:96–107).

The right half of Fig. 4 very schematically shows the phonological assembly of the phrase on the table. The word on has a phonological form (represented here by orthography rather than phonetic transcription); its status as a phonological word is indicated by the label W. Part of a speaker’s knowledge of the word on is that it may combine with another word, which follows it in the temporal sequence (indicated by the arrow labeled T). I am assuming, for simplicity’s sake, that we can analyze the definite article as phonologically cliticized to the noun table, so that the phrase the table functions as a phonological word for purposes of elaborating the schematic conception invoked by the word on. The two words combine to form a single phrase at the higher level of organization. The diagram is highly simplified; there is no indication of phrasal stress, intonation, etc. The intent here is simply to give a brief overview of the CG characterization of semantic and phonological organization within a complex expression. The assembly of an entire sentence would involve multiple levels of organization, combining smaller units to form larger, more complex units.

2.1.4. Complements and Modifiers. The distinction between complements and modifiers plays a critical role in the model of anaphora constraints developed here (other researchers have also noted the relevance of the complement/modifier distinction; cf. Pollard & Sag 1992). CG defines these notions semantically.

The grammatical notion head is defined in CG in terms of profiling. The head is the profile determinant at a given level of organization: the element which contributes the profile to the integrated conception. In the expression on the table, the relation on is the head of the phrase, as the composite expression on the table profiles a spatial relation (rather than a thing). This is represented notationally by the use of heavy lines for the box representing ON, at the lower level of organization.

The landmark of ON corresponds to the profile of TABLE, which means that they are construed as representing the same entity. There is however a significant difference in their specificity. ON profiles a highly schematic landmark (specified only as a thing situated in vertically oriented space), while TABLE profiles a thing which is much more precisely specified, and thus elaborates (i.e. fleshes out) the landmark. The relation ON is therefore semantically dependent on the nominal TABLE, in the specific sense defined by Langacker (1987a:300) as given in 7.

(7) One structure, D, is dependent on the other, A, to the extent that A constitutes an elaboration of a salient substructure within D.9

9 Langacker (1987a:306) adopts the term ‘dependence’ to distinguish the CG notion of A/D alignment from ‘dependency’ as that term is used by other researchers (e.g. Hudson 1976).
An autonomous entity is one that is not elaborated by another entity. In the combination of ON with TABLE, TABLE is autonomous, as the relation ON does not elaborate a salient substructure within the conception TABLE. When the head at a given level of organization is dependent, the autonomous element is a complement. The complement elaborates a salient subpart of the conception profiled by the head, and the composite conception produced by merging their specifications includes the profile of the complement within the composite profile. The composite conception ON THE TABLE includes the profile of TABLE as part of the profiled relation.

When the head at a given level of organization is autonomous, the dependent element is a modifier. By definition, a modifier does not elaborate a salient subpart of the conception profiled by the head, but is rather elaborated by the head. The composite conception produced by combining a head and modifier profiles only the head, while the modifier becomes part of the unprofiled base. The semantic pole of the phrase the cup on the table will serve as illustration (see Figure 5). The composite conception at the semantic pole of the cup on the table profiles CUP; it designates a thing (and is therefore a nominal) rather than a spatial relation. The noun CUP is therefore the profile determinant at the lower level of organization. It is also autonomous, while the relation ON THE TABLE is dependent, and therefore a modifier. Note that the modifying relation becomes an unprofiled part of the base in the composite conception; it contributes to the meaning of the expression, but is less prominent than the profile, which is solely the nominal conception contributed by CUP. This general characteristic of head/modifier constructions constitutes a significant difference between modifiers and complements, which are included within the composite profile. Figure 6 schematically illustrates the characterization of head/complement and head/modifier configurations in CG.

Figure 5. A head/modifier construction.
3. Conceptual reference points. The theoretical vocabulary of CG is used to define the principles of reference point organization, given in 8.

(8) a. A nominal R tends to be construed as a reference point in relation to a nominal N to the extent that R is more prominent than N, as determined by profiling and figure/ground alignment.\footnote{Profiling and figure/ground alignment are two central notions in CG, which also play a central role in defining reference point organization. However, other prominence notions may come into play as well, such as focus and emphasis. These relatively weak factors do not typically override the reference point configurations established on the basis of profiling and figure/ground alignment; their contribution is most evident where profiling and figure/ground alignment do not clearly establish a reference point/dominion configuration.}
b. A nominal N tends to be construed as belonging to the dominion of a reference point R to the extent that N is conceptually connected with R. Connectivity is determined primarily by interconnecting relations dependent on both R and N (e.g. process relations in which R and N are complements).
c. A nominal R tends to be construed as a reference point in relation to a nominal N if R precedes N in the linear string. This is a relatively weak factor as compared with conceptual connectivity; its effects are most noticeable when R and N are only weakly interconnected (cf. §4 below).

The import of 8a is manifested in the familiar grammatical relations hierarchy Subject > Direct Object > Oblique (Keenan & Comrie 1977, Bresnan 1982, Perlmutter & Postal 1983, Croft 1991), which is characterized in CG in terms of prominence, i.e. figure/ground alignment (Langacker 1991:323). The subject, as figure within the clause, is a reference point with the rest of the clause in its dominion (what is meant by ‘the rest of the clause’ will be spelled out more precisely below; for now we can assume that it means the other complements of the verb—note that the subject is itself a complement of the verb, under the
definitions given above). The direct object is a reference point with all other complements of the verb in its dominion, exclusive of the subject.

The prominence distinction between profiled and unprofiled nominals is also significant. All of the complements of the verb are profiled within the composite clausal conception (cf. §2.1.4); their prominence within that conception motivates their obligatory construal as reference points in relation to other nominals. Nominals which are not complements of the verb—e.g. nominals within modifiers—are unprofiled within the composite clausal conception. They are therefore only optionally construed as reference points; see §3.2 below for examples and discussion.

As stated in 8b, the extent of a reference point’s dominion is determined in large part by semantic connectivity between the reference point and other nominals. Connectivity is defined by the presence or absence of explicit semantic interconnections, such as the connection between complements provided by a verb.\textsuperscript{11}

The import of interconnecting relations can be understood in terms of the intuitive notion that making mental contact with one entity (i.e. bringing it into conscious awareness) may lead directly to mental contact with another entity that elaborates one of its substructures. The profile of a head includes schematic representation of the entities that elaborate it; those entities (the complements) are thereby conceptually prefigured by the head. Making mental contact with the head leads directly to mental contact with the entities on which it is dependent.

Within the clause, the combination of principles 8a–b defines a series of reference point configurations which I term the complement chain. The complement chain covers much of the ‘core’ coreference data, the data typically explained in terms of c-command. Grammaticality judgments involving the complement chain are frequently more robust than judgments involving other reference point configurations, because the complement chain involves explicitly coded interconnections between nominals and clear asymmetries of prominence within the grammatical relations hierarchy. The complement chain is, however, simply one instantiation of the principles which govern the general organization of reference points.\textsuperscript{12} The separate label ‘complement chain’ is given only for expository convenience, not to imply that it is a separate construct.

In the following sections I focus separately on each of the factors determining reference point organization. Section 3.1 discusses the role of figure/ground organization. Section 3.2 focusses on nominals which are unprofiled within the

\textsuperscript{11} The presence or absence of semantic junctures or unit boundaries plays a role as well, though this is more apparent at the level of discourse; see §5.2, also Fox (1987a), Tomlin (1987), van Hoek (1992:226–45).

\textsuperscript{12} We can assume that speakers do not always determine the organization of reference points entirely de novo, drawing directly on general principles. The more common reference point configurations, such as those within the complement chain, have no doubt become established as conventional patterns.
composite conception (hence low in prominence). Connectivity and linear order are addressed in §4.

3.1. Prominence within the complement chain. As clausal figure, the subject is the most prominent nominal within the clause, and is therefore a reference point with all other complements of the verb in its dominion. Each of those complements may be composed of a number of elements, which are all construed within the dominion of the subject. This explains data such as 9.

(9) a. *He likes John’s mother.
   b. *She detests the people who live next to Sally.

In 9a the possessive relation profiled by John’s is a modifier within the nominal John’s mother. The entire nominal is construed within the dominion of the subject. Coreference is anomalous, as it would conflict with the semantic specification of full nominals as Low Accessibility markers. The same principles apply to 9b.

This analysis of the subject’s role as a reference point accords with observations made by a number of other researchers. The subject has frequently been identified as a kind of clause-internal topic (Givón 1979a, 1984a, Chafe 1976, 1979, Langacker 1991:317). The subject also tends to be ‘old information’, already in the conceptualizer’s awareness and hence suitable to serve as a reference point (Givón 1979a, 1984a, 1985, Chafe 1987, 1991, 1992, Tomlin 1983).

The landmark within the clause (specifically, the primary landmark, when there is more than one landmark) is the secondary figure, the second most prominent nominal in the clause (Givón 1984a:138, Langacker 1991:323). Any remaining complements of the verb are in the dominion of the primary landmark. A full noun phrase (other than the subject) can therefore not correspond with a pronominal direct object. This is exemplified by the data in 10.

(10) a. *Jim put it in the kitten’s box.
   b. *I told him about Sam’s mother.

In the double object construction, exemplified in 11, the recipient or beneficiary is the primary landmark (Langacker 1991:325–26), and is therefore a reference point with the other nominal (the theme) in its dominion. Givón (1984b) notes that the first object in a double object construction tends strongly to be more topical than the second. This is congruent with the claim that the first object functions as a reference point with the second in its dominion.

   b. *I gave him Sam’s book.

There are apparent exceptions involving anaphoric island phenomena, such as He often phoned editors to tell them Rushdie jokes, where he refers to Rushdie (Ward, et al. 1991). A full noun phrase is anomalous if it corefers with a highly accessible nominal instance, but I would claim that the nonhead noun in a compound does not do so. A nonhead noun in a compound, such as cat in cat lover, functions as a type description (Langacker 1991:142–48) within the overall type conception described by the compound. Langacker (1991:59) argues that proper names may function as type descriptions. A name within a compound may access a more general type conception, rather than the nominal instance conception established in the discourse; there is therefore no conflict.
An embedded clause functions as the landmark of the matrix verb, and is therefore in the dominion of the matrix-clause trajector. A pronominal matrix subject cannot correspond with the profile of a full noun phrase in an embedded clause, as in 12.

(12) a. *Ralph said that Mary wanted to divorce him.
   b. *He said that Mary wanted to divorce Ralph.
   c. *He never knew that Mary wanted to divorce Ralph.

3.2. Nonprominent Nominals. Within a complex expression such as a clause, the elements profiled within the complement chain (the heads and their complements) integrate to form a composite profile. Nominals within modifying relations are excluded from the composite profile, forming part of the unprofiled base for the expression. They are significantly less prominent than the complements of the verb. Only the nominal conceptions profiled within the composite conception are so prominent as to be inevitably construed as reference points in relation to other elements in the sentence; those which are part of the unprofiled base are only optionally construed as reference points. The data in 13 illustrate the import of this principle (13b requires a particular context; cf. §5.1).

(13) a. *He loves John’s mother.
   b. His mother loves John.

The profile of the pronoun in 13a is construed as a reference point in relation to the other nominals in the clause, and so coreference is ruled out. The pronoun in 13b is part of a modifying relation (the possessive relation), therefore not prominent in the composite conception. The possessor need not be construed as a reference point in relation to other nominals in the clause, and coreference is acceptable. (The possessor may optionally be construed as a reference point as in John’s mother loves him, where coreference is also possible.14) Ex. 14 illustrates the same distinction.

(14) a. *She likes the people who work with Sandy.
   b. The people who work with her like Sandy.

In 14b, the pronoun is part of a modifier of a larger nominal, hence not included within the composite profile of the complement chain. It therefore need not be construed as a reference point in relation to nominals within the main clause, and so coreference with the direct object nominal is acceptable.15 This analysis also explains the grammaticality of the sentences in 15.

(15) a. After it fell off the table, the ball rolled across the floor.
   b. When he got back, Ralph made a few phone calls.

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14 The assignment of reference-point status to the nominal profile of John would be motivated by linear order. Even where prominence and connectivity do not mandate the construal of a particular nominal as a reference point, the conceptualizer has the option of assuming that a nominal introduced into the discourse remains accessible relative to material which follows it (the likelihood of this construal may also be affected by prominence).

15 The sentences in 13b and 14b are not typical examples of backward anaphora, but they might appear as examples of ‘repeat identification’ of a referent; cf. §5.1 below, also Bolinger 1979.
The pronoun in each sentence is embedded within a modifying expression, therefore not profiled at the highest level of organization, and need not be construed as a reference point in relation to elements in the main clause. In accordance with general principles of subordination (cf. Langacker 1991:436), the integrated conception profiles only the process coded by the main clause; the other process becomes an unprofiled part of the base.

I am making two distinct claims concerning the behavior of nominals within modifiers. In §3.1 I noted that nominals within a modifier behave as subparts of the larger nominal in which they are included and so are construed within the same dominion(s) as that nominal. For example, the profile of John in the expression *He loves John’s mother* is construed within the dominion of the subject nominal, as part of the nominal *John’s mother*. In evaluating a nominal’s likelihood to function as a reference point, however, we need to consider the prominence of that nominal’s profile within the overall conception. From that perspective, a nominal within a modifier is only a peripheral, nonprominent part of the conception, and is therefore only optionally construed as a reference point.

All of the data discussed in §3 are explicable in terms of the c-command model proposed by Reinhart (1976, 1981, 1983); the differences between the c-command and the reference point model are more evident in their coverage of the data discussed below (see particularly §5). One may ask how a theory such as CG, which does not posit the existence of autonomous-syntactic tree structures, might explain the apparent success of c-command in accounting for the anaphora facts. One plausible explanation is that the tree structures on which c-command is defined incorporate highly schematic representations of some facets of conceptual organization. The subject of the clause, which in CG is posited to be the most prominent complement of the verb, is in structural accounts assumed to attach to a higher node than the other complements. The elements which CG identifies as part of the composite profile—the subject and object—are placed directly under major structural nodes, and so are in a position to c-command much of the rest of the clause.

4. CONNECTIVITY AND LINEAR ORDER. The extent of a reference point’s dominion is determined by the interaction of conceptual (semantic) connectivity and linear word order. Connectivity between two nominals is determined by the relations in which they participate. Nominals are strongly interconnected when they participate in an explicit interconnecting relation, as in the complement chain. Nominals are more weakly interconnected when they merely co-occur within a single linguistic unit of some kind, such as a sentence or a conceptual paragraph (cf. Hinds 1979, Longacre 1979). The weakest connectivity (which could also be termed lack of connectivity) is observed when the nominals are separated by a conceptual break, such as a scene change or paragraph boundary (cf. Fox 1987a).

16 This level of connectivity appears to be equivalent to Ariel’s (1990) notion of Unity.
The role of linear order is straightforwardly described: Once the conceptualizer has made mental contact with a reference point, that reference point tends to remain active in relation to material following it in the linear string, provided there is no conceptual break or discontinuity in the flow of discourse (cf. §5.2 below). Consider a configuration in which the subject of one sentence is intended to corefer with a nominal in the following sentence, as in 16.

(16) a. John checked the mailbox. There was a package for him.
b. He checked the mailbox. #There was a package for John.

As CG does not assume a sharp division between syntax and discourse, it is expected that the subject of a sentence—the element which stands out as figure within the clausal profile—will be prominent in relation to the extrasentential context, not only within the same sentence. The subject of the first sentence in both 16a and 16b is therefore construed as a reference point in relation to material in the second sentence, and coreference in 16b is unacceptable. The relative import of linear order is in inverse proportion to the strength of connectivity between nominals. Within the complement chain, where nominals are interconnected by the relation(s) profiled by the head(s), linear order has little observable effect. In configurations involving weaker connectivity, linear order is a more influential factor.17

4.1. Modifiers within the clause. Modifiers vary in the strength of their connectivity to other elements of the clause. Modifiers of the verb or clause have traditionally been divided into two classes, S-modifiers (assumed to attach to the S-node within the syntactic tree) and VP-modifiers (attached to the VP node; cf. Thomason & Stalnaker 1973). Here I provide a semantic account of the distinction, in terms of dependence relations between the process conception and the modifier. Unlike complements, modifiers (by definition) do not elaborate a salient subpart of the head. The complement/modifier distinction is however a matter of degree (in accordance with the fact that dependence itself is a matter of degree). A modifier may elaborate a relatively peripheral, nonsalient subpart of the conception invoked by the verb. Such a modifier could be characterized as conceptually internal to the process conception and would behave somewhat like a complement of the verb.

Following Fillmore (1977), Langacker (1991:343), Croft (1991) and Talmy (1985), I assume that the conception of an event presupposes some sort of setting, within which various participants move about and/or interact. In describing an event, the speaker focuses on certain selected participants, imposing a limited scope or window of attention (Fillmore 1977, Langacker 1987a, Talmy 1985). The profile of a verb together with its arguments explicitly encodes only

17 Linear order appears to have an effect even in constructions involving strong connectivity, but it is not the sole—or even primary—determinant of grammaticality. Speakers report, for example, that Near Dan, he saw a snake is, if not entirely acceptable, more nearly acceptable than He saw a snake near Dan (under the coreferential reading). The impact of linear order in these cases may be best measured in terms of reaction times or rankings of relative acceptability rather than absolute grammaticality judgments.
certain facets of the overall event conception. Additional participants (e.g. instruments, sources, goals) or other aspects of the temporal and spatial setting may be expressed by modifiers, which elaborate intrinsic subparts of the process conception and differ from complements only in that they do not elaborate profiled subparts of that conception. These modifiers are conceptually internal to the process conception, contrasting with modifiers that are fully external to the process because they do not elaborate any portion of the event conception. Exx. 17a–b contrast process-internal and process-external modifiers:

(17) a. *Tracy is riding a horse on the beach.
   b. Tracy is riding a horse in that picture.

The modifier in 17b is process-external, functioning as a MENTAL SPACE BUILDER (Fauconnier 1985): it introduces the notion of the picture as a conceptual address within which the entire proposition is embedded. The process profiled by the clause is not construed as pertaining directly to conceived reality, but is rather confined to the mental space set up by the modifier. In 17a, the process-internal modifier does not set up such a conceptual address for the proposition, but rather elaborates an internal part of the event conception.

Exx. 18–19 list some of the typical kinds of process-internal and -external modifiers:

(18) PROCESS-INTERNAL MODIFIERS:
   a. Modifiers which introduce participants not coded as direct arguments of the verb, such as instruments, goals, sources.
   b. Modifiers describing the setting, both spatial and temporal.
   c. Modifiers further characterizing the participants (e.g. describing the mental state of the agent).

(19) PROCESS-EXTERNAL MODIFIERS:
   a. Mental space builders (Fauconnier 1985): modifiers which set up a conceptual context for the clause.
   b. Modifiers which relate the clause as a whole to the larger discourse.
   c. Afterthoughts (Bolinger 1979): modifiers which follow the clause and serve as comments on the clause as a whole.

The internal/external distinction determines which modifiers are construed as strongly interconnected with the subject of the clause. Process-internal modifiers are strongly interconnected with the subject (in much the same way as complements of the verb), while process-external modifiers are weakly interconnected with the subject. (The relationship of various modifiers to the direct object is determined by the same principles, but requires additional examination of conceived event structure; it is therefore discussed separately below.) Strong connectivity ensures that a process-internal modifier is construed within the subject’s dominion regardless of linear word order, as exemplified by 20.

(20) a. John holds wild parties in his apartment.
   b. *He holds wild parties in John’s apartment.
   c. *In John’s apartment, he holds wild parties.
   d. Sally nudged Sam with her umbrella.
Process-external modifiers are only weakly interconnected with the subject of the clause, and are therefore subject to the same analysis as that given for cross-sentential coreference in the discussion of 16 above: once the conceptualizer has made mental contact with a reference point, material that follows in the linear string is construed within its dominion, unless a conceptual break intervenes (within a single sentence, this would typically be signaled by an intonation break; cf. Bolinger 1979). Linear order has a significant effect in configurations involving weak connectivity. A preposed process-external modifier may be construed as external to the subject’s dominion. The examples in 21 are explained by this analysis; 21d–f are from Reinhart 1983.

(21) a. Kathleen Turner falls in love with Tom Cruise in her latest movie.
   b. *She falls in love with Tom Cruise in Kathleen Turner’s latest movie.
   c. In Kathleen Turner’s latest movie, she falls in love with Tom Cruise.
   d. Rosa is riding a horse in Ben’s picture of her.
   e. *She is riding a horse in Ben’s picture of Rosa.
   f. In Ben’s picture of Rosa, she is riding a horse.

Where the process-external modifier is separated from the processual profile by a conceptual break, it should be possible to construe the modifier as external to the subject’s dominion (regardless of linear order). Bolinger (1979) discusses modifiers termed ‘afterthoughts’: assessments of the clause or comments on the relationship between the clause as a whole and the discourse context. These are entirely extrinsic to the clausal conception, and so are only very weakly connected with the subject; the presence of an intonation break between the clause and the modifier (which presumably signals semantic discontinuity) contributes to separating the modifier from the clause and hence from the subject’s dominion. Coreference is therefore acceptable, as in 22 (from Bolinger 1979: 298).18

(22) a. He lied to me—something that John was rather fond of doing.
   b. He was quite a guy, if John doesn’t mind my saying so.

Further illustration of the role of conceptual discontinuities in anaphora is the observation made by McCray (1980), Bosch (1983), and Ariel (1990) that conjoined clause constructions vary with respect to coreference possibilities, depending on the precise semantic relationship between the two conjuncts. When both conjuncts are full clauses, the construal of their relationship depends on whether they are conceived as describing two parts of a single event concep-

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18 There is independent evidence that the ‘afterthoughts’ in 22 are conceptually more separate from the clausal conception than the modifiers in 21. In 21a, the mental space builder in her latest movie ensures that the names are understood to refer to the movie roles, not the actors. Typical ‘afterthought’ modifiers do not have such an influence. The statement He lied to me in 22a is understood to describe the same situation regardless of the presence of the modifier.
tion, or whether the second conjunct functions as an afterthought. The examples in 23 are from Bosch 1983. In 23a, the second conjunct continues the event description begun by the first conjunct; in 23b, the event description is provided solely by the first conjunct, while the second serves merely as commentary.

(23) a. *He lied to me and John betrayed me.
b.  He lied to me, and John was my friend.

Under the c-command model, the data in 21 are explained by syntactic constraints, while 22–23 are assumed to be covered by some set of discourse principles that lie outside the scope of inquiry for a syntactic account (cf. 3 above). Under the reference point model, the interaction of conceptual connectivity and linear order provides a unified account of the facts, without the syntax/discourse dichotomy.

The degree of connectivity between modifiers and the direct object is determined by the same principles that define connectivity between modifiers and the subject. Because the direct object is not the figure within the overall process conception, it is not necessarily construed as a reference point in relation to all internal components of the process conception. Rather it is construed as strongly connected to just those elements with which it directly interacts. An event conception may be decomposed into a number of subcomponents (Grimshaw 1990, Croft 1991, Langacker 1991). In some cases the event-participant coded as the object of the verb participates in a subevent that intrinsically includes another participant. The nominal conception corresponding to that participant is then construed as strongly interconnected with the object nominal, hence belonging to its dominion. The clausal complement of a verb such as ‘tell’ is strongly interconnected with the object by such a relational link. The participant coded as primary object is conceived as a cognizer or ‘viewer’ of the material in the embedded clause. The embedded clause is therefore unequivocally in the dominion of the object, as in 24.

(24) a. Mary told John that he should find a better job.
b. *Mary told him that John should find a better job.
c. I convinced Roger that he should do his thesis on cats.
d. *I convinced him that Roger should do his thesis on cats.

Process-internal modifiers differ from complements of the verb in that they are typically not directly interconnected with the object. In 25a, the modifier in his office describes the setting for the entire event, not the specific location of the direct object Ralph (this will be contrasted with cases in which the object’s location is specified, below). In 25c, for his birthday describes the circumstances surrounding the event, but does not directly pertain to the object. Coreference is ruled out in 25b and 25d for the same reason that it is ruled out in 21b,e above (which involved a subject pronoun and a full nominal in a process-external modifier)—the modifier follows the object in the linear string without an obvious conceptual break (such as that signaled by an intonation break). As illustrated by 25e–f, changing the linear precedence relations makes coreference acceptable.
(25) a. June met Ralph for lunch in his office.
b. *June met him for lunch in Ralph’s office.
c. Sally gave Sam a hamster for his birthday.
d. *Sally gave him a hamster for Sam’s birthday.
e. For Sam’s birthday, Sally gave him a hamster.
f. In Ralph’s office, June met him for lunch.

In some cases the primary landmark within a process (the object) is also the landmark of a relation coded by a preposition, as in 26. This does not affect its status as landmark within the process (hence second-most prominent nominal within the clause), and so its behavior with respect to reference point organization is identical to that of a nominal which combines directly with the verb, as in 25.

(26) a. *I spoke to him about finances in Ben’s office.
b. *Sally thought about him on Sam’s birthday.
c. In Ben’s office, I spoke to him about finances.
d. On Sam’s birthday, Sally thought about him.

Some verbs take locative complements in addition to a nominal complement, in which case the locative relation typically describes the location or goal of the object. The object nominal corresponds to the trajector of the locative relation; the landmark of that relation is therefore strongly interconnected with the object and is construed within its dominion, regardless of linear word order. Coreference is therefore ruled out in the sentences in 27.

(27) a. *Sam put it in the kitten’s box.
b. *In the kitten’s box, Sam put it.
c. *Rose placed her in the baby’s crib.
d. *In the baby’s crib, Rose placed her.

5. Further issues. The discussion thus far has focused on the ‘core’ anaphora data previously explained by the c-command model. This expository focus may give the false impression that the dominions described by the reference point model correspond precisely to the structures described by syntactic notions such as c-command or governing category (Chomsky 1981). Here I briefly sketch the application of the reference point model to three domains of data which lie partly or entirely outside the scope of structural accounts; for detailed discussion see van Hoek (1992, 1993). The data covered here provide additional evidence for the semantic basis of certain principles of the reference point model, such as the claim that the special status accorded to the notion ‘subject’ is a reflection of its semantic prominence (rather than a consequence of structural position). In §5.4 I provide an overview of the reference-point analysis of reflexives.

5.1. Backward anaphora. Backward anaphora is a configuration in which a pronoun precedes its antecedent in the linear string.19 It is of particular interest

19 Backward anaphora must be distinguished from ‘repeat identification’ (Bolinger 1977), in which the pronoun finds its antecedent in the larger discourse context and is then followed by a full noun phrase which merely happens to refer to the same person.
because one of the factors influencing reference point organization, linear word order, gives a potentially misleading signal. We can predict that backward anaphora configurations will typically involve a pronounced asymmetry of prominence between the pronoun and the full noun phrase, both to facilitate the construal of the full noun phrase as a reference point and to minimize the possibility that the pronoun will be so construed.

In a study of 500 examples of backward anaphora drawn from various texts, I have found that certain construction types appear with overwhelming frequency, while others appear rarely if at all (van Hoek 1992:186–225).20 Examples such as 28a–b below may be considered prototypical, while examples such as 28c are somewhat less typical but not uncommon.21

(28) a. In his Prairie Home Companion radio series, Garrison Keillor brought a remote part of Minnesota to life. [San Diego Reader 3/16/89]
   b. If their families were as valuable to them as they proclaim, candidates would never enter the political arena. [Time 10/10/88]
   c. As it creeps along, the Hayward fault has plenty of opportunity to damage the works of man... [Motorland 3/89]

In 88% of the examples in the corpus, the antecedent was the subject of the main clause. Sentences involving a possessive pronoun in a preposed modifier, with the main-clause subject as antecedent, accounted for 307 out of 500 sentences, or just over 61% of the examples in the corpus.22 The majority of the remaining sentences in the corpus also involved a marked asymmetry of prominence between pronoun and antecedent. The pronoun might appear in a parenthetical expression, as in 29a, or in a background clause which sets the scene for the foregrounded clause containing the antecedent, as in 29b.

(29) a. Today in Monte Carlo—the same princely locale where eight years ago he retired—tennis legend Bjorn Borg attempted a comeback of his own. [San Diego Tribune 4/23/91]
   b. It may not be great, but ‘Footsteps’ is not that bad. [San Diego University City Light 1991]

Constructions in which the pronoun-antecedent prominence asymmetry is much less pronounced are expected under this model to be relatively rare and to give rise to variable (or marginal) grammaticality judgments. The pattern

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20 The data were drawn from books, newspapers, magazines, and public signs. An example was included in the corpus only if, in my judgment, it would not be possible for the pronoun to find its antecedent in the preceding discourse context. No doubt a number of instances of genuine backward anaphora were excluded because they could not be distinguished from ‘repeat identification’. Other than this one exclusion criterion, every effort was made to include all the examples which were encountered during the collection period, to ensure a representative sample.

21 In examples such as 28b–c, the pronoun is only loosely connected with the antecedent, as the modifier in each case is process-external. The pronoun is therefore only optionally construed as belonging to the dominion of the full noun phrase, and forward anaphora would also be possible (e.g. As the Hayward fault creeps along, it...).

22 Carden (1982) reports a similar finding.
exemplified by 30a can be assumed to be extremely rare, as no examples of this precise type (possessive pronoun attached to the subject, with direct object as antecedent) were found in the corpus. It is also well-known that speakers give mixed judgments to 30a. Lakoff (1968) notes that some speakers find this kind of construction grammatical, though he himself rejects it; Roberts (1987: 85–86) notes that it is acceptable only as an instance of repeat identification of a previously-established discourse referent, and not as genuine backward anaphora.

(30) a. His mother loves John.
   b. Even his admirers admit Mandela is no miracle worker [Title of newspaper article, San Diego Union, 1991]
   c. His son’s freakish death brings new pain to guitarist Eric Clapton [Title of article, People, 4/1/91]

Examples 30b–c, which did occur in the corpus, differ significantly from 30a. In 30b the antecedent is not the direct object of the main clause, but it is rather the subject of an embedded clause which can be felt intuitively to be the focus of the sentence, the peak of prominence. In 30c the possessive pronoun is not directly attached to the subject pronoun, but is rather a modifier of a modifier—an additional step removed from the profiled ‘core’ of the clause. Approximately a dozen examples of this type were found; all were more similar to 30b–c than to 30a.

Within the reference point model, the prominence asymmetries that recur in backward anaphora are expected; the c-command model would have to appeal to additional principles to explain them. In particular, the overwhelming tendency for the antecedent to be the main-clause subject is explained automatically by the claim that the subject stands out as figure (hence as most prominent reference point) within the relation profiled by the clause. The c-command model would categorize the sentences in 28–30 as grammatical, but would offer no account for the fact that sentences such as 28–29 are far more common than sentences of the type in 30. Nor would c-command offer any account of the still greater rarity of the construction type exemplified in 30a as compared with 30b–c.

In examining a phenomenon such as backward anaphora, it is important to bear in mind that we are dealing with language-specific networks of constructional schemas. The extent to which various schemas become conventionally established is influenced by general principles, but cannot be reduced to those principles. A speaker’s knowledge of English include a number of fairly specific schemas characterizing the conventional backward anaphora patterns mastered by that speaker. The precise inventory of schemas (and their degree of entrenchment) no doubt varies among speakers. Still greater variation is to be expected across languages. We can assume that the most general principles carry across (such as the tendency, if backward anaphora is permitted at all, for the antecedent to be in a relatively prominent position with respect to the pronoun), but we can also assume that there will be a great deal of language-specific variation in the inventory of conventional construction schemas. Hendrick (1990) has
observed that sentences parallel to 30a are ungrammatical in Breton, while he reports sentences similar to 30b (such as the Breton translation of *Her father told me that Mona drinks*, Hendrick’s 16) to be grammatical. 23 Hendrick reports however that constructions parallel to 30a are ‘marginally’ grammatical in Berber, which also allows constructions parallel to 30b. These data show intriguing similarities to the facts in English, suggesting that similar principles are at work.


The identification of the subject as primary reference point within the clause is certainly not unique to the model developed here. Chafe (1987:36) notes that a typical strategy for presentation of information in a discourse is ‘employing a subject to express the starting point and proceeding with a predicate which adds information about that starting point’. Givón (1979a, 1983, 1984a) and Chafe (1987, 1991) observe that subjects tend strongly to be given information, already established in the discourse and therefore suited to function as a starting point.

The principles of connectivity that apply within sentences apply cross-sententially as well. Connectivity is a continuum, ranging from the strongest connectivity (defined by explicit interconnecting relations) to weaker connectivity (containment within a single linguistic unit, without explicit interconnections) to the weakest connectivity, where elements are separated by a discontinuity such as a change of scene or focus. These discontinuities promote closure of a reference point’s domain and the use of a full noun phrase (rather than a pronoun) for reference.

A number of researchers have found that speakers tend to rename referents after various discourse unit boundaries, even where a pronoun would have been unambiguous (Tomlin 1987, Fox 1987a, 1987b, Ariel 1990). To take just one example, Fox (1987a) identifies a discourse unit in popular fiction, the development structure, defined by the point at which a character takes action. Characters tend to be reidentified at the beginning of a development structure, as in 31 (Fox 1987a:169):

(31) *She* [Ripley] *did not see the massive hand reaching out for her from the concealment of deep shadow. But Jones did. He yowled. Ripley spun, found herself facing the creature. [Alien p. 267]

Note that the pronoun *she* could have replaced the second mention of Ripley with no loss of clarity. This suggests that the renaming is motivated not by a desire to avoid ambiguity, but by sensitivity to the discourse unit boundary.

23 Hendrick reports a number of additional contrasts within Breton, involving factors such as verb position, for which I cannot offer a detailed analysis here. An adequate analysis of the backward anaphora patterns of a language would require a thorough inventory of the conventionally-established anaphora schemas within that particular language.
The effects of dominion closure at the discourse level produce relatively flexible judgments of stylistic appropriateness or awkwardness, which may appear very different than the sharp grammaticality judgments produced by strong interconnection within clauses. The difference in strength of judgments has been one of the motivations for separating syntactic and discourse-level principles of anaphora (Lasnik [1989] explicitly argues for a syntax/discourse separation on these grounds). Within the reference point model, the seemingly vast difference between intra- and inter-sentential coreference phenomena is explained by varying degrees of conceptual connectivity. Reference point organization within sentences typically involves salient, explicitly coded interconnections, which are not as easily given alternate construals as the implicit conceptual connections (and disconnections) between sentences.

5.3. Point of view. While a number of studies have pointed out the importance of empathy or point of view in pronominal anaphora (Kuno 1987, Zribi-Hertz 1989, Pollard & Sag 1992), it has generally been assumed that the contribution of point of view is entirely separate from the syntactic constraints that determine the core anaphora facts. There are two motivations for this assumption: first, the notion point of view is somewhat vague, unlike the clearly-defined notion of c-command; second, point-of-view effects (like other nonsyntactic phenomena) frequently produce less robust grammaticality judgments than the syntactic constraints. Judgments of the sentences in 32, based on Kuno 1987, range from unacceptable to fully acceptable (the % symbol indicates mixed judgments).

(32) a. %The idea that John might have cancer worried him.
   b. %That Mary might lose her job made her nervous.

The viewer/viewed relationship is an instantiation of the general reference-point/dominion configuration: The conceived viewer functions as a central part of the context shaping the construal of the material which is thought of as viewed from that point of view. Empathy, which Kuno (1987) identifies as part of the viewing relationship, is the notion that the viewed material is understood to be (wholly or partially) a representation of the thoughts or perceptions of the viewer. The distinction between points of view and other reference points is simply the presence or absence of empathy, which we can assume is a matter of degree. The differences in behavior between points of view and other reference points reflect differences in the strength of conceptual connectivity. In each of the sentences in 32, the viewpoint and the material conceived as viewed are linked only by an implicit relation, unlike the explicit profiled interconnections between elements within the complement chain. We can assume moreover that the appearance of the full nominal in 32 is itself taken by some speakers as a cue indicating that the sentential subject is not to be viewed from the putative viewpoint. The use of a full nominal in the complement chain does not have this effect, as the complement chain involves explicitly-coded interconnections which will not be ignored simply because a full nominal appears.

With sufficient effort, even connections in the complement chain may be overridden, which provides further evidence that the complement chain is a
semantic entity (rather than a purely syntactic construct, exempt from semantic considerations). Verbs which themselves encode viewing relations provide an opportunity to explore the intersection of point-of-view effects with the effects of explicit encoding of interconnections. We can use the verb *tell* as illustration. In 33a, the pronominal object codes a conceived participant in the reported speech event, hence a viewer of the conception described by the embedded clause (which is therefore strongly connected with it and included in its dominion). Merely negating the verb does not remove the interconnections, as the conception that is negated includes the viewing relationship; 33b is therefore ungrammatical as well.

(33) a. *I told her that Sue’s father was a Nazi war criminal.*
    b. *I didn’t tell her that Sue’s father was a Nazi war criminal.*

Kuno (1987) credits Haj Ross with the observation that coreference in examples similar to 32 is improved if the embedded clause can be construed as common knowledge, as illustrated by the contrast in 34. In van Hoek 1993, I explain this effect in terms of mental spaces: when the embedded clause is conceived as accessible only within the mental space corresponding to the viewer’s thoughts, as in 34a, the clause is more strongly connected with the viewer and more likely to be construed within its dominion. When the clausal conception is understood to represent information available to everyone, as in 34b, it is accessible independently of its relationship to the viewer.

(34) a. *That Oscar was all alone frightened him.*
    b. *That Oscar is five points ahead of the other candidates apparently pleases him.*

If the complement chain were a purely syntactic entity, semantic considerations such as Ross’s observation should have no effect on coreference involving complements of a viewing verb such as *tell*. But in fact, when negation of the conceived viewing is combined with the implication that the embedded clause conception can be accessed as part of reality (hence independent of the putative viewer), coreference improves considerably. Exx. 35a–b differ in stress placement (indicated by boldface type) and *de dicto versus de re* construal. While some speakers report no difference in acceptability, roughly half of the speakers asked find 35b significantly more acceptable than 35a.

(35) a. *I never told her that Sue’s father was a Nazi war criminal.* (de dicto reading)
    b. *I never told her that Sue’s father was a Nazi was criminal.* (de re reading)

The fact that speakers do not unanimously accept 35b can be attributed to the salience of the explicit interconnection provided by the verb *tell*. That this interconnection can be partially overridden or ignored under some circumstances is nevertheless significant. As this one example illustrates, probing the fine-grained semantic structure of the complement chain will require detailed examination of the effects of subtle semantic distinctions.

5.4. **Reflexives.** The distribution patterns for reflexive and nonreflexive pronouns are frequently discussed as two sides of the same coin, as the two
categories appear in nearly perfect complementary distribution (see in particular the Binding Conditions as discussed in Chomsky 1981:188). It is not possible to present a full analysis of reflexives here; rather I will simply outline the approach taken within the reference point model. (See van Hoek 1992: Ch. 6 for more detailed discussion; Deane 1992 develops a very similar analysis.)

Reflexives in English can be characterized in terms of both a schematic value and a prototypical value. In its prototypical usage, the nominal profiled by a reflexive corresponds to the direct object of a verb; its antecedent is the subject of the clause (cf. 36). This prototypical configuration is included as part of the meaning of the reflexive—a speaker’s knowledge of the meaning of *himself, herself* etc. includes, in addition to gender, number, and person information, the specifications of the prototypical configuration in which it appears.

(36) a. *Mary saw herself.*
   b. *John cut himself.*

Schematically characterized, a reflexive takes as its antecedent a nominal which is both highly accessible and conceptually adjacent to it, in the sense that the reflexive and its antecedent are directly interconnected by some relation (such as the profile of a verb) in which the antecedent immediately precedes the reflexive (on a path defined for example by prominence, or by point of view; see below).

A number of extensions from the prototype have become conventionally established in English. In 37a, the reflexive is not the primary landmark (direct object), but is rather the secondary landmark. The reflexive in 37b is connected with its antecedent not by a profiled process, but by a perceived viewing (i.e., perceptual) relation (cf. Cantrall 1974). In 37c, the antecedent for the reflexive is the conception of the addressee as participant in the conversation and as viewer of the clause. The interconnecting relation is the construal relation itself—the notion of the addressee’s awareness of the conceptual content of the clause. The emphatic reflexive can be considered to be most distantly extended from the prototype, as it is adjacent to its antecedent only in the flow of attention through the clause. (For more detailed inventory of reflexive schemas in English, see van Hoek 1992:Ch. 6.)

(37) a. *Sally bought a car for herself.*
   b. *Susie heard a story about herself.*
   c. *Somebody like yourself might like this.*
   d. *John himself knows his theory makes no sense.*

It has long been clear that reflexives and (nonreflexive) pronouns are not in strict complementary distribution. There are a number of environments in which either a pronoun or a reflexive may be used. In the model sketched here (developed in further detail in van Hoek 1992: Ch. 6), the appearance of a reflexive is restricted to contexts in which the reflexive can find a sufficiently close antecedent, that is, one which is conceptually adjacent to it in the sense illustrated by the examples above. A slightly more complex question is how

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24 Faltz (1985:3), Kemmer (1993), and Deane (1992) also identify the pattern exemplified in 36 as the prototypical reflexive configuration.
one may rule out the use of a pronoun in the environments in which a reflexive is required. The primary such environment is that in which a direct object corefers with the subject of the same clause. Several researchers have noted that coreference between coarguments is the one environment in which a pronoun is reliably ruled out; a number of proposals have been made to express this (Partee & Bach 1984, Farmer 1984, Reinhart & Reuland 1993). Here I will summarize the CG account, which relies on certain general mechanisms proposed in CG to account for grammaticality judgments.

Grammaticality judgments constitute judgments that a particular expression is congruent with—or in conflict with—conventionally-established patterns in the language, as expressed through schemas. As noted in §2.1, speakers acquire schemas or templates through exposure to actually-occurring expressions, and then use those schemas to sanction new expressions. An expression which conflicts to some extent with a sanctioning schema may be judged anomalous; the extent of anomaly will depend upon the degree of conflict between the specific expression and the schema. Predicting grammaticality judgments requires knowing which schema will be selected as the standard against which the particular expression is compared. A sentence such as (38) is acceptable if it is judged as an example of a pronominal construction without coreference, but it is unacceptable if it is understood to involve coreference—and therefore judged to be a deviant example of a reflexive construction (deviant in that it lacks a reflexive marker).

(38) John saw him.

The selection of a schema is determined by competition for activation among the candidate schemas (Langacker 1987a:428–33). The strength of activation is determined by the extent to which the particular expression matches a schema, and by the degree of entrenchment of a schema—that is, the extent to which a speaker has been exposed to a particular pattern, making it a well-established unit. In intuitive terms, to the extent that a particular expression matches a conventionally-established pattern in the language, the speaker will expect the expression to be in fact an instance of that pattern. If the expression then deviates significantly from the specifications of the schema, it is judged anomalous.

If (38) is understood to involve coreference, it will strongly activate the reflexive prototype schema, as it matches its specifications in every respect except for the absence of a reflexive marker. It will therefore be judged anomalous. One might object that the speaker could just as easily select a schema sanctioning the appearance of a pronoun. A speaker of English no doubt has, as part of his inventory of conventional units, a schema for pronouns which specifies only that the pronoun corefers with some prominent entity (a reference point) in the immediate context. Such a vaguely specified schema would fit (38) with no conflicts, and should therefore lead to (38) being judged a well-formed expression. This maximally vague pronominal schema would not be selected, however, as it does not match (38) in as many particulars as does the reflexive prototype schema. The degree of activation of a schema is determined by both its entrenchment (the extent to which it is a well-established, frequently occurring
pattern) and the extent to which it matches the particular expression in question. In this case, 38 matches the reflexive prototype schema in every particular except for the lack of a reflexive marker (under the reading in which coreference is assumed): it involves coreference between the direct object of a transitive verb and the subject. It matches the pronoun schema to a much lesser extent, simply because the pronoun schema in question is highly nonspecific, requiring only that a pronoun corefer with some antecedent. The far greater specificity of the reflexive schema ensures that it will be selected, and 38 will be judged as a deviant instance of a reflexive construction. Unlike 38, constructions such as 37b–c above allow for the appearance of either a pronoun or a relative. The difference is once again explained by the distinction between explicit and implicit interconnections. In 37b–c, the speaker may choose to highlight the implicit perceptual or conceptual interconnections between participants, through the choice of a reflexive, or may ignore them, in which case a pronoun may be used. The explicitly coded interconnections between coarguments of a verb do not allow for the same degree of flexibility.

6. CONCLUSION. In this paper I have developed a CG analysis of the basic constraints on nominal coreference in English, one which does not rely on autonomous-syntactic tree structures but instead explains the constraints in terms of the semantic interaction between nominals and the contexts in which they are embedded. The analysis offers the potential of not only providing a semantically grounded explanation for the anaphora constraints, but also of unifying the domains of data which have previously been considered to fall under different sets of principles (syntactic constraints versus separate principles governing discourse-level coreference and ‘point of view’ considerations). While much work remains to be done to fully explicate and unify these areas, I believe that the model presented here has at the least established the viability of the approach.

REFERENCES


25 A speaker could of course resolve the conflict by assuming disjoint reference, and no doubt would do so in a real-life context; the judgment of anomaly results only when the speaker accepts the assumption that coreference is intended.


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