CHAPTER 3. NULL OBJECTS IN ENGLISH

3.1. INTRODUCTION

As mentioned in Chapter 1, null arguments in English also occur in object position. However, these null objects are a distinct phenomena from the null subjects discussed in Chapter 2, the most immediately obvious differences being that null objects generally are not limited to conversational registers and are lexically constrained.

In fact, there are actually a variety of types of null objects in English and it is impossible for one explanation to encompass them all. These null objects have varied discourse properties, behaving to a greater or lesser degree like pronominals or inferables depending on the type of verb.

In this chapter, I consider all of these characteristics. In particular, I describe the varieties of null objects in English and posit a grammatical characterization of each type that accounts for its syntactic limitations and its effect on semantics and discourse. I then formalize these semantic/discourse effects.

It should be stated clearly from the start, that an examination of English null objects leads one into the murky waters of the distinction between arguments of verbs and information available from world knowledge about events. This is, in part, what makes the study of null objects interesting. A well-defined model of the grammar of English and the English lexicon must make choices about what constitutes linguistic knowledge and what does not. I discuss issues involved in making such a distinction, consider them with respect to null objects, and finally explain why some uncertainty remains.

3.1.1. The Data

For the purposes of this thesis, I am looking only at null objects of verbs, e.g. I am not concerned with nominalizations, nominal or adjectival complements, or compounds. Although there are some interesting treatments of these phenomena (cf. Roeper 1987, Williams 1981, Di Scuillo 1989) a detailed discussion of these treatments is beyond the scope of this study.

I also exclude null PP complements and null NPs inside of PPs from this study. Null PPs have been included in some prior treatments (cf. Fillmore 1986, Culy 1987) but, though it may well be the case that they are similar to null objects, they are also complicated by certain unresolved issues about prepositions in general. Most importantly, a consideration of null PP complements requires distinguishing them from PP modifiers, and this is not always a straightforward task. In addition, PPs introduce the complexities of so-called 'verb-particle' constructions (such as wash out , turn over, and bring in), where the preposition may be re-analyzed as a component of V. If some or all null PPs are, in fact, the same type of phenomenon as null NPs then including the null PPs only serves to complicate our study unnecessarily. In the event that they are a completely different phenomenon, an adequate treatment of them is dependent on a resolution of these other issues. I therefore defer the question of the nature of null PPs to another study.

Below are examples of the types of constructions that are considered in this chapter:

(1). The vice-president called **0**.

(2). At seven o'clock, everyone left **0**.

(3). I'm ironing **0**, wouldja believe that?

(4). Rich sang **0** for the crowd.

(5). Sue slept **0**.

(6). This sign cautions **0** against avalanches. (from Rizzi 1986)

(7). Greg dressed **0** after his shower.

(8). You wash **0** and I'll dry **0**.

(9). What do you do when you don't know the answer? I guess **0**.

(10). I should answer **0**?

(11). Shake **0** well before using **0**.

(12). This book was bought for you to read **0**. (from Culy 1987)

Examples (1)-(9) represent a variety of constructions found in at least some dialect or register of English which can be examined as possible cases of null object constructions. In the next section, I will discuss some criteria for determining the presence of a null object and apply these criteria to these examples.

Different types of null objects may be characterized by the type of verb with which they occur and/or by the type of discourse constraints on their usage. There already exist a number of studies which either examine one aspect of a particular type or a small subset of types of null object, or provide a large-scale lexical organization for verbs, including a variety of classifications involving alternations between the appearance and the non-appearance of a direct object (a very good example of the latter being Levin (1989)). These works come from a wide range of different linguistic specializations, (ranging from semanticians, to syntacticians, to lexicographers, to psycholinguists) and from a variety of different schools of thought. What has been lacking up to now, is a broad study focused on the grammatical analysis and diverse discourse properties of a large variety of types of English null objects. This chapter is intended to provide such a treatment. Where necessary, I try to point out the contributions and limitations of the existing research and the conflicts between the various claims that have been made, while also offering my own thoughts about the nature of null objects in English.

Since null objects are a rather heterogeneous set, it is necessary to consider the grammatical properties of the various types individually. A more complete discussion of the discourse properties that define null object types is found in section 3.3, but a preliminary one follows below to point out the differences that are relevant for determining grammatical form.

In particular, I look at null objects such as those in examples (1) and (2) which, loosely speaking, require a salient discourse antecedent and are limited to certain verbs. I refer to the verbs in this class as *Salient Object Alternation* (SOA) verbs.

I also look at the types of null objects found in (3) and (4) which occur with a different set of verbs and which may not co-refer with a discourse antecedent, but which do seem to create a discoure entity available for subsequent reference. Following previous work, I refer to the verbs that take this type of null object as *Indefinite Object Alternation* (IOA) verbs.

I next consider *Generic Object Alternation* (GOA) verbs, which only take overt objects that, in the absence of modifiers, convey no additional information over that given by the semantic restrictions of the verb itself. (5), is an example of this type and I will argue that these verbs do *not* take null objects.

GOA verbs are distinct from those which allow *Arbitrary Object Alternation* (AOA). With AOA verbs, the object may be non-overt only if it is arbitrary in reference and the clause has a 'generic' time reference (cf. DeClerck 1991 for one discussion of this term). I discuss whether examples such as (15) below and others found in Levin (1989) should be treated separately from this type.

(15). This dog bites.

Reflexive Object Alternation (ROA) is another type of lexically-constrained null object which this chapter discusses. Verbs of this type require that the null object be coindexed with the subject, as shown in example (7).

There is also at least one type of null object which is apparently not lexically-constrained.[1] *Habitual Object Alternation* (HOA) appears to allow null objects only when there is a repeated or habitual action, as in example (8).

[1]Fellbaum and Kegl (1989) also make this distinction between lexically constrained and non-lexically-constrained missing arguments in general, though they do not discuss this case.

I have also included examples that are only found in a particular dialect or register of English, such as those in (10) and (11), for the sake of completeness. This chapter, however, is concerned primarily with those null objects found in 'standard' American English. A discussion of variation can be found in chapter 4.

Finally, purpose clauses, such as example (12), are discussed briefly.

There are existing hypotheses for some of these constructions (in fact, where noted, I have borrowed the exact examples), but others from the list have been essentially ignored. Perhaps more importantly, this is the first time that they have been considered together in search of the grammatical and disourse pattern(s) of null objects in English. It is possible that some relevant constructions have been omitted from this list. I am hopeful, however, that the constructions that are contained herein form a sufficiently diverse set to allow for some generalizations.

In the following sections, I first discuss the criteria for distinguishing between null objects and 'true' intransitive clauses. I then consider the various possible grammatical analyses of English null objects and explain why I adopt the analysis that they are implicit arguments affected only in the lexicon. I give a specific lexical analysis, using work on lexical conceptual structures by Jackendoff (1987, 1990, 1993) and Hale and Keyser (1989, 1990).

Following the discussion of grammatical properties, I examine the different types of null objects in English with respect to their differing discourse properties. I conclude with a brief discussion of related phenomena such as tag questions and middle constructions.

3.1.2. Determining the Existence of a Null Object

Following the definition of null arguments in Chapter 1, the term *null object* is defined here as a non-overt internal argument of any verb that also may take an overt pronominal internal argument with

the same semantic role (though perhaps not the exact same semantic interpretation), and for which there is syntactic or discourse evidence of its presence.[2] Again, this definition does not presuppose any particular syntactic analysis of null objects. In particular, it is not assumed, a priori, that the analysis of the null object parallels that of the overt, nor that there is a single analysis which covers all cases of null objects.

The phenomena covered by this term in English show some superficial similarities with the null anaphora found in numerous other languages. Nonetheless, English is an exceptional case. As discussed in chapter 1, missing arguments are much more prevalent in other languages of certain types, some of which are so-called discourse-oriented or topic-prominent languages (eg., Japanese, Korean) , and some of which are not (eg., Yiddish, Spanish, Italian). A number of attempts have been made to categorize types of languages in terms of the null anaphora, including null objects, that they allow, but none have been able to capture the full spectrum. The relevance of this study of English null objects to comparative linguistics will be discussed in Chapter 6.

This study is partially concerned with the discourse effects of these "missing" arguments in English, which may be distinguished from intransitive uses of verbs by their effect on the current set of discourse entities. Possible effects include the addition of a new member and/or a change in the saliency of an existing member. In other words, rather than having a syntax-based definition, null objects are alternatively defined as instances of non-overt reference to a particular (though perhaps new or ambiguously determined) discourse entity.[3]

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[2]I am not intending to rule out the existence of true transitive-intransitive alternation; under my definition, it is the assignment of a semantic role by the verb that is crucially relevant to the existence of a null object.

[3]If this definition is correct, it has the consequence that a small subset of those discourse references that have been described as "inferables" should instead be treated as grammatically-represented null objects. I will discuss these inferables later in this chapter and discuss the fuzzy boundary between grammar and pragmatics in these cases.

As an example, the implicit existence of a sleeping location in (16) is *not* an instance of a null argument since this sleeping location may neither have a discourse antecedent nor become a salient part of the discourse. The fact that it may not be bound by an antecedent is shown in (17), where, even when an appropriate location is already available in the discourse, the inference that this is actually the sleeping location is easily cancelled. This contrasts with the infelicity that results from trying to cancel the coreference with an overt pronoun in (18). In other words, because the relationship between where the baby sleeps and the crib is cancelable in (17), it is simply an inference based on our knowledge of the situation rather than grammatical co-indexing.

(16). The baby slept peacefully.

(17). a. 'Handy' Uncle Fred made little Robby a new crib.

b. The baby slept well that night -- but not in the uncomfortable crib.

(18). a. 'Handy' Uncle Fred made little Robby a new crib.

b. *The baby slept well in it last night -- but not in the uncomfortable crib.

However, the lack of a required antecedent is not sufficient to demonstrate that there is no non-overt object present in a construction. It shows only that, if there is a null object, it does not behave like a pronominal. Therefore, we must additionally look at whether there may be any subsequent pronominal reference back to an entity that could fill this argument position. As is shown in (19)a, implicit sleeping locations also do not become discourse entities available for subsequent reference.

(19). a. The baby slept peacefully.

b. *It was very comfortable.

Though it is true that there must be some relationship between (17)a and (17)b above, this relationship is determined by constraints on conversational relevance (cf. Grice 1967), not on any requirement of the verb. Similarly in (20)a, which includes the manifestly intransitive verb exist, it is nonetheless clear from our knowledge of physics and the world that the existence of reindeer must entail that they have a physical location or locations. Again, however, this knowledge does not result in the

availability of a new discourse entity in the discourse context identified with that location. This explains the unacceptability of (20)b in the given context.

(20)a. Reindeer exist.

b. # It is a lovely wilderness.

Once again, a distinction is made between entities that a speaker/hearer may expect to be related to an action or state and those that are required by the semantics of the verb. This distinction should become clearer as we consider sentences which do contain null objects.

The properties of null anaphora given above can be used as tests for null objects in (3)-(11). Below are three tests which may be used to determine whether or not a clause contains a null argument:

(21). TESTS FOR NULL OBJECTS IN ENGLISH:

i. Can the verb have an overt internal argument?

ii. Can an overt object carry the same basic semantic role as the hypothesized null object?

iii. Does the hypothesized null object refer to a particular discourse entity (i.e., does it somehow affect the set of entities/propositions that are salient in the discourse?) There are two ways that this test may be satisfied:

a. The utterance requires an antecedent for the object in the discourse.

b. The hypothesized null object adds a new entity into the discourse context.

Examples (22)-(33), revised versions of the sentences already given above, show which of the list of possible null object constructions can take overt objects.

(22). The vice-president called you/him/us....

(23). At seven o'clock, everyone left there.

(24). I'm ironing something , wouldja believe that?

(25). Rich sang it for the crowd.

(26). Sue slept * it/*a sleep/a deep sleep.

(27). This sign cautions one/people against avalanches.

(28). Greg dressed himself after his shower.

(29). You wash them and I'll dry them.

(30). What do you do when you don't know the answer? I guess it.

(31). I should answer it?

(32). Shake it well before using it.

(33). *This book was bought for you to read it.

This first test for the existence of a null object once again raises questions about Generic Object Alternation verbs like sleep in (26). Though these verbs technically do appear to allow an overt object, they have the unusual property of allowing only a very particular modified full noun phrase to fill this position, not pronouns or even similar but unmodified referring expressions. This suggests that there is something highly marked about the presence of an object. This property is discussed in more detail later in this chapter.

The only other sentence type that fails the overt pronoun test is the purpose clause, as in (33). An alternative analysis of purpose clauses as extraction sites has already been proposed (cf. Culy 1987); I will henceforth assume Culy's analysis and give purpose clauses no further consideration in this thesis.

The second test described above distinguishes between null object constructions and sentences that superficially resemble them but that, in fact, are not compatible semantically. For instance, ergative constructions such as (34) below can not possibly have a null object with the same semantic role as the object in transitive uses of these verbs (such as (35)) because the *subject* of the ergative construction in fact already fills that role. (cf. Hale and Keyser (1986)).

(34). The horse jumped.

(35). John jumped the horse.

The third and final test is the one that distinguishes certain true transitive/intransitive alternations from overt/nonovert alternations. Since this test is concerned with the specific details of the discourse properties of different types of null objects, it will be reserved for the sections of this chapter that treat each of these types.

3.2. GRAMMATICAL PROPERTIES OF NULL OBJECTS IN ENGLISH

This section deals with if, where, and how the various types of null objects should be represented in a grammatical model of English.[4] The overlap between the discussion of grammatical representation and the discussion of discourse features is even more unavoidable here than it was in the previous chapter, so I will again cross-reference wherever necessary. I begin with a discussion of the possible analyses and how they may be evaluated.

3.2.1. Possible Analyses

A priori, the possible explanations for apparent null objects in English fall into three general categories: syntactic explanations, pragmatic explanations (i.e., no null object), and lexical explanations. Each of these explanations has unique characteristics; we can therefore choose between them by seeing which characteristics actually hold.

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[4]Note that I am including a discussion of generic object alternation even though I have already suggested that GOA is not an alternation involving a null object (and will argue that the additional evidence supports this claim.) Because GOA verbs and the other types of verbs that I consider have been included together in previous discussions of transtitivity alternations (cf. Levin (1989), Fellbaum and Kegl (1989)) I want to be clear about the difference between each type.

3.2.1.1. Syntactic explanations

By *syntactic explanation* I mean any analysis which argues that the null object is represented in the syntactic structure of the sentence/utterance. This category includes more than one specific explanation, eg., the null object may be a phonologically null (zero) pronominal linked to the object position just as an overt pronoun would be, the null object may be base generated or 'hardwired' to the syntactic structure and have no independent lexical existence, the null object may actually be represented in the syntactic structure as an overt object and be deleted somehow at PF, the null object may be the result of syntactic deletion, etc...

All of the above explanations share the prediction that the null object should be available for interaction with the binding principles. In the case of a zero pronominal, this prediction is obvious but it is easy to show that it must be true in the other cases as well.

For instance, the binding principles make no distinctions based on how a particular expression enters the syntactic structure. Therefore a null object that is 'base-generated' with a syntactic structure should not behave differently, with respect to these principles, than its overt equivalent. Similarly, phonological deletions should have no impact on syntactic effects.

In the case of syntactic deletions, the principle of recoverability of deletion requires that all syntactic deletions be retrievable for the purposes of semantic interpretation.[5] Though there are actually few constructions that are clear cases of such syntactic deletion we can consider evidence from a few that have been argued to result from this process.

VP-ellipsis, for instance, has been argued to be the result of syntactic deletion (cf. Sag 1980) but has also been argued to be a type of anaphora (cf. Hardt 1993) . Assuming for the moment that vp-ellipsis

[5]See a related discussion of syntactic deletions in Chapter 2 of this thesis.

does in fact involve deletion, we can examine whether the 'recovered' information appears to be susceptible to binding principles. Examples like (36) below suggest that :

(36). a. Bill$_i$ likes him$_{*i/j}$.

b. Harry$_{*j/k}$ does too.

In this example, Bill , under principle B, is barred from being an antecedent to him. Similarly, Harry can not be the one who is liked in (36)b. so, if this is a case of syntactic deletion, coreference in this utterance would apparently also constitute a binding principle violation.

Replies to questions have been argued to be a clearer case of syntactic deletion.[6] (37) is an example taken from Morgan (1973) which demonstrates that the interpretation of replies is constrained by principle C and (38) is another an example from the same source which demonstrates principle A effects.

(37). a. Where is his$_i$ wife staying?

b. In John's$_{*i/j}$ apartment.

(38). a. Who does John want to shave?

b. himself/*him/*herself/*yourself/etc...

To clarify, I am not attempting to use these few examples to argue that either VP-deletion or replies to questions constitute actual cases of syntactic deletion. I am simply showing that the other existing cases of missing arguments that have been treated by at least some researchers as constructions resulting from syntactic deletion are still under the influence of the binding condtions. The important point is that, because of the condition on recoverability of deletion, this is exactly what would be expected for any null argument resulting from such an operation. Therefore, like the other syntactic explanations for null objects, the syntactic deletion analysis can be ruled out if the binding principles do not apply.[7]

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[6]However, as mentioned in Chapter 2, a subset of the sentences included in this analysis may be better treated as base-generated nonsentential utterances (cf. Barton (1991), Stainton (1992, 1993)).

[7]Of course, each specific syntactic explanation also makes its own predictions about the characteristics of null objects. For instance, if the syntactic-deletion explanation were the correct one, we would expect recoverability to apply. We would also expect Kuno (1987)'s "pecking order of deletion" to

As discussed in Chapter 1, various syntactic explanations have been presented for null objects in Japanese and other discourse-oriented languages. There have also been a number of arguments for the existence of zero pronominal objects that are available just for particular constructions in a variety of other languages, including arbitrary objects in Italian and French (cf. Rizzi 1986 and Authier 1992). Few attempts have been made to make the same arguments for English, but there are some notable exceptions.

Culy (1987) argues this case for null objects in recipe constructions in English (a separate issue which will be discussed in Chapter 4) and then adds that he rejects the idea of a difference between the grammar of recipe contexts and the grammar of 'Standard' English. In particular, he argues that null objects in general are zero anaphors.[8] He hypothesizes that grammar is not subject to register variation, that only the use of grammar varies across registers. His arguments against a lexical analysis are threefold: verbs should only license arguments, not introduce them (this is simply an intuitive argument); the lack of morphological marking, which often accompanies changes in verbal structure, is odd if null objects are the result of such a process; and finally, the lexicon would need to be greatly expanded in the alternative analysis, especially for recipe contexts.

Culy does not consider binding principle facts, and the considerations above seem to me to be secondary to basic syntactic characteristics. I therefore remain more concerned with binding principle effects in my own analysis.[9]

Culy is not alone in his analysis however. Zwicky (1987) also argues for the existence of syntactically present null objects in English. He proposes that the feature [+NULL] from Generalized

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apply. These tests, however, are only relevant to this study if the more general tests suggest that some sort of syntactic analysis is correct.

[8]To prevent confusion, I should note that Culy calls his approach a 'lexical' analysis because he is suggesting that there is a phonologically null lexical item in object position. He only uses the term 'syntactic' to refer to deletion analyses. I, on the other hand, reserve the term 'lexical' for those cases where the object is present in the lexicon but *does not* project to syntax. (Culy refers to these cases as 'semantic' and he does not distinguish between those cases where null objects are present in lexical structure and true intransitives.) I will continue to use my own terminology in a discussion of his work.

[9]I address Culy's arguments against a lexical analysis in various sections on specific types of null objects.

Phrase Structure Grammar can be extended to apply to the objects of certain verbs and that that these verbs than allow the object position to be filled by a lexical constituent that shares this feature.[10] (As discussed in Chapter 2, this is the same analysis he adopts for null subjects.) These [+NULL] constituents are 'context-bound' in a manner which appears identical to the binding of pronouns. Since he also does not posit or in any way independently motivate the existence of a new type of referring expression, his null objects should presumably also be subject to the binding principles.[11]

Finally, Bouchard (1987) argues that arbitrary null objects in English show as many syntactic properties as those in Italian. His arguments do refer directly to the binding principles and I return to them later in this chapter, in the discussion of this type of null object.

3.2.1.2. Pragmatic explanations

The optional argument (pragmatic) explanation supposes that the verb may optionally have no linguistic representation for an object, even in the lexicon. In other words, this explanation asserts that there is a true transitive/intransitive alternation at work. In this situation we would expect two characteristics: First, there would be no evidence of a null object in the syntax; second, any indication of discourse impacts from a null object should behave like pragmatically inferable information rather than like lexically-introduced information.

Rice (1988) basically argues for this analysis for the missing objects of 'neutral' verbs.[12] More specifically, she denies the existence of a lexicon with definable lexical entries and suggests that in its

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[10]Note that this is a departure from the highly constrained use of the [+NULL] feature in GPSG (cf. Gazdar et al. 1985).

[11]In fact, the only work that I am aware of which has posited a fourth type of referring expression is Lasnik (1991) who introduces the idea that "epithets" have there own binding properties. Huang (1991) extends this analysis to "zero epithets" in Chinese, but not in English.

[12]Note that her account makes no distinction between types of null objects, nor does it provide an environment where such a distinction can be made.

place there is a dynamic, interconnected network that includes semantic, phonological and pragmatic information. Other work dealing with an analysis of this sort for particular types of null objects will be discussed in the relevant sections.

3.2.1.3. Lexical explanations

The lexical analysis approach requires that an argument be present in the lexicon but not projected to syntactic structure. Like the optional argument/inferable entity approach discussed above, a lexical analysis predicts that the null object does not interact with the binding principles.[13] However, it does predict the presence of semantic entities which have an impact on discourse structure. The lexical approach has been used in a number of studies of null objects (cf. Fellbaum and Kegl 1989, Jackendoff 1990). However, there has been virtually no discussion in any of these works of why this is an appropriate analysis -- and discourse factors have not been considered at all.

The lexical approach has also been used to treat a number of other phenomena. For instance, Di Sciullo (1987) argues that, in English compounds and French reflexives, 'implicit' arguments are "affected" in the lexicon, the result being that these arguments are not projected into the syntactic representation of the sentence. Hale, Kenneth and Jay Keyser (1986) also consider a lexical analysis of ergatives (unaccusatives), active intransitives (unergatives), and middle constructions.

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[13]But see Williams (1985, 1987) for a discussion of binding principles based on theta-roles rather than NPs, and applied to the `implicit' agents of certain nominalizations. Though Williams argues for a lexical analysis of these cases, a possible alternative analysis could rely on the presence of morphological information not found with null objects (cf. Roeper 1987) for a discussion of affixation and implicit arguments in these cases.) Another possibility (suggested for other reasons in DiScuillo 1989) is that arguments may be affected in the lexicon at different levels, resulting in different effects. For the purposes of this work, I simply assume the more classic approach to binding principles but I believe the results are equally compatible with these alternatives.

3.2.2. Grammatical Properties of Salient Null Objects in English

In this section I discuss the grammatical properties of what I refer to as Salient Object Alternation (SOA). The verbs in this lexically-constrained category are roughly the same as those that would be included in what Fillmore (1986) and others have called 'definite' object alternations. Their use of that term corresponds, however, to an underspecification of what I will demonstrate to be the real (discourse) factor affecting the availability of a null object with one of these verbs.

This category includes the call-type verbs such as enter, leave, attend, win, answer. It has been posited that this alternation is best represented as a zero pronominal (cf. Culy (1987), Zwicky (1987)), as several separate lexical entries for each verb (cf. Fillmore (1986)), and as lexical variation with an implicit argument (cf. Fellbaum and Kegl (1989), Jackendoff (1990)). Of these, only Fillmore (1986) discusses the reasons for the specific position taken, and will I attempt to address those reasons in the appropriate place.

3.2.2.1. Arguments against a syntactic analysis

At first glance, there appears to be some evidence that the interpretation of English null objects in constructions headed by verbs which allow salient object alternation (SOA) is influenced by binding principle effects. For example, in (39) below, sentence (c3) seems to behave roughly like (c2), i.e., switching to a null object does not seem to make coreference with the subject (*John)* much better. A priori, this could be due to a principle C violation.

(39). a. Who got John upset?

b. Well, I guess I did.

c1. I called John$_i$ yesterday to cheer him$_i$ up.

c2. *I called him$_i$ yesterday to cheer John$_i$ up.

c3. ??I called 0_i yesterday to cheer John$_i$ up.

c4. I called him$_i$ yesterday to cheer him$_i$ up.

c5. I called 0_i yesterday to cheer him$_i$ up.

Notice, however, that the discourse segment I have introduced leads to just as strong judgments against (40)d below, though no binding principles may be involved.

(40). a. Who got John upset?

b. Well I guess I did.

c. I called yesterday.

d. ??I wanted to cheer John up.

Discourse status clearly plays the crucial role in this example, and it could be having the same effect in example (39). Therefore, principle C violations are not necessarily the best explanation for the unacceptabilty of (39)c. In other words, if we can find other binding principle effects then we may take those as independent evidence for a syntactically present null object and know that principle C certainly applies as well, but if not, the same discourse factors that affect (40)d. should probably be used to account for (39)c.

At first glance, salient null objects also seem to show principle B effects:

(41). a: Did Mary get in trouble at school yesterday?

b1. Yes, her teacher called her mother about her.

b2: *Yes, her teacher called Mary(i) about her(i).

b3: *Yes, her teacher called her(i) about her(i).

b4: ?Yes, her teacher called 0(i) about her(i).

An adequate explanation here however, should also explain the relative difference in acceptability between (41)b3 and (41)b4, and principle B can not do that.[14]

[14]The awkwardness of b4 can be attributed to the fact that the context here does not strongly favor the reading where the one called is Mary. The preferred interpretation in this context is that the

Also, crucially, in the same basic context, principle A fails completely to force the coreference of an anaphor to a null SOA object even though there *is* coreference when an overt NP appears in the same position. In example (42) only the a. sentence, the one with the non-overt object, is ungrammatical; even d., though admittedly requiring an odd context, is grammatically acceptable.

(42). a. *The teacher$_i$ called about references to herself$_j$ in the school paper.

b. The teacher called Mary about references to herself.

c. The teacher called her about references to herself.

d. The teacher called herself about references to herself.

In addition to these problems with the application of binding principles, a syntactic explanation would be left with the difficult task of distinguishing between SOA verbs and otherwise similar verbs which only assign a thematic role to objects if there is an *overt* argument. In other words, the zero pronominal would have to have be restricted to the object position of particular verbs. For instance in (43)a. the null object is not licensed even though the syntactic and thematic structure is otherwise the same as in (43)b.

(43). a. *John penetrated.

b. John entered.

3.2.2.2. Arguments against a pragmatic explanation

Most importantly, a pragmatic explanation where the verb is optionally intransitive, does not account for the salient nature of the missing arguments in SOA verbs. This saliency requirement is

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teacher called the *speaker*. A somewhat more complicated discourse can decrease the awkwardness, as seen below:

(i) A: Did Mary get in trouble at school yesterday?
B: Yes, I saw her today and she said that it was terrible.
She said that usually her teacher talks to her about problems with other students but that that evening she called about her.

illustrated in example (44) below, where the interpretation must be that 'the daughter' is calling a specific person, already present in the context, i.e. her mother.

(44). [from a talk show discussion about women who still look to their mothers for approval]

A: {...} It was the biggest day of my life and **my mother**$_1$ was proud of me, yes, but it jus -- just something wasn't right. "We -- let's change this hair around. Let's redo this bow." It was never good enough!

B: But that's why it's turned around when the daughter feels -- the daughter keeps calling **0**$_1$ because from the day the mother reached out and brushed that hair when she was three years old -- the daughter is saying, "at least now, I'm 32 now, I've got this great lover, now she'll say everything is wonderful."

A pragmatic explanation provides no place in the grammar for this saliency requirement to be expressed. Neither can a pragmatic explanation account for the fact that the saliency constraints differ across types of null objects, as will be seen in the subsequent sections.

3.2.2.3. Arguments for a lexical analysis

Unlike a pragmatic explanation, a lexical representation of an underlying, implicit object allows verbs like call to require that the object be salient; this can be represented as a lexical property of the verb. It also has the benefit of allowing for subsequent pronominal reference to the entity represented by the implicit object since it remains in the set of salient discourse entities. I will discuss these properties of salient null objects in more detail in the section of the chapter on discourse properties. For now, I simply conclude that the lexical analysis is the only one of the three discussed that adequately handles the properties of SOA verbs.

At a certain level of generalization, this is the proposal made by Fillmore (1986) as well. However, he more specifically argues that the lexicon must include a separate entry for each of the verbs when it takes a null object because the semantic restrictions on the null object are more constrained than those on the overt object. I propose an alternative explanation for this apparent contrast in my discussion later in this chapter of discourse properties of null objects.

3.2.3. Grammatical Properties of Indefinite Null Objects in English

This category, also known as "Unspecified NP deletion" (cf. Fraser and Ross 1970, Browne 1971, Grinder and Postal 1971, Mittwoch 1971, Dowty 1978), includes null objects of the eat -type verbs such as eat, drink, dance, write, and sing. It has sometimes been suggested that these verbs simply have transitivity alternations (cf. Allerton 1975, Fodor and Fodor 1980), that the null object is the result of deletion (cf. Browne 1971), that the null object is a zero pronominal (Culy 1987), and that the null object is implicit in the lexicon (cf. Hale and Keyser 1986, Fellbaum and Kegl 1989, Jackendoff 1990).[15] Of these, only Fodor and Fodor discussed their motivations directly and I will refer to these in section 3.2.3.2.

3.2.3.1. Arguments against a syntactic explanation

Once again, there is a clear difference in behavior between overt object pronouns and null objects with these types of verbs. For example, (45)a. is fine even if what Joyce ate was the turkey, while (45)b, which has an overt pronoun, eliminates this interpretation.

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[15]It has also been suggested in Grinder and Postal (1971) that it is not important to distinguish whether these null object are resulting from syntactic deletion or are just semantically represented (i.e., lexically?). We know, however, from our discussion in Chapter 2, that these two analyses have significant differences.

(45) a. Joyce ate this afternoon because the turkey was ready.

b. *Joyce ate it$_i$ this afternoon because the turkey$_i$ was ready.

If the null object in (45)a was syntactically present, principle C would have ruled out the inference in both cases. We can therefore conclude that the object of an IOA verb like eat, when it is not overt, is not present in the syntactic structure of the sentence.

As additional evidence, a syntactic analysis is inconsistent with the fact that these verbs do not allow their null objects to have antecedents (a characteristic described in more detail in the section of this chapter on discourse properties.) The only syntactic explanation for this constraint would involve positing a special type of empty category that differs from a zero pronominal in this respect.

3.2.3.2. Arguments against a pragmatic analysis

First, like the SOA verbs, the IOA verbs exhibit a lexical variation that seems independent of pragmatic factors. This is demonstrated by the contrast in (46).

(46). a. *John consumed.

b. John ate.

More importantly, these null objects, may subsequently be referred to with a pronoun, a property not typical of pragmatic inferables. (This property too will be discussed further in the section on IOA discourse properties.)

3.2.3.3. Arguments for a lexical analysis

Having argued that IOA null objects do not interact with binding principles and yet do have discourse effects associated with overt arguments, we are left with only the lexical analysis. Like SOA

null objects, these null objects are present in the lexical representation but not projected to the syntactic representation of the sentences they occur in.

3.2.4. Grammatical Properties of Generic Object Alternations in English

Some examples of verbs in the GOA category are dream, sleep, laugh, weep, etc...

As discussed above, these verbs allow only a full cognate NP in object position and then only in marked contexts. Following Rice (1988), I claim that these GOA constructions are true intransitives (with a highly restricted transitive form as well). The argument against a syntactic representation in this case is that an overt pronominal argument is not possible with these verbs. Nor is it possible to distinguish the introduction of a discourse entity here other than the event reference itself. (See (47) below.)

(47). John slept last night. #It was deep.

The only remaining possibility then is that there is no null object with these verbs.

As a final note on GOAs, I should point out that Rice (1988) and Fellbaum and Kegl (1989) include verbs like sing and dance in this category, though I include them with IOA verbs.[16] Rice in particular argues that like other GOA verbs, these only allow cognate objects if they provide additional information. She then suggests that the reason "sing a song" is acceptable though "cry a cry" is not is that the additional information supplied by the overt object is that which makes it a TYPE rather than a reference to a single token. She argues that songs are pre-composed things that already exist and that singing is just one use of them. (versus say "dreams") I'm not very convinced by this argument, and find the possibility of pronominal objects in these verbs to be a telling difference. Levin (1989) resolves the issue for her purposes by including them in both categories.

[16]This represents a change from Cote (1992) in which they were included with GOA verbs.

3.2.5. Grammatical Properties of Arbitrary Null Objects in English

As already mentioned, previous discussions of this category have been tied to discussions of 'pro-arb' and to similar examples in Italian and French. Bouchard (1987) has claimed that there are similar binding principle effects in English, but I have re-analysed his examples, and I argue that the effects he notices are predictable, given the discourse properties of arbitrary implicit objects.[17] Because the arguments here are so completely bound up with the previous cross-linguistic discussions and with the discourse properties of these null objects, I am organizing this section somewhat differently.

Examples of verbs in AOA category include warn, caution, and advise, as well as a large number of amuse-type verbs (cf. Levin (1989)) in sentences such as (48) below.[18]

(48). That movie always shocks. (Levin 1989:9)

The distinction between the empty category *pro-arb* that would apply for these verbs, and an implicit argument has been somewhat more difficult to pin down than the other cases. The major complicating factor is that, like implicit arguments, pro-arb may not be dependent on the presence of agreement features. (49) below is an example of just such an a priori ambiguous construction.

(49). The instructions caution **0** about possible electric shocks.

Like Italian and French, English allows an arbitrary interpretation for an unexpressed object (represented in the examples by '**0**') within constructions with generic time reference. Rizzi (1986) argues that, though the constructions are superficially similar, the Italian and French cases involve a pronominal empty category, *pro-arb,* while the English analysis requires some type of implicit argument. Bouchard (1987) argues that the constructions noted by Rizzi, in which English arbitrary null objects do

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[17]Most of this section was presented as a paper at the LSA in January, 1994. (cf. cote 1994)

[18]Fellbaum and Kegl (1989) also include some examples which may properly belong in this category but may also be somewhat idiomatic, eg.:

(i). Jesus saves.

(ii). Love heals.

not seem to behave like pronominals, can be attributed to other structural differences between the languages. He suggests that the same basic analysis should be used for arbitrary null objects in all three languages. As evidence, he considers additional examples of apparent binding effects in English, where the behavior of the unexpressed argument seems to be as active in English syntax as it is in Italian.

In this section, I dispute the evidence of these additional examples, arguing instead that the unexpressed objects in English verbs of this type exhibit the expected discourse effects for implicit arguments with arbitrary reference.

3.2.5.1. Contrasting Italian and English

Rizzi bases the distinction between Italian and English on three basic types of evidence. The first of these is a contrast in the control structures involving arbitrary null objects in Italian and English. As can be seen in (50) below, the arbitrary null object in Italian appears to be able to control PRO while the English arbitrary null object can not.

(50). a. Questo conduce **0** a PRO concludere quanto segue.

b. *This leads to conclude what follows. (Rizzi 1986)

The second type of evidence is a consideration of the effects of principle A binding in these constructions. Rizzi observes three different structures in which Italian arbitrary null objects bind anaphors.

(51). a. Un bravo psicanalista púo restituire **0** a se stessi.

b. *A good psychoanalyst can give **0** back to oneself. (Rizzi 1986)

(52). a. Un dottore serio visita $\mathbf{0}_i$ nudi_i .

b. * a serious doctor visits **0** nude. (Rizzi 1986)

(53). a. Questo musica rende **0** allegri.

b. *This music renders **0** happy. (Rizzi 1986)

The final piece of evidence he offers is the strong difference between English and Italian with respect to productivity of arbitrary null objects. In Italian, the availability of arbitrary null objects seems to be virtually independent of the specific verb or verb type. English, by contrast, allows arbitrary null objects only with a specific set of lexically-specified verbs. In fact, verbs similar in meaning often differ in whether they allow arbitrary null objects, as shown in (6).

(54). a. The evidence leads people/0 to no clear conclusions.

b. The evidence brings people/*0 to no clear conclusions.

3.2.5.2. Bouchard's analysis

Bouchard (1987) disagrees with Rizzi, arguing that the same analysis of arbitrary null objects should be used for Italian and French as is used for English. Hs suggests that the the difference in principle A binding effects observed by Rizzi can be accounted for by an independent structural difference. Briefly, he assumes that PRO and reflexives can both be either anaphoric or pronominal depending on whether they are antecedent-governed or not. If they are not, as he argues is the case in Italian and French null object constructions, then thematic and pragmatic factors can determine coreference. If they are antecedent-governed, as in English, then the subject is the syntactic antecedent, causing a conflict between 'syntactically-oriented' binding and 'thematically-oriented' binding by arbitrary null objects. The reader is referred to his paper for a detailed discussion of this analysis.[19]

The motivation for Bouchard's alternative analysis comes from other binding evidence, i.e., principle B and C effects. I will discuss this data below, but first I will mention more recent data from

[19]Bouchard's analysis as given seems to depend on arbitrary null objects in English, Italian and French *all* being implicit. However, he states early in his paper that he is uncommitted as to whether they are all syntactically realized or not. Presumably, therefore he believes that there may be some parallel, syntactic explanation which can include English. This alternative, however, is not discussed and I therefore am continuing to assume that English arbitrary null objects, like other null objects in English (cf. Fillmore 1986, Cote 1992, 1993), are implicit.

French, offered by Authier (1992), which suggests once again that the Italian and French null objects must be syntactically-realized.

3.2.5.3. Some additional evidence for a contrast

Authier (1992) notes three constructions in French where independent evidence suggests that the presence or absence of a syntactically-realized position effects the grammaticality of the sentence. He therefore uses these constuctions as tests for structurally-present arbitrary null objects.

The first of these constructions is control in passive infinitival sentences. Example (55) below is an instance of an arbitrary null object acting as the controller in such a construction. (All examples in this section are from Authier 1992).

(55). a. Une intelligence hors du commun amène **0** souvent à
PRO être mécompris.

b. *An uncommon intelligence often leads **0** PRO to be misunderstood.

The second construction Authier presents is so-called donkey anaphora, where he again shows that a syntactically-realized position is necessary to provide a licit antecedent with the appropriate quantified interpretation. (56) shows that a French arbitrary null object can act as this quantificational phrase.

(56). a. Quand la musique rend **0** triste, on boit un petit coup.

b. *If music makes 0 sad, one must have a little drink.

Finally, Authier notes that the French predicate clitic le can not move past the structural subject of a small clause. He argues, therefore, that the fact that there is no distinction in (un-) grammaticality in (57)b based on whether or not the small clause subject is overt, is additional evidence for a structurally-present arbitrary null object.

(57). a. Souvent son talent laisse les gens/**0** sans voix.

b. *Souvent son talent le laisse les gens/**0** sans voix.

c. Often his talent leaves [people/*__0__ voiceless].

Given the evidence from these tests in French, the difference in productivity between Italian/French and English, and Rizzi's more traditional explanation of the principle A effects in Italian but not English, it seems that the hypothesis that English has a different type of arbitrary null object from that found in Italian and French is still a reasonable one. If English has implicit arbitrary null objects while Italian and French have syntactically-realized arbitrary null objects then we must find an alternative explanation for the additional principle B and principle C evidence offered by Bouchard.[20]

3.2.5.4. Apparent evidence of binding effects in English

In this section, I look at sentences of the type in (58)-(61) (adapted from Bouchard 1987).

(58). John$_i$ always warns **0**$_{*i/j}$ against avalanches in this area.

(59). In this area, it is safe practice PRO$_{arb}$ to warn **0**
against avalanches. (PRO$_{arb}$ $\neq$ 0)

(60). ?Stories like that lead them$_i$ / **0**$_i$ to erroneous conclusions when
people$_{?i/j}$ are not well-informed.

(61). This leads **0**$_i$ to unfounded conclusions about people$_{*i/j}$

Examples (58) and (59) are used by Bouchard to argue that arbitrary null objects in English are as active in the syntax, with regard to principle B effects, as are the null objects in Italian and French. (See Rizzi (1986) for a discussion of how Italian arbitrary null objects are active with respect to principle

[20]I will not discuss here the choice between the pronominal analysis of pro$_{arb}$ suggested by Rizzi and the A/-bound variable described by Authier, as the contrast will not turn out to be crucial for English.

B.) Bouchard posits that principle B prevents **0** from being coindexed with *John* in (58) and forces PRO_{arb} to be disjoint in reference from **0** in (59).

I'd like to offer the following alternative analysis. First, example (58) must be discarded immediately since John is incompatible with the arbitrary feature (perhaps +GENERIC, according to Rizzi) on **0**. However, we must consider this case further if we substitute a lexical item more likely to have arbitrary reference, as in (62) below.

(62). $People_i$ always warn $\mathbf{0}_{*i/j}$ against avalanches in this area.

The same argument could be made by Bouchard that principle B prohibits the coindexing in (62). There are, however, two alternative explanations.

The first is that there is still a feature clash between people and $\mathbf{0}_{arb}$. The second alternative is that implicit arbitrary null objects in English may not have a discourse antecedent. (These explanations are not mutually exclusive.) If the latter alternative is true, than we are also provided with another explanation for why there is no semantic interpretation for (59) such that the (arbitrary) group that warns against avalanches is also the group that receives the warning, i.e., the implicit null object may not coindex with an antecedent PRO simply because it must be a new discourse entity.

There is precedence for such a constraint on implicit objects. As discussed in Cote (1992, 1993) certain English verbs allow (non-arbitrary) implicit objects only if they are not coindexed with an entity already present in the current discourse model. (see also Fillmore 1986) These Indefinite Object Alternation verbs (IOA), which include for example eat, have lexical structures that may include a lexically-instantiated argument lacking index-marking for possible coreference with an existing discourse entity. Though these null objects may happen to refer to the same entity in the world (or psychological model) as does one or more of the previously established discourse entities but this identity is not stated in semantic/discourse structure. Thus, the interpretation of (63) below with an overt obect is not

conceptually incompatible with the interpretation of (62) above, though it does have s different semantic interpretation.

(63). In this area, it is safe practice to warn people, including oneself, against avalanches.

Support for the discourse constraint account of examples like (58) and (59) comes from the fact that there is no increase in the ability to coindex a PRO_{arb} with an arbitrary null object in English when PRO_{arb} is outside of the governing category of the null object. See (64)-(65), for examples.

(64). a. $PRO_{arb\,x}$ Putting up danger signs does warn $\mathbf{0}_{y}$ against avalanches.

b. $PRO_{arb\text{-}i}$ Putting up danger signs does warn $one_{i/j}$ against avalanches.

(65). $People_{i}$ say that John tries to warn $\mathbf{0}_{*i/j}$ against avalanches.

Given this evidence, and assuming a lexical account of implicit arguments (cf. Di Scuillo 1989, Jackendoff 1987, 1990), I argue that (58)-(59) are not cases of principle B effects, but rather are the result of lexically-specified discourse constraints on when the object of verbs of this type may be unexpressed. Specifically, I argue that verbs of this type allow unexpressed arguments in these constructions only when there is no intended discourse antecedent.

However, Bouchard also provides interesting examples like (60) and (61) above to suggest that null objects in English are also active with respect to principle C. Example (60), he argues, shows that an arbitrary null object may be coreferential with *people* if it does not c-command this R-expression. When the null object does c-command the R-expression, as in (61), he argues that this rules out coreference.

As an alternative explanation, I would suggest that, when the semantic/pragmatic factors are strong enough, an arbitrary null object may be a discourse antecedent to an NP like people, which is then given a completely arbitrary interpretation as well. Conversely, when the pragmatics heavily favor disjoint reference then it is difficult to treat the arbitrary null object as people's discourse antecedent. Example

(66) supports this analysis since it is like (60) syntactically but has very different pragmatic effects which make coreferencing much more difficult.

(66). Bad weather leads $\mathbf{0}_i$ to a bad day when people$_{??i/j}$ are pushy.

Of course, this argument is much stronger if there is also evidence that the arbitrary null object can be as easily coreferential with people when it *does* c-command the R-expression as when it does not. I believe that the relative acceptability of (67) , as opposed to the unacceptability of (62), provides just this evidence.

(67). ?Higher wages lead $\mathbf{0}_i$ to greater efforts by people$_{i/j}$.

Example (67) seems to be at least as acceptable as (60), thereby suggesting that principle C is not the relevant principle at work here.

As a final piece of evidence that arbitrary null arguments serve as (discourse) antecedents, (68) is an example of a middle construction where the reputed arbitrary implicit agent (cf. Di Scuillo 1989, Massam 1990) exhibits the same effects as those found with the unexpressed object in (52).

(68). The book reads well ([by] $\mathbf{0}_i$) when people$_{?i/j}$ are already familiar
with the topic.

To explain the residual awkwardness of (60) and (67), I would like to refer back to the hypothesis that people is not truly feature-compatible with an arbitrary null object. If the lexical item people is not +GENERIC but is instead either (i) assigned an interpretation vague enough to be semantically similar to a +GENERIC argument or (ii) not assigned any value for the feature GENERIC and therefore compatible but not exactly the same, then its use as a coreferent to an arbitrary null object would be predicted to result in an inelegant but intelligible sentence.[21]

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[21]Bouchard argues that disjoint reference is seen with arbitrary null objects even with other R-expressions as well but the cases he cites, as shown in (i) and (ii) below (his examples (16) and (17)), do not have generic time reference and, I believe, do not actually contain *arbitrary* null objects.

(i) a. Mary promised 0_i that the doctor$_{*i/j}$ would never see her again ...
b. Mary promised 0_i that he$_{i/j}$ would never see her again...

(ii) a. John warned her$_i$ /them$_{x+i}$ against Mary$_i$ /Mary$_i$'s mother.

3.2.5.5. Conclusions

Because discourse properties can explain the apparent binding effects on AOA objects noted by Bouchard, and because these properties are the only explanation for other, related effects, I rule out both a syntactic explanation and a pragmatic explanation for these null arguments. As with SOA and IOA objects, I propose that they are represented, along with verbal constraints on when they may occur, in the lexical structure of these verbs in English.

As a final note, there is a similar but possibly distinct case which Levin (1989) calls a 'characteristic property of agent' construction. An example of this type is given in (69).[22]

(69). That dog bites. (Levin 1989:9)

I have also considered just including these with arbitrary null object alternations as they seem to have the same arbitrary null object and generic time reference. The only noticeable difference between the sentence in (69) and the other AOA constructions is that the subject is animate. However, the non-animacy of the subject is not crucial in any way to my discussion here and seems, in any event to be a separate issue from the nature of the null argument. The major reason not to do include this construction is that it seems relatively unconstrained lexically, ie., as long as a verb involves an agent, this construction seems possible. One way to look at this is that it is the same lexical operation as that for AOA verbs but that the constraints on the type(s) of verbs it applies to become more relaxed as certain other features become more fixed.

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b. John warned 0_{x+i} against $Mary_i$ /$Mary_i$'s mother.

(i) seems to be a case of salient object alternation (cf. Cote 1992, 1993). In (ii), if a null object is allowed at all with the verb *warn* without generic time reference (i.e. ?? John warned), it is also not arbitrary in reference.

[22]Two notes -- First, Fellbaum and Kegl (1989) suggest that these examples are like habitual object alternations. Second, Levin also describes an alternation which she argues is dependent on the characteristic property of an *instrument*, but this construction differs from the transitive form in other particulars besides the missing object so I do not consider it here.

3.2.6. Grammatical Properties of Reflexive Null Objects in English

Examples of verbs that allow reflexive null objects include dress, wash, shave, and other verbs related to personal grooming (cf. Levin 1989).[23] Fellbaum and Kegl (1989) suggest in a brief footnote discussion that these are true intransitive alternations, with the transitive form being used only for contrastive purposes. Culy (1987) includes them with other null objects as zeros (in this case, zero anaphors). Again, I am aware of no detailed discussions of why one explanation should be chosen over another, so I attempt to provide that here.

3.2.6.1. Arguments against a syntactic analysis

Binding principles are a difficult test here given the co-rereference of the null object with the overt subject, but there are other effects which we can consider instead. Consider the minimal contrasts shown in (70) and (71).

(70). a. Only John dressed.

b. Only John dressed himself.

(71). a. John didn't dress.

b. John didn't dress himself.

In both of the null object versions of these examples, there is a single interpretion. In the first case, this interpretation is that no one else but John performed the act of putting their clothes on. In the second, it is that John did not perform the act of putting his clothes on. In contrast, both of the second sentences are ambiguous between those interpretations and at least two others -- ones which involve

[23]Levin also includes so-called load verbs in this category but it is not entirely clear to me that these differ from causative alternations. In other words, it could be that the object has been promoted to subject position here. Since they are, at a minimum uncertain, I will not include them here for now.

someone else who did or did not put the clothes on John, and ones in which people, including John, may have dressed other people. In other words, the possible scopes of the negative polarity item and the negation marker respectively are affected by the absence of the object. This requires that there be a structural difference between the sentences in each of these pairs. I therefore suggest that a zero pronominal is not a good treatment for these null objects.

3.2.6.2. Arguments against a pragmatic analysis

In contrast, (as with other null objects) the ROA objects do behave like arguments in other ways.

As shown in Huettner, Vaughan and McDonald (1987), inferables can not control purpose or rationale clauses, as in (72) below:

(72). *I went to the bookstore to read on the plane.

Now consider the following rationale clause:

(73). John shaved the dog to be cool in the summer.

Unlike purpose clauses, rational clauses take the *object* of the matrix verb as their antecedent. In this case, it is the dog that is cool, not John. Now consider (74) with a null object.

(74). John shaved to be cool in the summer.

Examples like (74) rule out ROA as a true intransitivity alternation. Because this sentence is acceptable, John must be represented as the recipient of the shave at some level in the grammatical representation.

3.2.6.3. Arguments for a lexical analysis

The evidence given in the previous section, combined with the need to represent the lexical constraints on this alternation, lead us to conclude that like most of the other constructions discussed above, ROA objects are represented in the lexical structure of the ROA verbs.

3.2.7. Grammatical Properties of Habitual Null Objects in English

Unlike the other alternations discussed here, HOA does not appear to be restricted to a particular class of verbs. Examples of HOA constructions are shown below:

(75). Bert pushed and Ernie pulled.

I have found no discussions that explicitly address what grammatical form this construction should take. Resnik (1993) has suggested, more generally, that alternations that are not lexically-conditioned might not be lexically represented. However, other constructions that are no more lexically-constrained than HOA have been argued to be the result of lexical operations (cf. Kroch, Santorini and Heycock (1988) for a discussion of passive as a lexical process.) I therefore will assume here that the same may be true of HOA, and rely on other evidence to determine its grammatical properties.

3.2.7.1. Arguments against a syntactic analysis

As with SOA null objects, habitual null objects can co-refer with an R-expression (a full NP). Since R-expressions must be free (Principle C of the binding principles), there must not be a null pronoun in these sentences. The contrast between SOA null objects and overt objects is illustrated in examples (76) and (77).

(76). Bert pushed **0** and Ernie **0** pulled to get the door open.

(77). *Bert pushed it$_i$ and Ernie pulled it$_i$ to close the door$_i$.

We can therefore rule out a syntactic representation once again.

3.2.7.2. Arguments against a pragmatic analysis

HOA null objects are also like their lexically-constrained SOA counterparts in that they must refer to something salient in the discourse context. To illustrate this point, notice the infelicity of the HOA utterance in the context below.

(78). A: I wonder what Bert and Ernie are up to now?

B: Oh, there in the other room. #Bert's pushing and Ernie's pulling.

The null object in these HOA constructions is, like an overt argument, also available for subsequent reference in the discourse, as shown in (79).

(79). a. There were lots of dirty dishes$_i$.

b. Bert washed and Ernie dried.

c. After what seemed like forever, they$_i$ were finally all cleaned and stacked properly.

We can therefore rule out a strictly pragmatic explanation as well.

3.2.7.3. Arguments for a lexical analysis

Once again, we are left with a lexical representation of these null objects as the only alternative. Nevertheless, as noted by Resnik (and by Fellbaum and Kegl in their discussion of lexically-conditioned

vs. non-lexically-conditioned object omissions), these implicit objects appear to be qualitatively different from the others discussed here.

The lexical representation for this construction seems to be more like an abstract lexical template which may be placed over a verb than a feature associated directly with a particular verb. On the other hand, if we can ultimately characterize the features of the verbs that allow each of the other types of alternations then they may be thought of as the same type of lexical process as HOA (but with fewer verbs that fit the required features.)

3.2.8. Implementation of the Lexical Analysis

In this section, I suggest that the type of lexical formalism used in the theory of Lexical Conceptual Structure (LCS) described by Jackendoff (1987, 1990) is sufficiently robust and has the correct features to handle the lexical representations I have just discussed.

A lexical conceptual structure consists of the following (compiled from Jackendoff (1990)):

(i). a set of "semantic parts of speech" or conceptual constituents
(like THING, EVENT, and PATH)

(ii). elaborations of each of these constituents into a function-argument schema
(eg. ENTITY --> Event/Thing/Place
Token/type
F(<$Entity_1$, <$Entity_2$, <$Entity_3$>>>)) (Jackendoff 1990:24)

(iii). more detailed or specific elaborations within the first
(eg., [PLACE] --> [$_{place}$ PLACE-FUNCTION ([THING])])
(Jackendoff 1990:43)

More complex conceptual structures are formed by processes for joining these structures, eg. Argument Fusion (discussed in more detail in Chapter 6 of this thesis.)

Certainly there exist other well-detailed lexical theories. For instance, Hale and Keyser (1989) propose a 'Lexical Relational Structure' (LRS) with some of the same properties, designed to be a 'syntax' for the lexicon. Much of what I wish to do could be done in this framework as well but it is limited by the fact that Hale and Keyser chose to use the same types of primitive elements available for building the syntax of sentences, and hence, for instance, can not refer directly to events. A lexical representation consisting of thematic structure would have this same problem and also require a choice between some of the conflicting options about theta roles. Finally, a lexical representation consisting of a subcategorization frame can not readily distinguish between true transitivity alternations and implicit/explicit object alternations. For these reasons, I chose to work in Jackendoff's framework.

3.2.9. Using lexical conceptual structures

LCSs, essentially like those described in Jackendoff (1987, 1990) offer a good framework for representing the grammatical analysis of null objects in English. LCSs for the SOA verb enter and the IOA verb eat are given below.

(80). LCS for enter (Jackendoff 1990:46):

$[_{\text{Event}}$ GO $([_{\text{Thing}}]_i, [_{\text{Path}}$ TO $([_{\text{Place}}$ IN $([_{\text{Thing}}]_j)])])]$

(81). LCS for eat (Jackendoff 1990:253, slightly modified):

$[$CAUSE $([_{\text{Thing}}]_i^{\alpha}, [_{\text{Event}}$ GO $([_{\text{Thing}}]_{<j>}, [_{\text{Path}}$TO $([_{\text{Place}}$ IN $([_{\text{Thing}}$ MOUTH-OF $([\alpha])])])])])])]$[24]

[24]It is debatable whether the 'eat' event is really a special case of GO. Dorr (1990) treats eating as a primitive. The distinction is not, however, important for the purposes of this paper.

Notice that Jackendoff chooses to mark that the object of eat is (syntactically) optional by putting the subscript for that argument in angle brackets.[25] Possibly, he meant to do the same for enter since he is aware of the parallel. However, Jackendoff does not discuss the need for a different type of null object for the two verbs.

I propose a revised LCS for the two verbs in (82) and (83) below. A subscript on the **0** indicates that the conceptual structure for that argument must have an antecedent in the discourse. No subscript indicates that it must not have an antecedent. Note that a subscript is numbered to leave open the possibility that there will be more than one salient, non-expressed entity associated with a verb (or perhaps with another lexical conceptual structure with which it combines in an utterance.)

(82). LCS for enter when the object has been lexically affected

$[_{\text{Event}}\ \text{GO}\ ([_{\text{Thing}}\ ]_i, [_{\text{Path}}\ \text{TO}\ ([_{\text{Place}}\ \text{IN}\ ([_{\text{Thing}}\ \mathbf{0}_1])])])]$

(83). LCS for eat when the object has been lexically affected:

$[\text{CAUSE}\ ([_{\text{Thing}}\ ]_i^{\alpha}, [_{\text{Event}}\ \text{GO}\ ([_{\text{Thing}}\mathbf{0}\ ],\ [_{\text{Path}}\text{TO}\ ([_{\text{Place}}\ \text{IN}\ ([_{\text{Thing}}\ \text{MOUTH-OF}\ ([\alpha])])])])])])]$

3.3. DISCOURSE PROPERTIES OF NULL OBJECTS

3.3.1. A general issue

First, I would like to dismiss the possibility that a null object will refer to the most stereotypic type of entity that can be an object of that verb. It seems to me that we can rather easily eliminate the possibility that this analysis applies to all verbs that take null objects. We need only note, for instance,

[25]Jackendoff uses the subscripts to match up with syntactic structure in one version of his theory. However, he does without this feature in other versions. There is not necessarily a one-to-one relationship between conceptual structures and syntactic structures.

that for verbs that take null objects only when there is a salient antecedent (i.e. SOA verbs) the entity can be something very non-stereotypic. For example:

(84). A glowing opening appeared in the spaceship and Janet entered quickly.

(85). The widgets convention was boring so Bob left.

(86). The trained gorilla was feeling depressed so her trainer phoned to cheer her up.

Obviously, in the examples above neither spaceships nor widgets conventions are stereotypic places to enter or leave respectively, nor are trained gorillas the stereotypic recipients of phone calls.[26] Now we can turn to the more interesting hypothesis that some types of null object verbs intend the stereotypic entity to be the referent of the null object (cf. Fellbaum and Kegl 1989). The evidence used to argue this case comes from examples like the following:

(87). Peggy didn't want any lasagna because she already ate.

(88). Jim baked today.

(89). You wash and I'll dry.

(90). Now is a good time to sell.

For examples like (87), the argument is that the object of ate must be a meal, the apparently stereotypic 'eating' object. However, I would argue that there are many cases where eat with a null object does not refer to a meal. For instance:

(91). Ken's been eating all night.

In this case, the most likely contexts do not lead to an interpretation in which Ken has been having a meal or numerous meals all night, i.e., it is not equivalent to either of the sentences in (92) below.[27]

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[26]This does not necessarily preclude the truth of the argument that the verbs which allow null objects, including SOA, somehow tend to restrict their objects more heavily than those which do not (cf. Rice 1988, Resnik 1993). Note though that this been argued to be a statistical tendency, not an absolute constraint on each verb.

[27]The one context that comes to mind for the first of these interpretations is a state of affairs in which Ken is a either a very slow or a very voracious eater and someone observes "Everyone else has been done for hours but it seems like *Ken's been eating all night* and he's still not finished."

(92). a. Ken's been eating a meal/his dinner all night.

b. Ken's been eating meals all night.

A response to this example might be to suggest that there is more than one stereotypic entity but only one that applies to any particular tense/aspect variation. There are two problems with this response.

First, the best paraphrase of (91) with an overt object seems to be achieved with a substitution, as in (93) below, of an underspecified word like stuff (Fillmore (1986) suggests this interpretation as one of two subtypes), which is more of a representation of the entire class of edible things than a stereotypic example from that class.

(93). Ken's been eating stuff all night.

The second problem is that there are counterexamples to the preference for a stereotypic interpretation even within one tense, as shown for the past tense in (94).

(94). The cookies were finally ready and Mary ate to her heart's content.

The most likely (though not necessary) point of this utterance is that Mary ate the newly finished cookies.[28] One might suggest that only sentential aspect plays a role rather than verb tense but that still would not explain the non-stereotypic usages in (91) and (94), nor would it be an effective argument for restrictions coming from the verb rather than for the influences of the semantic/discourse context.

I suggest that a better explanation of the restrictions on these null objects is that they have to be consistent with the underlying context and intentional structure of the discourse structure at the time of utterance. So, in example (87) it makes the most sense to explain Peggy's lack of interest in lasagna if she has already had a meal-sized amount of food. This choice of reference is preferred in the same way that it is strongly preferred that this meal-eating took place recently (more specifically, the time frame should make it reasonable to believe that Peggy is not hungry). In other words, with other interpretations,

[28]One alternative entails that Mary could not eat until she finished what she was doing -- i.e., making cookies.

the utterance would fail the Gricean maxim of relevance, there being no reason to inform the hearer that Peggy has eaten if it does not relate to her not wanting lasagna.

Notice that the expectation of 'relevance' also helps us to interpret IOA objects in negative sentences, like (95) below.

(95). I can't eat **0**; I'm too upset.

In negative contexts like this, none of the stereotypes proposed is appropriate. Under the assumption of relevance, the null object refers to whatever the hearer might suppose that the speaker could eat.

Consider another example of an IOA verb without an overt object, as in (88) above. It has been argued (Fillmore 1986) that the null object of bake must be a stereotypic baked good, ie., it can not refer to baked fish, for example. Of course, this is a pretty broad stereotype to begin with, allowing for variations that include most of the things that are bakable, still it does seem to specify a particular class with some exclusions over the more general set, and we need to explain this.

Basically, I think that this stereotype includes those things that *must* be cooked via the baking method, not those that *might* be cooked via the baking process. This seems to a viable application of the maxim of quantity, i.e., if the null object of bake were not something I would automatically put in the class of 'things that are baked' then a more general verb such as cook or heat would have been used (or more information would have been supplied about the object.) Therefore, in the absence of a highly specialized context, I assume it is something that is normally baked. The argument must be expanded a bit to explain why example (88) is also less likely to be felicitous if, say, Joe spent the day baking pretzels. Again, I think this is because, for most of us, pretzel-making is a marked, uncommon, event. If we were placed in a situation/society where people often baked pretzels than I believe this utterance would not be at all inappropriate, i.e, it's not that there is some stereotypic entity that we assume Joe to be baking but that there are some unusual entities which would not be likely to come to a hearer's mind as examples of objects of baking. By using the verb bake and not using the object the speaker is implying that the object refers to 'something that you, the hearer, would not think is abnormal for Joe to be baking in this

context,'. This is a looser constraint than required reference to a particular stereotype, and its source is a combination of discourse context and shared (default) assumptions about the world rather than lexical specification.[29]

Finally, let's turn to the most difficult case, those cases of so-called 'habitual' object drop. It has been argued that in an example like (89) above, with verbs that do not otherwise take null objects, the object can be null if it refers to some specific, stereotypic entity, in this case dishes. Other uses of this construction, as in (96) below, are said to be somewhat humourous because they imply some analogy to dishwashing.

(96). The baby needs a bath -- you wash and I'll dry.

Again, I don't think that is what is actually happening here. First, consider the context where A and B have been painting all afternoon and have accumulated a pile of dirty brushes which now need to be properly cared for. I don't sense any awkwardness or humor in A uttering (89) to B in this context. Or consider the context where A and B work at a roller rink with a large collection of rollerskates that become scuffed and smelly each day. It seems quite natural for A to say to B:

(97). You polish and I'll spray.

Obviously, rollerskates are not what most of us think of polishing and spraying in quantity or on a regular basis. In A and B's context however, the relevant object is situationally-apparent and the utterance is fine. This still leaves the issue of why (96) above seems humourous, but I will defer that explanation to the section specifically on HOA.

In summary, it looks as though apparent stereotype constraints on null objects are really just contextual constraints combined with conversational maxims. Additional constraints may apply to specific types of null object constructions.

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[29]Rice (1988) also talks about defaults, but in her case, she is referring to something specifically tied to the semantics of the lexical item. In effect, her analysis seems closer to the stereotype analysis just discussed than to what I am proposing.

3.3.2 SOA Properties

Below are a couple of naturally-occurring examples of SOA null objects in context:

(98). [Philadelphia Inquirer- discussion of politically correct fairytales][30]

Forced to stay home and do housework, Cinderella is sad, but contents herself with her Holly Near records. Then, thanks to her "fairy godperson", she makes it to **the ball**, and when she enters **0**, every head turns.

(99) [from the brown corpus]

She stopped at the Surcliffes'$_i$ after dusk , and had a Scotch-and-soda .
She stayed too late , and when she left **0**$_i$, it was dark and time to go home and cook supper for her husband.

(100). [from a talk show discussion about women who still look to their mothers for approval]

But that's why it's turned around when the daughter feels --
the daughter keeps **calling** because from the day
the mother reached out and brushed that hair when she was three years old -- the daughter is saying, "at least now, I'm 32 now, I've got this great lover, now she'll say everything is wonderful.

SOA Verbs like call constrain the null object to refer to a highly salient entity. For instance, in example (99), the unexpressed object of left must be the Surcliffes (or the place where they were located). Perhaps more importantly, this verb could not have been used without such a context, as shown in example (101) below.

[30]Thanks to Umit Turan for this example.

(101). [artifical example]

a: What did you do on vacation?

b: # I left.

To see how this contrasts with IOA null objects, compare examples (102) and (103) below.

(102). a. Have you been in touch with John?

b. #No, I called, but not John... I spoke to Mary.

(103). a. Did you know there's some lasagna in the fridge?

b. No, I ate, but not the lasagna... I ordered a pizza.

In this respect, SOA verbs contrast equally with IOA verbs and 'true' intransitive verbs (as shown by the minimal contrast in (104)):

(104). a. What did you do today?

b. I slept.

b' I ate.

c. #I called.

I argue that the use of a null object with call is possible only if it refers to a highly salient entity in the discourse. Examples (105) - (108) demonstrate that, not only is there a saliency requirement, but there may be a strong preference for the antecedent to be a particular salient discourse entity. In this respect, SOA null objects are like the null objects in pro-drop and discourse-oriented or topic prominent languages.

Example (105)b shows a preference for the subject of the previous utterance to be the antecedent. Example (106), a more list-like discourse environment, exhibits a preference for the null object to have the same referent as the object of the previous utterance. Examples (107) - (108) seems to show that preference is based on the immediately preceding sentence.

(105). a. John missed school because of the flu.

b. He didn't see Tom but Bill called. (preference 0=**John**)

c. He wasn't upset. (?preference **he=Bill**)

(106). a. Martha wrote to Jane.

b. Ronda sent her email.

c. Bill called. (preference 0=**Jane**)

(107). a. Gary won't come to tomorrow's party ...

b. Jack criticized his work.

c. Susan called to ask what happened. (preference 0=**Gary**)

(108). a. Gary won't come to tomorrow's party.

b. Jack criticized his work and he won't apologize.

c. Susan called to ask what happened. (preference 0=**Jack**)

There is some evidence that these verbs form a homogeneous lexical class. All SOA verbs describe actions which do not affect their objects (i.e., are *non-affective*). Like the IOA verbs, there is some evidence that SOA is productive for new lexical items:

(109). a. Did anyone tell Henry about this meeting?

b. ?Well, I faxed but I never got a response.

b' #Well, I faxed but not Henry.

A number of factors may influence the acceptability of a particular discourse entity as an antecedent to a SOA null object. An entity which was just introduced into the discourse by an indefinite NP is a fairly unacceptable antecedent, as shown in the contrast between (110) and (111).

(110). a. Did you speak to a customer service office?

b. #I called but got no answer.

b' I called one but got no answer.

(111). a. Did you speak to the customer service office?

b. I called but got no answer.

An entity introduced as an inferable (cf. Prince 1981) makes a somewhat better antecedent.

(112). a. Did you speak to a customer service representative?

b. ?I called but got no answer. (null object = some office/number)

Now let's look at a specific sentence in detail to determine how best to explain the relevant factors. What are all the possible interpretations of example (113) in different discourse environments?

(113). John visited yesterday.

First, we notice that this sentence may mean that John visited the speaker (me) yesterday, regardless of whether it occurs discourse-initially or discourse-internally, and regardless of who/what (within the bounds of relevance) the previous sentence is about.

(114). a. John visited yesterday.

b. I was shocked.

(115). a. I've haven't seen many people since I moved to the suburbs.

b. John visited yesterday (but he was the first in a long time).

(116). a. It can't be true that the Smiths are all recluses.

b. John visited yesterday.

Of course, for reasons unrelated to the null object, when John is replaced by he (at least when unstressed), the sentence must occur discourse internally:

(117). a. It can't be true that John is a recluse.

b. He visited yesterday.

Next, the sentence may mean that John visited the hearer (you) yesterday, but only discourse internally and only if the previous sentence was about the hearer.

(118). a. Don't tell me you never see anybody.

b. John visited yesterday.

(119). a. It can't be true that the Smiths are all recluses.

b. John visited #(you) yesterday

Finally, the sentence may mean that John visited some third party (him/her) yesterday, but again, only with certain, discourse-internal restrictions.

(120). a. I ran into John's mother at the supermarket today.

b. She seemed to be in a good mood.

c. (I guess) John visited yesterday.

The best characterization of the facts above is that the antecedent of an SOA null object tends to be the entity which was what the previous utterance was about in some sense, i.e., the entity it most centrally concerned, or the one entity that is equally salient situationally, namely the speaker.[31] [32]

It should be noted that the speaker is acceptable as the null object in almost ALL these interpretations. This raises the interesting question of whether some or all of the verbs in this class have an EMPATHY orientation. This phenomenon is documented in other languages. In particular, Japanese has overt empathy markers. However, it has not yet been shown to exist for English. Notice that when (119)b is changed to be reported speech, then a null object can be used:

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[31]There are strong parallels between the SOA class and certain verbs that take a null PP-object, such as arrive go and come. Both require that the most salient LOCATION be the referent of the null object. Discourse initially, that means the speaker's location.

[32]The distinction is a bit more blurred with deictics since they can always re-establish salience situationally: Note: This is all assuming unstressed pronouns. Stress can add all kinds of different implications to a discourse that won't/can't be discussed here.

(i). a. John visited me yesterday.
b. ?He bought a new car.
b' I was shocked.

(ii). a. I hear John visited yesterday.
b. Did he buy a new car?
b'. Were you shocked?

(iii) a. I hear John visited you yesterday.
b. ?Did he buy a new car?
b'. Were you shocked.

(121). a. It can't be true that the Smiths are all recluses.

b. You said that John visited yesterday.

This effect arises from reported speech and not from the fact that the hearer is already overtly represented in the sentence. This is demonstrated by the unacceptability of the discourse with hearer as the null object when a non-reporting verb is used:

(122). a. It can't be the case that all the Smiths are recluses.

b. You know that John visited *(you) yesterday.

Saliency effects can also be observed in subsequent discourse. In general, if a null object is used, the subsequent discourse will not sound as natural if it is about that entity. On the other hand, if an overt object is used, the subsequent discourse may easily continue to centrally concern that entity.

(123). a. Ken bought a new rowing machine.

b. John visited yesterday.

c. He looked happy. (preference **he** = JOHN)

(124). a. I ran into John's mother at the supermarket today.

b. She seemed to be in a good mood.

c. John visited yesterday.

d. ??Susan also sent her some flowers.

(125). a. I ran into John's mother at the supermarket today.

b. She seemed to be in a good mood.

c. John visited her yesterday.

d. Susan also sent her some flowers.

To review SOA verbs appear to have the following properties:

(i) use null objects only when there is a highly salient antecedent available;

(ii) prefer to co-refer with the most salient, plausible antecedent; and

(iii) tend to be used when the discourse entity being referred to is not going to be the central concern of subsequent utterances.

3.3.3. IOA Properties

As the name implies, a null object with this type of verb can not have a salient discourse entity as its antecedent.[33] This is illustrated by the contrast in (126) below.

(126). a. Did Cheetah eat all the bananas?

b. Yes, She ate *(them).

Also, unlike strict intransitives, when IOA verbs like eat are used, there is a new discourse entity (an "eatee") which is made salient enough to be referred to with a pronoun in a subsequent utterance. (127) is a simple example of an (128) is a naturally-occurring token.

(127). a. Wanna go out for dinner?

b. Sorry, I just ate an hour ago and *it* was very filling.

(128). [Hopper (1992:149)]

A: We **ate** at-at Jorges

B: Was it goo:d?

A: Um:: it was all ri:ght

pt -hhhh you know, I don't think that's as good as a lot of people think it i:s

[33]This simply means that the discourse model can not predict that the two are associated. The null object can still, in fact, be identical with something already in the discourse. eg., "What happened to all the bananas? Well, Cheetah ate (lunch) heartily today."

Although some native speakers find that (127)b would sound a bit more natural if the speaker had provided an overt object for eat, such as lunch, the contrast between (127)b and the strict intransitive case in (129)b is clear.

(129). a. Did you get hurt today?

b. #No, I jumped but *it* was very soft. (with it = a soft surface)

In total, the null objects of IOA verbs share three discourse properties. First is the property we just demonstrated, that the null object introduces a new entity into the discourse context.

Second, as mentioned previously, the object cannot be null with a salient antecedent (below is an example with a different IOA verb):

(130). a. Did the architect draw the final plans for the new lab yet?

b. #Yes, he drew.

Third any apparent, logical equivalence between the null object and a salient antecedent may be canceled:

(131). a. Did Joey clean his room today?

b. He cleaned, but not his room. He worked on the basement.

(132). a. What did Hannah do today.

b. She dusted.

An interesting question to ask about IOA is: Is this a homogeneous class of verbs or just an idiosyncratic, heterogeneous set? It seems to me that, although the question is still open, there are two arguments in favor of the homogeneous class answer. First, it seems that all the verbs which display IOA are generally classified as *process-oriented/non-completive* (but it has yet to be shown that all verbs that meet this requirement can have null objects.)

There is also some suggestion that IOA is productive, i.e. some newly coined verbs display this property. For example, the verb code, with it's relatively new meaning in computer programming, seems to be an IOA verb.[34]

(133). I coded today but not the GIS project.

(134). a. I coded today.

b. *It* took forever to debug.

The extent to which this alternation is a productive lexical process I consider to be an open quesstion.

To review, IOA verbs clearly appear to have the following three properties:

(i) The object cannot be null with a salient antecedent;

(ii) any apparent, logical equivalence between the null object and a salient antecedent may be canceled; and

(iii) the null object introduces a new entity into the discourse context.

3.3.4. AOA Properties

There is not a lot more to say about the discourse interpretation of these null objects beyond what was already expressed to propose a lexical representation of them. However, to demonstate a certain parallelism it is worth reiterating that despite the arbitrariness of the null object in an AOA construction, it does represent a discourse entity.

Arbitrary null objects are most similar to indefinite null objects. Both types must not have an intended discourse antecedent. Indefinite null objects can perhaps serve as antecedents for subsequent discourse reference more readily than arbitrary null objects, but this may simply be due to the +GENERIC feature itself and to the imperfect match with the R-expression people. The major differences between

[34]I present these arguments for the sake of discussion, recognizing that lexical properties like *non-completive* are hard to pin down.

the two types then are simply that there are different features on the null object and that the arbitrary null object requires a generic time reference (which may also follow from the features.)

3.3.5. ROA Properties

Though I have shown evidence that ROA null objects are lexically-represented, they do not seem to have the specialized discourse properties associated with the other lexically-constrained alternations.

This lack is actually expected because the discourse entity represented by the null object is also represented elsewhere in the sentence as well, i.e., by the NP in subject position. As will be discussed in Chapter 5, the subject has special status in English discourse, and the discourse entity under consideration here would receive that status.

On the other hand, the use of the overt object has clear semantic consequences as discussed above, and has been argued to indicate a contrastive situation (Fellbaum and Kegl 1989.) This contrastive effect appears to me however to vary with the particular verbs in the ROA class. For example, in (135), the first sentence, with the verb shower is contrastive (or at least highly marked), while the otherwise similar sentence with the verb washed seems much less contrastive.

(135). a. Jack showered himself in very hot water.

b. Jack washed himself with very hot water.

3.3.6. HOA Properties

Earlier in this chapter I said that I would attempt to explain the humor of example (96), repeated here as (136).

(136). The baby needs a bath -- you wash and I'll dry.

Well, to do that we need to consider what feature(s) hold true for the other HOA contexts but not for this example. It seems that all the other examples have at least three possibly relevant shared features:

(i) they involve a repetitive/iterative version of the action,

(ii) they involve inanimate objects, and

(ii) they contrast two different actions.

(136) has only the third feature. Therefore, the source of the humor could be that washing the baby is an action that has come to seem reminiscent of an assembly-line-like, repetitive task (e.g., "seems like we're always doing this -- you wash and I'll dry") and/or, for the purposes of efficient bathing the speaker is jokingly suggesting that the baby be treated as an inanimate object. Once again, it does not seem to me that the speaker must specifically be implying that washing the baby is analogous to doing dishes, these verbs can refer to other objects even in non-humorous contexts.

Example (90) above, repeated here for convenience as (137), could also, in the abstract, refer to the selling of a number of different things, (eg., houses, stocks and bonds, antiques, cars, coins, various collectibles, etc...) though, in actual usage, the thing being sold must be relevant to the context.

(137). Now is a good time to sell.

In addition to contextual constraints however, the objects seem to be limited to those things that may be (or perhaps even more specifically are commonly *thought* to be) both buy-able and sell-able by the same agent. This may suggest that the third feature mentioned above (i.e., contrast) is a requirement in interpretation though it clearly does not necessarily need to be overtly expressed. This requirement would also perhaps explain the oddity of examples like (138).

(138). #??Now is a good time to spill.

This example is clearly strange, but its acceptability could perhaps be improved if we created a context where the recipients of this advice are normally advised to hold on to their drinks but are now told to do the opposite, i.e, spill, for some reason (perhaps because the effect will be beneficial in some way -- embarrassing an annoying person, putting out a fire, etc ...).

In sum then the 'habitual' object deletions require salient antecedents but also seem to have the following extra constraints:

(i) single agent repetitive or multiple agent iterative actions,

(ii) inanimacy (or at least non -humanness) of the object, and

(iii) contrast.

These constraints might also explain some other subcases not yet discussed, as in the template "[agent] X's for a living." and constructions like (139) below with a pair of verbs but just one null object.

(139). [from Trenton newspaper]

Residents of those neighborhoods are quick to call police when they see the streetwalkers, and the police are eager to arrest them, even knowing that the women will sell themselves again and the men will buy **0**.

3.4. RELATED PHENOMENA

Below is a brief discussion of some other constructions that may have some relation to the null objects discussed above.

3.4.1. Indirect Objects

As I mentioned at the beginning of this chapter, the analysis of null indirect objects in English may parallel that of null objects. (Fillmore (1986) for instance treats them as the same phenomenon.) Below are just a couple of the issues that could help determine if this parallelism does in fact hold.

The issue of verb-particle constructions may well be related but is a rather large study itself. The pair of sentences below illustrates how some apparent PP complements can be coordinated, and others can not.

(140). a. Martha opened the safe and put the money in.

b. Suzy saw a large blanket and she hid the ball under.

This is just one of the many types of variation that can be found with these constructions. Some other examples include how easily they topicalize and whether the preposition can move next to the verb.

Some even odder contrasts occur with non-locative prepositions, as shown in (141).

(141) a. I prefer to do the cleaning with your help but I can manage without.

b. ??I prefer to do the cleaning with you but I can manage without.

c. Tony made one pizza without anchovies and one with.

d. *Anchovies are terrible but Tony insists on making his pizzas with.

The contrast between the first two sentences appears to be related to the concreteness of the indirect objects, but the third sentence shows that [-concrete] is not a necessary feature and the fourth shows that it can not be the only relevant feature. Examining the use of these prepositions in naturally-occurring data could resolve some of these issue.

The one point I do wish to make here is that lexical frameworks like LCS can handle implicit indirect objects, and a change of approach would therefore not be needed if this turns out to be the appropriate analysis.

3.4.2. Tag Sentences

The issue with tag sentences of the type shown in (142) is whether the tag is an independent sentence with its own (implicit) argument, or whether it is a dislocated version of (143).

(142). John's a nice guy, I guess.

(143). I guess John's a nice guy.

One interesting and possible relevant piece of evidence is that there may be an ambiguity in (143) that is not present in (142). In the first utterance, the speaker is forcing a reading in which I guess is indicating uncertainty; in the second, the verb guess could be referring to the action of choosing an option. We could also potentially analyse this distinction as a strengthened scalar implicature associated only with (142), and marked by syntactic movement.

Other tests are still needed to really resolve this issue.

3.4.3. Middles and Tough Constructions

I discuss these constructions a bit in the chapter on variation because it has been argued (cf. Massam 1989) that they are related to null objects in recipe contexts. The analysis, however, involves a special syntactic structure for instructional imperatives rather than a null object analysis of the middle or tough construction.

An alternative analysis, with the agent of the action represented implicitly in lexical structure, would make predictions about some of the discourse effects of this construction. In particular, the implicit argument should in this construction should be more likely to share discourse traits with the types of null objects described in this chapter. A study of discourse constraints on null arguments in middle constructions could give additional insight into which is the correct analysis.

3.4.4. Null Noun Complements

Farrell (1992) argues that nouns that are derived from transitive verbs (and take an -er ending)[35] may have null nominal complements that are syntactically present *pro*. The structure of these constructions would be like the following representation of the owner:

(144). [NP the [N owner] [NP pro]]

Farrell's argument is based on weak crossover and relative clause facts, as well as sentences like the following:

(145). My owner of this house$_i$ would be a rich young man whereas your owner e$_i$ would be a little old lady.

This last argument in particular seems to be related to the question of when a possessive can be a pronoun, eg. as in the sentence in (146) below.

(146). My owner of this house$_i$ would be a rich young man whereas yours would be a little old lady.

Further examination of this issue and the other evidence presented by Farrell is a subject for future research.

[35]He suggests however that this latter constraint may not turn out to be necessary.